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Barriers to Employee Education and Training
in Small Manufacturing Business :
Implications for the Community College

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Michael Sava

has been accepted towards fulfillment
of the requirements for

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Continuing Education

Major professor

Dr. Cas Heilman

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**BARRIERS
TO EMPLOYEE EDUCATION AND TRAINING
IN SMALL MANUFACTURING BUSINESS :
IMPLICATIONS
FOR THE COMMUNITY COLLEGE**

by

Michael Sava

A DISSERTATION

**Submitted to Michigan State University
in partial fulfillment of the
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ABSTRACT

BARRIERS TO EMPLOYEE EDUCATION AND TRAINING IN SMALL MANUFACTURING BUSINESS : IMPLICATIONS FOR THE COMMUNITY COLLEGE

By

Michael Sava

There has been little written to explain why relatively few employees of small manufacturing businesses avail themselves of opportunities to receive the benefits of career-enhancing adult education and training. Most of the related literature cites cases and conditions related to large business, companies that employ human resources development or training professionals.

The purpose of this research is to identify the level of understanding by employers and employees of the knowledge and skills required by small business. There is little apparent understanding of the level of commitment to education and training to develop those skills, and the myriad of conditions and practices which act as barriers to employee education and training. Managers and employees share the belief about the need for education and training for employees of small manufacturing business. Employees are however highly skeptical about management's commitment to

such training. Many managers see training as essentially on-the-job. Employees believe in an additional college training component. Both groups believe the barriers can be surmounted.

The analysis examines the implications of the research for the community college. The extent of employee participation in college courses is far greater than understood by small business managers. Of course, the colleges themselves have a critical role to play in providing education and training solutions. They must overcome a number of internal systemic structural barriers, such as : trainee admission criteria; prior learning and work experience assessment and applicability; relevance of skills taught; narrowly-focused as opposed to multi-skill training; inflexibility of delivery mechanisms; and lack of multi-skilled, current industrial trainers.

Colleges should adapt principles of adult learning theory to a practical market-oriented approach to course offerings and instructor professional development.

ACKNOWLEDGEMENTS

It is with the deepest appreciation that I thank Dr. Cas Heilman who agreed to become my major professor and advisor. I thank him for his teachings and for the learning opportunities he made possible. His guidance, support, encouragement, patience and sense of humor saw me through some trying times.

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CHAPTER I

INTRODUCTION

BACKGROUND OF THE PROBLEM

Several recent and concurrent trends put North American economic and social well-being in serious jeopardy. Future economic and social security depends on the performance of the its industrial manufacturing sector.

Threatening trends include : the shift of competition for manufacturing goods to the global level; the growing and significant trade deficit of the United States and Canada contrasted with concurrent dramatic growth of the economies of Japan and Germany; the uncertain potential effects of the North American Free Trade Agreement and the other emerging regional trading blocks; and the General Agreement on Trade and Tariffs. These have all combined to shrink North American manufacturing's share of the international gross national product. They have also resulted in a permanent loss of millions of jobs (Warmbrod, 1983). More specifically, this phenomenon has accelerated since 1979, with 1987 data showing manufacturing's share of total labor income at only 18% (TechEcon 1990). The corresponding figure

for the Great Lakes' region is 29%, down 10% in the last 25 years, a decrease paralleled by the decrease of the contribution of the manufacturing sector to the gross national product (Jonas, 1986).

Manufacturing generates both direct and indirect employment. A majority of these indirect jobs are in the service sector (Jablonowski, 1987). For each reported actual manufacturing job, three to four jobs are indirectly generated by manufacturing activities.

Throughout the eighties, indices of manufacturing indicate that North American manufacturing has declined and now performs poorly by every measure. Unless quickly reversed, this trend will affect the economic standards of every American and Canadian.

The deterioration of manufacturing competitiveness on a global basis has originated a number of studies and reports. Their consensus is that productivity, quality, price and timely delivery are all related to the education and training of the workforce. H. L. Gates (1992) quoted Gary Becker's definition of the notion of human capital : "education is an investment like any other capital investment, only more profitable".

Manufacturing workers, at all levels, must adapt to a permanently changing environment. Historically, such adaptation has been facilitated through vocational-technical education. The infrastructure of vocational deliverers has historically played a vital role in meeting the changing educational and economic needs of American workers (Clayton, 1982). This role is about to become crucial in restoring competitiveness to North American manufacturing. Technical education programs in the field of manufacturing (Emhousen, 1987) can and should play a vital part in restoring competitiveness to North American manufacturing. A nation's most important competitive assets are the skills and the cumulatively applied learning of its workforce (Reich, 1990). Blache (1988) suggests that from conception through implementation, manufacturing technology is an intense human endeavor. Cross (1991) recommends that manufacturing education and training must change if the U.S. is to become globally competitive.

Canada, and Ontario specifically, has not articulated a general industrial strategy. Thus, there are no clear policies for industrial development, or for industrial training. At the political and government administration levels, there is little evident awareness of the urgent need to improve Canada's competitive position. Canada faces major foreign-country advances in productivity, quality, variety

and speed of new product introduction unleashed by the world's best companies (Commission on the skills of the American Workforce, 1990). Some attempts have been made to identify weaknesses in high-growth and emerging industries, and to emphasize the need for immediate and sustained major investment in both capital and workforce skills (Ontario Premier's Council, 1990).

CHARACTERISTICS OF SMALL BUSINESS

In Canada, business employment in all categories is reflected by the following data (Statistics Canada, 1991, Market Research Handbook, catalog 63-224) :

Table 1.1

Number of businesses in Canada

Company Size (empl.)	Number of compa- nies	% of all compa- nies	Average no. of employees (approx.)	% of all emplo- yees
1 - 4	687,760	75.9	1,719,400	16.4
5 - 19	158,786	17.5	1,905,432	18.1
20 - 49	36,819	4.1	1,270,555	12.1
50 - 99	12,260	1.3	913,370	8.7
Subtotal	895,625	98.8	5,808,757	55.3
100 - 499	8,927	1	2,673,636	25.5
500+	2,132	0.2	2,017,607*	19.2
Total	906,684	100.0	10,500,000	100.0

* The values in the fourth column were calculated by multiplying the number of companies (column two) by the average number of employees in each category (from col. one). To obtain the value for companies in the 500+ category, the sum of the previous values was subtracted from 10,500,000 (total employment in Canada). It can be seen from the table that businesses under 99 employees represent 98.8% of all companies and 55.3% of all employees.

Over the last two decades, the number of people employed full time by "big business" FORTUNE 500 companies has shrunk from 19% of the work force to less than 10% today (J. Castro, April 1993). Since the eighties, the vast majority of new employment has been created by small business. The majority of existing jobs, and more important in to-day's recessionary economy, the majority of new jobs, are provided by small business.

"Small businesses have created virtually all of the new jobs in our country in the last 10 years. Their inability to create more jobs than larger employers have been shedding is the central cause of stagnant employment in America".

(from a speech by President Clinton to the nation's mayors - reported by S. Greenhouse, March 1993).

Because of their small size and low overhead costs

(Thompson, Feb. 1992), small businesses have proved to be more effective competitors in the marketplace. Small enterprises have the ability to quickly react to the needs of the marketplace without the burden of the conglomerate inertia. Because of their flexibility they can easily form partnerships for specific ventures (Johnson, 1992).

Not only small business owner/managers, but also their employees directly participate in decision making, thereby adding value to a much greater extent than big business.

Even the smallest amount of job creation in small businesses results in large numbers of hires, thereby making a large positive impact on the general economy. The most recent data (from table 1.1) shows 895,625 businesses in Canada, ranging from 1 to 99 employees. If these businesses were to hire only one employee each, this would result in close to 1,000,000 jobs.

In recent years, new technologies have had a significant impact on every aspect of the economy and raised skill requirements for all participant, including small business. The effective application of new forms of technology will be *"the single most important source of job creation, wealth and added value in the years ahead"* (Wilson, 1992). North-America's ability to compete in a knowledge-based,

technology driven world will increasingly depend on its success in :

- removing systemic and traditional cultural barriers in education, training and retraining for workers.
- creating a social context in which adult lifelong skills development is broadly promoted, strongly valued and supported.
- creating a social context in which foundation skills and understanding as obtained in traditional arts and science programs are sufficiently rigorous to prepare students for job-specific training, which will allow us to compete on a global basis.
- dealing with the socio-economic implications of chronically underskilled workforce which leaves large numbers of high tech jobs unfilled.

EDUCATION AND TRAINING IN INDUSTRY

Most current research and development in educational theory as applied to education and training in industry is oriented around medium and large business. Large businesses have the structure and the means. They employ training professionals and set up their own programs and training facilities. In some cases they have their own schools and accredited colleges and universities. For example, in the last three

years, Motorola corporation dedicated \$150 million to provide education and training for its employees worldwide (Moskal, 1990). It stresses basic communication and computing skills, basic problem solving as members of a team, as well as quality and output (Wiggenhorn, 1990).

On a macro scale, from a list of 20 countries, The United States spent 5.7 of the Gross Domestic Product (GDP) including public and private funding of education (Toronto Star, Sept. 24, 1992). Canada was the top spender at 7.2% of its GDP. However in Canada only 13.1% of small firms reported having training budgets (Deloitte & Touche, 1992). Of these, 27% of firms with 9 or fewer employees (over 80% of total), and 18% of firms numbering 10 to 49 employees, reported that they offered some kind of training to their employees.

In 1973, sociologist Daniel Bell coined the term "post-industrial society" to characterize the present age (Lynton, 1984). This new society is symbolized by the computer, just as the preceding industrial society was typified by the steam engine, the assembly line and the smokestack, and as the agricultural age was symbolized by the plough. Each successive state of society has differed in the way human resources are utilized.

Most analyses on the impact of modern technology on industry show that the fundamental nature of employment is changing rapidly, and that a growing number of functions require a substantial level of newly-defined skills and sophistication. "The focus must change from investment in machinery and equipment to investment in people" (Denommé, 1990).

In the current "post-industrial" economy, worker skills, knowledge, equipment, plant and existing technology are rapidly becoming obsolete. The implication for North American economies are ominous. Lester Thurow observed that "third world skills will bring third world wages" (Toronto Star, September 1992).

Dealing with these transitions presents new and unfamiliar challenges. The rapid devaluation of traditional worker skills are combined with a gaping lack of skills to meet international competitive challenges. These problems can only be addressed by cycles of planned, organized, appropriate education and training. These must be followed or combined with strategic workplace application and support of the training. The strategic priority of this process cannot be overstated.

New jobs will have to be defined, and people prepared for

them. Both generic and specific training will have to address a far more diverse population than at any other time in history. This may require rewriting the rules of human relations and performance behavior management. Even in the smallest of small businesses, one person will have to assume the added duty of training co-ordinator. The task will be to integrate technology into the content, the design, the delivery and the site of training for the company's employees.

The Ontario Training Corporation (OTC, 1991), in partnership with the Conference Board of Canada, developed a national training study which was conducted in the summer of 1990. The 149 firms surveyed, all mid to large-sized organizations, represented about 700,000 workers, or 7% of employed Canadians. *No small businesses were surveyed.* Their findings showed that in Ontario about half of these larger companies had training departments, but 80 percent of them reported no annual targets for worker training. Those with training targets reported that deliveries were far below target.

In April-May 1992, the Canadian Manufacturers Association (CMA), representing essentially big business, conducted a "Survey of Issues" involving 325 companies whose size, location and sectoral profile reflected "Canadian

manufacturers". As a percentage of payroll, commitments to training varied from 2% of payroll (40% of respondents) downwards, to 1-2% (29%) and less than 1% (31% of respondents). Forty seven percent of respondents indicated that they planned to increase their training budgets compared to the previous year. Again, no small companies were included in the study.

The latest information available in Canada, involving the allocation of training resources by company size (Statistics Canada, 1987), was provided by a survey that covered 746,100 companies in all industries. Of these, the size distribution varied as follows : companies from 0 to 9 employees represented 82.5% of the employment; from 10 to 49 another 15%; and from 50 to 99 1.4%, for a total of 98.9%. In these three categories, 27% of the first, 48% of the second and 55% of the third provided some formal training to their employees, with about 20% of the total employing a trainer and about 80% having no training budget whatsoever. These figures are summarized in tables 1.2 and 1.3.

Table 1.2

Training provision related to company size

Company Size	Percentage of total	Percentage that provide training
0 - 9	82.5 %	27 %
10 - 49	15.0 %	48 %
50 - 99	1.4 %	55 %

Table 1.3

Resource allocation by companies.

Percentage of all companies	Companies with training budgets
20 %	Yes
80 %	No

The majority of small company training was provided to help employees perform their present jobs. Small companies reported that training for the new technologies was not an issue, as they had no plans to adopt new technologies. About 40% of companies of all sizes reported using some form of training assistance programs, mostly for apprenticeships. From the companies providing training, about 45% reported having their training needs met, with the balance citing barriers such as limited resources, or unavailability of courses when and where required. Only 18% of workers participating in formal training worked in production, with

another 5% engaged in plant maintenance. The balance of training was in sales, managerial, clerical and computers. The annual training expenditure reported per employee ranged between \$130 and \$400. These total training expenditures included costs of formal institutional based training estimated to be between \$70 and \$140.

THE PROBLEM

There are substantial barriers preventing access to education and training by small business workers. The literature concerning these barriers generally presents opinions or perceptions of participants, which are felt to inhibit adult learning. Managers' views often differ from those of the workers. For example, between managers and workers, opinions may differ on the effects of training on-the-job as compared to institutional based training. Some workers may not see paybacks, or may lack confidence in using new skills. Others may not know when they use skills effectively, or simply fail when trying to apply them. Some trainees are hampered by low levels of employment skills and basic literacy, along with poor communication skills and learning opportunities. Some managers are not positive role models, and do not coach or reinforce learners' use of new skills.

Additional complexities are presented by factors such as an aging workforce, unions, women and minorities.

The nature of the "new organization" with its flattened and sometimes inverted organizational pyramid, and the transformation of human resources management into diversity management require new social and psychological dynamics of management and labor relations. Organizations do not always provide feedback to the trainee about the impact of their use of new skills on the organization. Frequently this is combined with task interference by "traditional" managers, which inhibits learners from trying to apply new skills. To match the paradigm shifts of the training function and of the organizational development function calls for the surmounting of unfamiliar, complex, multi-dimensional barriers. This will necessitate a joint and collaborative approach and new leadership by all stakeholders : government, the educational system and industry.

Small manufacturing organizations have very little knowledge of training. Many believe they offer employee training, when in fact what they offer is limited to specific skills required to perform current tasks. Most companies blame the lack of organized training on marketplace pressures, and prefer to hire skills which have been developed at someone else's expense. Ironically, they frequently refuse to offer

training to their own staff in order to avoid losing "their investment" when their underpaid employee moves on to a better paying job. Even more ironic is that many employers of all size will only participate in training if it is subsidized by some level of government. The following model reflects the training status of the many small manufacturing organizations :

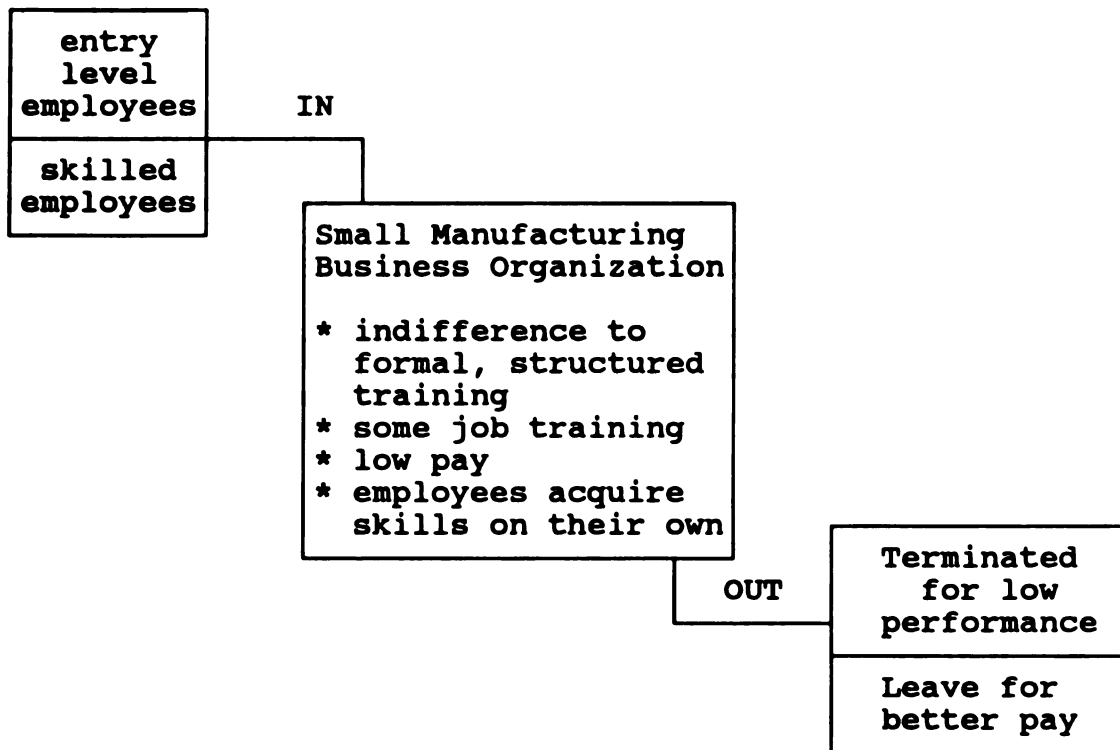


Figure 1.1
Training and small business

Worker skills are critical to industrial productivity and competitiveness, and to maintaining living standards.

Stephen Blair, in his article "Achieving Workforce Competitiveness : A Challenge for Every American" (1991), formulated four key principles for improving the U.S. work force :

- 1) *commitment to developing the skills of all;*
- 2) *understanding of the knowledge and skills required today and tomorrow;*
- 3) *guaranteed access to a wide range of education and training opportunities; and*
- 4) *belief in the economic importance and inherent dignity of all kinds of work and workers.*

These principles, somewhat modified, are used as the theoretical basis of this study.

STATEMENT OF THE PROBLEM

The purpose of this study is to identify the barriers to employee education and training in small manufacturing businesses.

Small businesses represent an overwhelming percentage of all business establishments in North America, and employ a significant percentage of the employees. In Canada, 98.8% of all companies have less than 100 employees and number 55.3%

of all workers (table 1.1). As North America slowly emerges from the post-industrial recession, the employment engine will be small business. The addition of even a single employee to each small business will have a significant effect on overall employment. In the state of Michigan, for instance, this would return 180,000 workers to productive, self supporting, tax generating productivity.

In order to investigate such barriers, it is necessary to explore and understand the problems faced by small business establishments, and to assess their informational and educational needs.

RESEARCH QUESTIONS

The following research questions will be examined in this study, as related to production employees of small manufacturing businesses (fewer than 100 employees) :

1. *Identifying the needs* :

1a. What are employee needs for education and training, as stated by managers/owners of small manufacturing businesses?

1b. What are employee needs for education and training, as stated by employees of small manufacturing businesses?

1c. What are employee needs for education and training, as perceived by community college administrators and instructors?

2. Identifying the barriers :

2a. What are the barriers to access education and training for employees, as stated by managers/owners of small manufacturing businesses?

2b. What are the barriers to access education and training for employees, as stated by employees of small manufacturing businesses?

2c. What are the barriers to access education and training for employees, as perceived by community college administrators and instructors?

3. Identifying levels of understanding :

3a. What is the level of understanding about employee education and training related to the workplace, of managers/owners of small manufacturing businesses?

3b. What is the level of understanding about employee education and training related to the workplace, of employees of small manufacturing businesses?

4. *Identifying levels of commitment :*

4a. What is the level of commitment to education and training related to the workplace of managers/owners of small manufacturing businesses?

4b. What is the level of commitment to education and training related to the workplace of employees of small manufacturing businesses?

4c. What is the level of commitment to education and training related to the workplace of community college administrators and instructors?

SIGNIFICANCE OF THE RESEARCH

The significance of this study lies in its contribution of knowledge about increased access of small business employees to a wide range of education and training opportunities. This is achieved through a thorough investigation of the various barriers to access.

In this study, specifically in manufacturing, the focus is on small business. The findings are based on data gathered from a given geographical area. For the purposes of the

research, "small" was defined as under 100 employees.

By contrast, the vast majority of the literature addressing education and training in industry is related to medium and large business. These have the structure and the means to employ training professionals, to set up their own courses and programs. In some cases this includes training facilities, schools or accredited colleges and universities.

A further contribution is provided through this study's examination of implications for the community colleges. The colleges offer education and training for business employees to help improve products, management, manufacturing procedures, service delivery systems, and any other factors that help improve productivity.

The businesses, the learners and the colleges were drawn from typical settings. Therefore it can be expected that the findings will generally hold true for most similar organizations in similar settings.

Labor unions are major sponsors of adult training, however there is no data to reflect this activity in companies employing less than 100 employees (Oberle, 1989).

A thorough search of over 150 related dissertations and over

250 related books and journals revealed limited research into the topics addressed by this study.

These deficiencies can partly be explained by the greater ease with which large businesses have always been research oriented. Small businesses, by the nature of their operation, low overhead and small staff, have been difficult to access and complex to investigate.

In recent months, increased awareness of small business contribution to employment in a recessionary economy has led to improved information response by all related organizations.

In summary, this research is significant because it :

- 1) provides guidance to government agencies,
- 2) provides direction to community colleges and other training agencies, and
- 3) increases awareness of the role of managers in providing training.

DELIMITATIONS

This study is delimited by the following factors :

- 1) The study deals only with small businesses (fewer than 100 employees) operating in Ontario, Canada.

- 2) Only manufacturing businesses are considered.
- 3) It seeks the views of owners/managers and employees.
- 4) It is oriented to production employees (as opposed to administrative staff).

LIMITATIONS

The owner/managers have been contacted through the Ontario Skills Development Office (OSDO - see Appendices I, J and K), which makes skilled training available to business. Accordingly, any people on their list will have had some degree of involvement with education and training for business.

The employees were contacted from among the night school students at one of the major community colleges. As participants in a continuing education program, these employees have already a certain degree of awareness of education and training.

GLOSSARY OF TERMS

Barriers : Obstacles that interfere with the achievement of goals or plans for change.

Barriers to training : Circumstances, regulations, attitudes, perceptions, structures, procedures or personnel which impede, restrict or otherwise inhibit the process of training.

Personal (dispositional, socio-psychological) barriers : Obstacles residing within one's self that cause one to be resistive or negative about change.

Organizational (structural, institutional) barriers : systemic obstacles, within the employer organization or educational institution which interfere with attempts to bring about change.

Situational barriers : Barriers arising from the individual's life situation at a given time.

Community College : A vocationally oriented, publicly supported, college in Ontario, Canada, granting certificates and diplomas, with a mandate to conduct training for skills.

Curriculum content : the sum of job skills and knowledge, attitudes and other results of training.

Education : Activities designed to enhance the individual's academic capacity for future development and assignments.

Employee : Worker employed to perform some mechanical or technical job related to production.

Knowledge and skills : Measures of the operator's performance abilities.

Manufacturing : A systematic process of making products using labor, power and equipment.

On-the-job : The work component of a training program.

Owner/manager : Person responsible for the overall success of the company .

Poaching : Hiring away, as opposed to developing skills of own employees.

Portable skills : transferable to other organizations and situations.

Proficiency test evaluation : assessment based on written and hands-on testing.

Skill upgrading : further development of existing knowledge and experience.

Small business : Manufacturing company, operating in one of three size ranges : 0-9, 10-49 and 50-99 employees.

Target group : current or future employees of small manufacturing businesses.

Training : In general, practical activities designed to effect sustained behavioral changes.

In-house training : any employer sponsored training except for formal apprenticeship.

In-school training : The school component of a training program (whether in school, in plant or union premises).

Training companies : companies currently engaged in some form of training for their employees.

Training planning :

- work needs analysis
- measurable objectives
- prescribed training methodology and location
- training schedule
- monitoring and evaluation

ORGANIZATION OF THE STUDY

The dissertation includes five chapters.

Chapter I contains an introduction to the study, the background of the problem, short discussions on education and training in industry and the research challenge, a statement of the problem including the research questions, the significance of the research, the delimitations of the project, and a definition of the terms.

Chapter II contains a review of the literature, focusing on small manufacturing business, and barriers to education and training.

Chapter III contains a description of the populations and samples to be surveyed, the design of the study, the survey instrument. and the method of data collection and analysis.

Chapter IV contains a discussion of the findings.

Chapter V contains the response to the research questions, conclusions, implications and recommendations.

CHAPTER II

REVIEW OF RELATED LITERATURE

INTRODUCTION

Education and training are the primary systems by which the human capital of nations is preserved and increased.

(Johnston and Packer, 1987).

From time immemorial, the wealth of nations has been measured in gold and jewels. After the industrial revolution it has also been measured in means of production. Since the dawn of the computer era, the foundation of national wealth has been represented by the practical ability of people to organize and apply knowledge and skills.

More than any other single issue, the challenge of educating and training our workforce for the next phase of economic evolution will determine the future of North America.

The concern about barriers to employee education and training in small manufacturing businesses was brought into

sharp focus by the demonstrated ability of small business to generate jobs in the post-industrial recessionary economy. This chapter contains a selected review of the literature in the following areas : barriers to education and training, employability skills, adult learning and effectiveness of current programs, small business in Canada, industrial policy and the business cycle, cost of training, informal and formal on-the-job training, employers and employees (organizational development), lifelong training, and the role of the colleges.

BARRIERS TO EDUCATION AND TRAINING.

The traditional barriers to education and training can be classified as : Situational, Organizational, and Socio-Psychological.

Multiple barriers may result from a combination of two or more factors belonging to the same or different groupings and may be reflected by evidence such as racial discrimination, poverty, physical disabilities, prisons, refugees, immigrants and displaced workers (McAdoo, 1989).

A trait common to all barriers is the lack of basic skills in reading, writing and arithmetic, the "Catch 22" of

education and work.

Cross (1981) classified the barriers to participation in adult education under three headings : situational, arising from the individual's situation at a given time, institutional, arising from practices and procedures such as inconvenient schedules, locations, fees, wrong courses, prerequisites and dispositional, related to people's attitudes and perceptions of themselves as learners, particularly age, poor education and energy factors.

Charner and Fraser (1986) examined the reasons for non-participation in adult education and classified them as situational, structural and social-psychological.

Upon examination, the three sets of descriptors are generally interchangeable.

Harvey (1980) looked at barriers to employer sponsored training in Ontario and classified the companies into training and non-training firms. He concluded that the level of training decreased with the company size and that firms classified as training companies are more progressive. He also found that fear of poaching is claimed to be a major barrier to training by companies. He observed, however, that as training increased, poaching generally declined. He

listed as barriers : restrictions; limitations; complexities and inflexibility of government training guidelines; heavy related paperwork burden; financial and prerequisite educational barriers for trainees; high cost of training equipment; shortage of competent trainers; difficulty of attracting trainees in various industries perceived as low-status; secrecy of production techniques; selection of trainees; layoff and related job negotiations with the unions. He concluded that government funding, perceived to be a necessity for most smaller firms, must become simple and flexible, with minimum paper burden.

When discussing barriers to education and training of workers in industry, one tends to think in the first place of hourly paid workers. Yet barriers for management are equally significant, both in their own needs for education and training, and in their support and recognition of their employees training progress.

Robinson and Robinson (1985) analyzed barriers to skill transfer in work. They concluded that management must assume a critical role in assuring that skills acquired in training programs are used on the job. They classified the skill transfer barriers as : the learner; the boss of the learner; and the learner's organization. They concluded that where LE means learning experience and WE means work experience,

LE x WE = RESULTS.

Lipshitz, Friedman and Omer (1989) analyzed resistance to training, and generated a non-confrontational approach involving a five-step technique : distracting; the "one-down" position; baiting; pre-empting; and linking. Rather than "confronting" resistance, they used "circumventing" approaches by refraining, disengaging and eventually utilizing resistance by labelling it a positive approach to participation.

Another current barrier to employee access to contemporary training is caused by the colleges themselves. One aspect is the result of the unfulfilled retraining needs of the college teachers. As reported by Duffy (1993), a two-year study was commissioned by the Association of Canadian Community Colleges and conducted by Price-Waterhouse. They looked at the in-service training needs and activities of 25,000 full-time Canadian college instructors. They found that few colleges actively encourage their instructors to upgrade their skills, knowledge and instructional methods. The other major factor is the failure of the colleges to provide the scheduling structure and/or facilities required to meet the needs of small business employees.

EMPLOYABILITY SKILLS

Employability skills are a generic list of the kinds of skills, qualities, competencies, attitudes and behaviors that form the foundation of a high-quality workforce.

Within months of one another, in 1991, the Conference Board of Canada and the Michigan Employability Skills Task Force produced practically-identical profiles describing skills sought by employers. They were essentially academic (including technological job-related), self management, and teamwork skills. However, according to the President of Xerox Canada, there is no national inventory of skill shortages, there is an insufficient assumption of responsibility for worker training by the private sector, and not enough stress is placed on potential productivity improvements at the local and community level (Goar, 1992).

EFFECTIVENESS OF CURRENT PROGRAMS.

ADULT LEARNING.

In their study on access and barriers to adult education, Charner and Fraser (1986) assessed the effectiveness of adult education and training programs, in particular at GM

and Ford.

Fields, Hull and Sechler (1987) examined adult literacy programs, again in conjunction with national corporations.

The Commission on the Skills of the American Workforce (1990) took a comprehensive look at education and training, foundation skills, lifelong learning, and skills investment taxes - again in co-operation with well known (large) companies. Some of the key findings were that : work-based learning is the most effective method of skill acquisition; apprenticeship programs require strengthening and modernization; and, new training program models should be developed.

The Report on the Premier's Council (1990) looked at the economies which have achieved stronger economic performance through superior labor market responsiveness and worker training. By contrast, it listed inadequate reading, writing, analytical and interpersonal skills as the main barriers to further education and training in Ontario. Participation rates in formal education and apprenticeship of Ontarians aged 17 and over are only 72%, compared with 94% in Japan and 89% in Germany, respectively. This is reflected by the fact that there are only 112 engineers in Ontario for every 400 in Japan. It underscores the problem

in North America of training value delivered for money received, as Canada and the U.S. spend far more (in terms of public expenditure on education/GNP) than countries far more productive.

Large businesses' commitment to training is intensifying (e.g. GM grew from 800,000 hours of training in 1984 to over 2,000,000 in 1990). However, the commitment of smaller companies' only took root in the last few years, with subcontractors leading the way, as skills inventories were imposed by major companies as part of the conditions required to maintain supply contracts (i.e. Ford's Q1 or GM's "Mark of Excellence").

A paradigm shift from traditional training to "performance technology" (Rosenberg, 1990) addresses the combined issues of education (transmission of knowledge), performance (up-to-the-moment job guidance) and adult education (participation and contribution of the "learning" partner to the new model of the "training" partner).

SMALL BUSINESS IN CANADA. THE BUSINESS CYCLE.

INDUSTRIAL POLICY.

Small business in Canada, has consistently approached the

training problem in the following traditional ways : hiring trained immigrants; poaching; and, getting involved to some extent in conventional apprenticeship programs. In-house training has occurred, but is difficult to document.

Business cycles have affected small business in two conflicting ways. During an economic upturn, small business lost most of its qualified people to big business who advertised openings at much higher wages. At the same time, subcontracting between big and small business required additional trained people, which led to further poaching down the line. A typical example is offered by McDonnell Douglas of Canada and its myriad of subcontractors for CNC machined parts. In times of boom, the corporation offers high paying jobs which attract qualified people from its subcontractors. To meet commitments, the latter will attract people from the independents, and so on down the line.

In July 1992, the Ministry of Industry, Trade and Technology (MITT) of the Ontario Government issued an industrial policy framework for Ontario. The policy stresses that raising skill levels is a prerequisite for creating competitive advantage through high value-added activities. It recognizes that technology has become the foundation for creating and sustaining competitive advantages in advanced economies. It proposes to target assistance to innovative growth firms -

typically small dynamic companies - whose expansion requires the clearing of both financial and management hurdles".

More than 90% of Ontario's businesses employ fewer than 100 people, provide over half of the province's private sector employment, and create 75% of new jobs. During 1991/92, over 90,000 new small businesses were registered, and small business employment exceeded 1.5 million people, in a province with a total population of under 10 million people.

Ontario's current policy is proposing to provide simplified access to training, new sources of financing, expansion of inter-firm linkages and co-operative business opportunities.

One of the principal tools that provide access to training is the Skills Link (SkillsLink Lister News, 1992) database system. Skills Link is a division of the Ontario Training Corporation, a provincial crown corporation whose mandate is to develop and distribute workplace training products to enhance the skills of people engaged in training. The database contains a complete listing of all current training resources available in Ontario.

In contrast with the apparent plethora of training information and sources, there is a perception that industrial training has not been embraced as a national

priority in Canada. A survey published by the Japan External Trade Organization (JETRO) found that over 40% of their subsidiaries in Canada had difficulties finding "high quality employees". The same conclusion was drawn by the Siemens group whose stated intention is to create an additional 9,000 skilled jobs in Canada during the 1990s (Crane, October 1992).

COST OF TRAINING.

Studies by the Canadian Federation of Independent Business (CFIB) showed that in June 1991 60% of the firms surveyed had provided some form of on-the-job training for employees in the preceding year, and 38% of the total workforce of these businesses had received training. Not including the wages of in-house on-the-job trainers, the average small business estimated having spent about \$20,000 in the previous year.

There are contradictions between costs reported by CFIB and Statistics Canada (Federal Government), with CFIB's reported costs being significantly higher. The perceived reasons for this are the desire of CFIB to achieve higher levels of government financial commitment to training, and to counter a payroll tax for training that has been under discussion

for some time. This tax would be similar to the skills investment tax, a current practice in countries such as Japan, Germany, Singapore, etc.

An additional factor in the scarcity of funds for training in larger cities is the sheer cost of setting up light manufacturing operations. Boyd Co. from New Jersey studied 40 U.S. and 5 Canadian metropolitan areas and ranked Toronto as 13th on the list (MacKinnon, 1992).

The Canadian Manufacturers Association stressed that first-rate education systems linked with effective training programs work together to produce people with creativity, vision, compassion, understanding and skills. They recommended expanding the current investment in people and developed a coding system for training costs in order to help companies compare actual training expenditures to training budgets (Howatson, 1991).

Nyman (1992) lists four of the more commonly used programs to start a small business and to get help with skills upgrading. These are : the Ontario Skills Development Corporation; the New Ventures loan; the Student Venture Capital program; and the Small Business Loan Act. All these programs apply exclusively to manufacturing sector employees, as opposed to the service sector.

Hassett (1992) developed a four step training investment analysis worksheet that could help small businesses calculate the return on employee training investment.

INFORMAL AND FORMAL ON-THE-JOB TRAINING.

Informal on-the-job training has lead to employer gains by tailoring workforce skills to the specific needs of the company's unique operation, by training newer employees and by upgrading the skills of more experienced employees. The downside of this type of training has been the generation of an "upskilling ceiling" determined by the internal limitations of available technological and training skills (Filipczak, 1993). Appropriate training should remove this ceiling.

Lusterman (1977) extensively analyzed the process of education in industry, the differences by company size and type, staffing and organization (where possible), the various approaches to training, curriculum, motivation and costs.

Some aspects of employee training and development, as part of business management, were also summarized in a self-instructional booklet produced by the US Small Business

Administration (1980).

Harvey (1980) analyzed attitudes and experiences of various companies, as expressed by the various constituencies involved.

Kaufman (1986) contributed to the understanding of training for the job by conducting a series of studies on job evaluation.

Paquet (1983) looked at employer-employee interests in job training, and studied the division of responsibility and control between employer and employees, in addition to issues such as access to training and characteristics of training.

Knowles (1984) and others addressed the problems of training needs.

Camp (1986) and others looked at the organizational development perspectives and at the social norms that shape individual behavior in a group context.

LIFELONG TRAINING, ROLE OF THE COLLEGES.

The major source for revitalizing the economy is the human

capital of the nation. The transition from the industrial to the post-industrial age has seen many jobs eliminated or moved overseas. The post-industrial economy demands a new kind of learning enterprise, focused on adult learning and on technology (Perelman, 1984). Businesses need help with well educated and trained new employees, with applying new technologies, developing managerial and entrepreneurial expertise, and retraining and upgrading the current workforce. All these needs imply new roles for the colleges.

The most important contribution of community colleges to economic development is the help they can offer to small businesses with expertise about the education and training process, source of potential employees and improvement of the productivity of existing employees (Gordon, 1989).

Most new jobs and innovations come from businesses with 10 or fewer employees, none of which can afford expensive training and consulting. They can however find a lot of the needed resources in the local community college.

Some states have located Small Business Development Centers (SBDC) in local two-year colleges. The same approach has taken place in Ontario, Canada, where the Ontario Skills Development Offices (OSDO) are physically located in, although independent of, the local community colleges. Both

organizations help small businesses, at no cost to the latter, to identify options, strategies, courses and other sources of help, and select the best alternatives. Both organizations offer training in business planning, financial management, survival training, technological topics and any other areas as required by small business. College support to small business is particularly critical in rural areas. Other formats in which colleges can help is their potential involvement as advanced technology centers, advanced technology consortia or as technology transfer agents. Small business and industry and the colleges can also explore co-operative purchase, lease or loan arrangements for equipment shared in technology transfer programs.

A comprehensive report prepared for the Premier of Ontario (1990) analyzes foundation skills as part of lifelong learning. It examines the changing role of the colleges, the training imperative and it takes an extensive look at training in industry with particular attention to a new approach to training for small business. This report is similar to the studies that led to the Job Training Partnership Act (JTPA) which mandates the principle of a community partnership in the delivery of education and training services.

The Science and Technology Task Group of the Association of

Canadian Community Colleges (1991) listed a number of barriers to the increase of Canada's productivity, economic/industrial competitiveness and standard of living. Some of these are due to a societal/cultural climate which places low value on technological achievement, fails to appreciate the explicit linkage between quality of life and technological achievement, and has the perception of low (intrinsic and extrinsic) rewards in manufacturing careers.

The institution of the future (Wright, ed., 1990) would look quite different from to-day's colleges. It may redefine the roles and titles of some senior academic administrators and place them on performance related contracts. It could introduce : strategic planning; linked industry-school objectives; and, formal programs and courses related to market and clientele. It would actively manage the renewal process of faculty, program heads and deans (Lister, 1993). It would link quality of physical resources to marketing success, target non-governmental sourced income, and set an organized policy of collaboration with business and industry. Eventually the institution may move to small specific business units, organize immediate response to market needs and invest in training, not just in equipment. It would introduce the right balance between administration control and empowerment of industrial instructors, measure success by more than just financial results, and recognize

industrial training at par with academic instruction.

The responsiveness of the institution of the future will be measured by its ability to combine the pursuit of knowledge with the practicalities of life. New meaning to team work would be given by continuously relating school work to the world of work, placing student work and projects in real settings, modifying teaching and learning styles to promote management of self-learning. Modern technology would be used as a learning tool and would be integrated to prepare for a world of transitions.

The application of advanced computing to learning in the new institution will mean that people will be able to work and train differently, as instructional technology will closely follow the technological revolution in manufacturing processes. To earn a living, people will work with new instruments, and the knowledge thus acquired will assist with their self training, as shown by the model in Figure 2.1 :

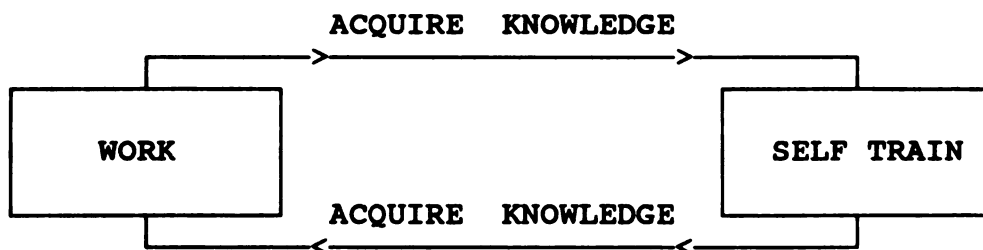


Figure 2.1
A knowledge acquisition model
by self training

Owner-managers of small businesses may not be able to avail themselves of education and training opportunities available to larger companies. They could certainly profit from instruction suited to the scale and scope of their business environment, but for them, the crucial barriers are the relative cost and the available time to participate in residential programs (such as Harvard Business School's Owner-President Management Program, Stanford's or Wharton School's at the University of Pennsylvania, University of Western Ontario's executive MBA, or Sir Wilfrid Laurier's and York University's evening MBA).

Additional barriers for them may be the lack of a clear strategy and a supportive culture. A significant implication of the above for the community colleges is their ability to offer high-quality non-residential programs at a modest cost.

Various "small business development centers" have launched numerous programs along these lines, but the priorities are still with the soft skills of management problem solving and communication, rather than with technological skills. A strengthening of the latter, in combination with "flattening" of organizations, will redefine the role of the manager to include that of teacher. Drucker (1988) proposes

an analogy to the symphony orchestra, as a "knowledge based entity consisting of specialists who direct and discipline their own performance through organized feedback from colleagues, customers and headquarters".

Another category of workers in need of help from the colleges are the professionals, which in small manufacturing businesses are primarily engineers or technologists. The essential barrier to their in-service training is that at their level, colleges are not technologically at par with industry. The job specific knowledge and training they require to remain competitive is simply not available for these workers who are supposed to be the local repositories of advanced knowledge. According to the National Academy of Engineering (1988), the average engineer's knowledge depreciates alarmingly from three to seven years after formal education ends. The half-life of engineers ranges from seven to two years, and careers fade away and appear within a very short time. All engineers and technologists share the problem, yet only those in technologically-advanced large companies can avail themselves of workable solutions. An additional barrier is the lack of motivation of individual engineers and technologists to take responsibility for their own advanced learning. This is compounded by the lack of strength of professional organizations they belong to. These could provide services

such as : skills identification; proficiency testing; program review; and other clearinghouse activities. They might also provide databases with information on engineering conferences and courses. Again, the best organized system cannot assure participation of the professional who cannot take time off from work.

Community colleges are generally ahead of other traditional institutions in adjusting curricula to industry needs, and in forming co-operative partnerships with industry to overcome education and training barriers. Colleges can also obtain hiring commitments from industry in return for better student performance. They can provide additional services such as : organize special programs for disadvantaged youth; use college facilities during summer to provide youth with basic skills training, knowledge of English, technological literacy, right attitude for work; or, involve employers to plan programs for the local labor market. However, unless they acquire more of their partners' characteristics in business management, efficiency and customer service, the colleges will find themselves seriously outclassed by private, super-flexible entrepreneurial, risk-taking organizations, offering similar services at far more cost-effective prices.

Beckman and Doucette (Febr. 1993) report on a "Survey of

Community College Training Programs for Employees of Business, Industry, Labor & Government". Responses represented 763 colleges, or 73.2% of colleges surveyed, of which 96% provided some degree of customized workforce training. Two thirds of training provided was for small and medium sized companies (under 500 employees), with 39.2 % for employees in manufacturing. Job specific technical training represented 20.2 %, computer training 18.6 %, supervision and management 14.6 %, and workplace literacy 9.8 %.

Fully 85 % of the training was delivered by traditional methodologies. Funding was provided by employers (35.5 %), college operating funds (26.9 %), tuition and fees (16.0 %) and state and federal sources (15.5 %).

Nearly 85 % of the colleges perceived that they were effectively meeting the training needs of their clients. The major obstacles were inadequate college training budgets (34.6 %), the inability of employers to afford training (25.3 %), difficulty in being recognized as providers of training (22.8 %), lack of experienced trainers (22.3 %) and inadequate support for curriculum development and related costs (22.2 %).

The benefits of the college/business co-operation can be

shown by the model below. This model includes two additional partners which affect co-operation - government/community and the unions :

CO-OPERATION MODEL

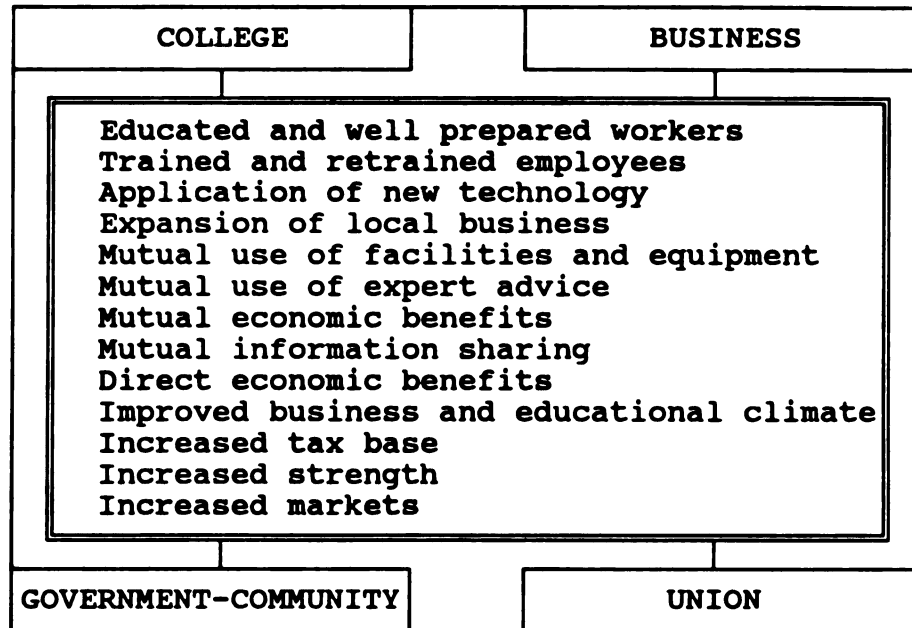


Figure 2.2
Co-operation model between colleges,
business, government/community and unions

The importance of the college system can be appreciated by reviewing some figures in the 25th year of its existence in Ontario, Canada (R. Daly, 1992) : 23 colleges, 124,000 full time students, 800,000 part time students, or about 10% of the province's population. It should be noted that all the increase of the last 5 years was provided by students age 25 and older.

SUMMARY

The body of the literature on education and training for employees of manufacturing businesses tends to focus on medium and large companies. Smaller companies have seen their importance grow as a generator of jobs in a world-wide recession, without a similar growth in relevant literature.

Several themes are prominent in the literature : informal and formal on-the-job training; foundation skills; adult learning; lifelong learning; barriers to access education and training; the role of government funding; and the role and effectiveness of college programs.

The information garnered from this chapter has formed the basis for the employer and employee questionnaires (see Appendices A and C). These dealt with the need and provision of education and training, understanding of and commitment to training, and the barriers to access education and training. This material has also provided most of the issues addressed in the lists of discussion topics with training administrators and college trainers.

CHAPTER III

RESEARCH METHODOLOGY

INTRODUCTION

This chapter contains descriptions of strategies applied in this study, development, field testing, administration of the questionnaires used to collect data, and procedures used to analyze the data.

The primary goal of the investigator was to identify and examine barriers preventing access to education and training for employees of small manufacturing businesses.

The work of Stephen J. Blair provided the most focused information with respect to an organized approach for the research. Blair's four key principles (ch. I) were adapted to the needs of this research :

- 1) *commitment to developing the skills of all;***
- 2) *understanding of the knowledge and skills required today and tomorrow;***
- 3) *guaranteed access to a wide range of education and training opportunities; and***

4) belief in the economic importance and inherent dignity of all kinds of work and workers.

The following research questions were identified :

RESEARCH QUESTIONS

1. Identifying the needs :

1a. What are employee needs for education and training, as stated by managers/owners of small manufacturing businesses?

1b. What are employee needs for education and training, as stated by employees of small manufacturing businesses?

1c. What are employee needs for education and training, as perceived by community college administrators and instructors?

2. Identifying the barriers :

2a. What are the barriers to access education and training for employees, as stated by managers/owners of small manufacturing businesses?

2b. What are the barriers to access education and training for employees, as stated by employees of small manufacturing businesses?

2c. What are the barriers to access education and training for employees, as perceived by community college administrators and instructors?

3. Identifying the level of understanding :

3a. What is the level of understanding about employee education and training related to the workplace, of managers/owners of small manufacturing businesses?

3b. What is the level of understanding about employee education and training related to the workplace, of employees of small manufacturing businesses?

4. Identifying the level of commitment :

4a. What is the level of commitment to education and training related to the workplace of managers/owners of small manufacturing businesses.

4b. What is the level of commitment to education and training related to the workplace of employees of small manufacturing businesses?

4c. What is the level of commitment to education and training related to the workplace of community college administrators and instructors.

POPULATION AND SAMPLE SELECTION

SAMPLE IDENTIFICATION

To achieve the purposes of the study, two groups of two populations each were identified. The groups were industry and the colleges. The two populations in each were employers

and employees of small manufacturing businesses, and respectively training administrators and instructors. The geographical area was the Toronto, Ontario metropolitan area. The figure below illustrates the two groups with their populations.

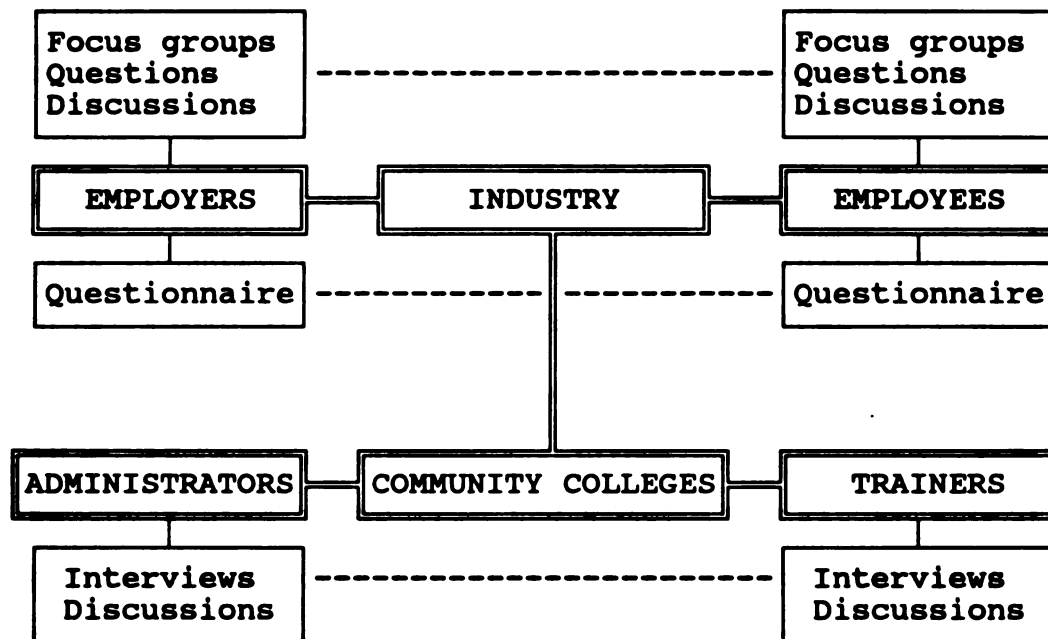


Figure 3.1
Research model

The purpose of studying these two populations in parallel was to enable the researcher to obtain perceptions of two key components of the company's success - management and labor. The researcher was thus able to compare and contrast - where applicable - the insights of two separate but related population groups addressing parallel themes.

SAMPLE SELECTION

A target sample of 50 employers was selected. The size of the sample was finalized at 35 after interviews no longer provided distinct or new information. In order to obtain authorized feedback from the company side, the owner, general manager (or equivalent) was interviewed.

A target sample of 50 employees was selected. The employees were not accessed through their companies. This avoided potential management concerns about differences in feedback between employers and employees.

The second sample group from the colleges included community college administrators and instructors. Five administrators and five instructors were included in the study.

RECRUITMENT OF EMPLOYERS

The sample was drawn from companies engaged in business in Metropolitan Toronto, specifically from the Humber OSDO "catchment" area. OSDO, the Ontario Skills Development Office (Appendix I) covers a total of 1,040 manufacturing companies of less than 100 employees. This company size

includes the three smallest categories of companies identified by Statistics Canada in their survey on Human Resources (1987). These categories are : 1 to 9; 10 to 49; and 50 to 99 employees.

The mandate of OSDO, an Ontario funded agency, is to provide skills training needs analysis for companies in a given geographic areas. Some of the companies contacted through OSDO were businesses with a record of training. Others were businesses with an expressed interest in exploring training, or potential customers not previously served by OSDO.

Another source of employers was Humber College's Business and Industry Service Center (BISC). BISC is the technical training marketing arm of the College. Its mandates are : to identify a probable area of training; to market it to potential client companies; to organize the training delivery; and, to follow-up after the training. Most of the companies accessed through BISC were members of the Society for the Plastics Industry. The feedback from the research on this group of companies was also used as preliminary training planning information by the Canadian Plastics Training Center, recently opened at Humber College, and the first such organization in Ontario.

In all cases, employers were first contacted by phone. They

were advised that a study was being carried out and that their assistance was required for its successful completion. It was further explained to them that this study would explore the need for education and skills training for employees in small manufacturing businesses and it would also look at barriers to access education and training. It was also mentioned that in addition to providing feedback to the researcher, their help would also contribute to the improvement of the level of training service to their organizations. It was also stressed that the study would provide an opportunity for them to interface with their peers and potentially result in answers to some of their own training related problems. It was explained that the process would take no longer than an hour. It would include a small group meeting, filling out a survey and having a focus group discussion with the researcher. The companies which agreed to participate were sent a confirming letter, including a detailed map (see Appendix K).

EMPLOYER DATA GATHERING PROCESS

The survey instrument was designed to be simple and easy to follow. It contained the necessary assurances of anonymity and confidentiality, as well as instructions for responding to questions.

Two almost identical instruments were developed for each business and employee area analyzed. The questions focused on industry were directed separately to employers and employees. This allowed the researcher to compare and contrast the answers to practically identical questions from both sides.

For consistence and ease of answering, all questions were rated from very little to a great amount on a four point Likert-type rating scale from 1 to 4. The fifth point was reserved for NA, i.e. "not applicable" or "no answer" comments. This design imposed a "below average" and an "above average" response.

The "Company Data" portion of the questionnaire was designed to provide limited demographic information about the companies providing information. The employers were asked to indirectly identify their industry through their major product line. The number of people in the company, (total and in the plant), would permit the listing of the feedback by company size. It was also asked whether the company was unionized and if there was any type of training currently taking place in the company.

Meetings were planned with focus groups of 10 - 12 employers. The realities of business pressures were such

that no more than 6 or 7 employers could attend any given session.

Once the participants had gathered, and following a short introduction of the project by the researcher, "employer" questionnaires were distributed to employers and filled out by them. After the questionnaires had been filled out, the focus group process was started. The reason for this sequence was to avoid influencing questionnaire results by the group discussions. The ensuing discussion was focused around specific and open-ended questions posed by the researcher. In some cases, after an employer examined a situation specific to a company, he or she had specific, training related, questions. Other employers were frequently in the situation of being able to provide answers from their own experience, and a most productive dialogue ensued. In some specific cases, the focus groups were followed by business discussions of mutual interest between a specific employer and representatives of OSDO or BISC.

The researcher's role in this situation was to stimulate the discussion and watch for specific cues. Some of the discussion topics were based on the questionnaire. Questions were asked such as : what are the training needs; what are the problems of getting trained employees, versus getting training for existing employees; what training was being used; was the supplier a community college or a private

organization, etc. The researcher guided the discussion, watched for and noted cues and identified emerging themes. Feedback thus obtained was later synthesized in a summary of employer comments. Specific issues were re-verified through additional discussions with specific employers, or in subsequent focus groups. The answers from the questionnaires were entered in the database of the statistical package Minitab. Statistical results were developed gradually as the number of filled employer questionnaires increased.

EMPLOYEE IDENTIFICATION, SELECTION AND RECRUITMENT

The employees were selected at random among the population of Continuous Education students at Humber College in Toronto. The size of this population is about 12,000, of which 3,500 are in technological programs and courses, therefore involved in some way with industry. The employees were approached by the researcher during their class breaks. They were asked if they would like to participate in a training related research, at some convenient time. The only criteria was that the respondent be a production worker in a manufacturing business of no more than 100 employees.

EMPLOYEE DATA GATHERING PROCESS

Data was collected in the same way from the participating employee target group, except that in their case no name or contact person was identified.

The meeting with the participants took place later in a conference room or an empty classroom. The researcher reviewed the purpose of the project. The participants were given an "employee" questionnaire (see Appendix C). After the questionnaires were completed, a group focus discussion was then initiated by the researcher with several open-ended questions.

The researcher's role was to initiate a discussion, keep it on track and watch for specific cues and emerging themes. The size of this group varied with the number of qualified employees available in a particular evening or Saturday, from as few as two or three to as many as six or eight. Following completion of the session, feedback was organized and synthesized. When needed, specific issues were revisited by the researcher through follow-up interviews with individual employees or re-introduced in subsequent focus groups.

Specific connections were sought between the feedback provided by employers and that provided by employees.

The setting for both businesses and employees was typical enough to expect that findings will generally hold true for most similar organizations in similar settings. Thus it appears possible to make some tentative statements concerning expected outcomes in similar situations. As this condition would result in problems of statistical reliability, the findings were also examined from a qualitative point of view, and conclusions were drawn accordingly.

The questions addressed to industry were directed to employers and employees in a way that would allow comparison or contrasting of the various perceptions of the respondents. They explored issues such as : education and training needs of employees; barriers to participation in education and training; understanding of issues; and, commitment to education and skills training.

Prior to administering the questionnaires to the employer sample, a number of pilot questionnaires were prepared and administered to co-operating employers. The process was very helpful as it uncovered a number of areas which had to be further clarified and simplified. It also showed the need

for duplicating response rating headings on each page, and for repeating a question when the sub-questions carried over to the following page. More important, it provided the researcher with the feedback that it set employers in the right frame of mind to discuss employee education and training issues.

COLLEGE PERSONNEL

IDENTIFICATION, SELECTION AND RECRUITMENT

To obtain feedback from educational institutions, two colleges were selected from among the 22 Colleges of Applied Arts and Technology in Ontario. The Ontario colleges are vocational (not transfer) institutions, with a stated policy and a reputation as providers of industrial training to their constituencies. The colleges selected were from Metro Toronto, and had mandates to provide training for business and industry.

From the two colleges, a total of five administrators and five instructors were invited to participate.

The administrators selected were from both established and non-traditional areas (a divisional dean from the academic side; a training manager responsible for needs analysis and

training plans; a training manager responsible for marketing and organization; a manager in charge of related research and development; and, a vice-president in charge of all government training programs).

The instructors identified were from technological areas directly involved in industrial training.

COLLEGE DATA GATHERING

In each case, the research project was explained, a discussion was initiated, and a number of open-ended questions were asked from the participants (Appendices E and F).

The discussion topics directed to community colleges were divided between administrators and instructors. Specific connections were sought between the questions asked from these two population samples.

The instruments designed for colleges also included a series of issues addressed by the questionnaires for employers and employees. This generated an additional area of comparison of the feedback.

The questions addressed to respondents from colleges were in form of discussion topics rather than formal questionnaires. They did not seek to drive any specific responses. They attempted to draw out issues such as : working with creative interpretation of available funding programs; improving coordination between different departments; streamlining the paperwork; balancing generic training with technological training and company specific training; and, addressing remedial program needs for people who lack minimum educational levels. They also intended to explore : interest in trainees; communication between industry and college; joint program accountability between industry and college; and, balancing the costs of equipment and materials in colleges with joint in-plant training. They explored modes of training, and multiskilling and upskilling issues.

METHODS OF DATA ANALYSIS.

The results of the questionnaires and the conclusions from the focus groups are more indicative of tendencies than precise statistical data.

The resulting quantitative data are analyzed using the MINITAB statistical package for IBM compatible computers. Calculations performed were frequency counts, frequency

distributions, means and standard deviations.

The qualitative data was analyzed and discussed as part of the chapter IV and summarized in chapter V. This is a multi-comparison analysis. Data is first compared as perceived by the two populations studied, employers and employees of small manufacturing businesses. Some of the perceptions are parallel and some are orthogonal. This enables the researcher to compare and contrast - where applicable - the insights of two different but related population samples addressing the same themes.

Some of the industry responses represent perceptions about training organizations, in particular community colleges. To provide another view on the implications of these barriers for the community colleges, the administrators' and instructors' data was analyzed.

This analysis examines their perceptions about the role of the colleges and related barriers to access as seen by both consumers and suppliers of the service.

A model of this analysis is shown in figure 3.2.

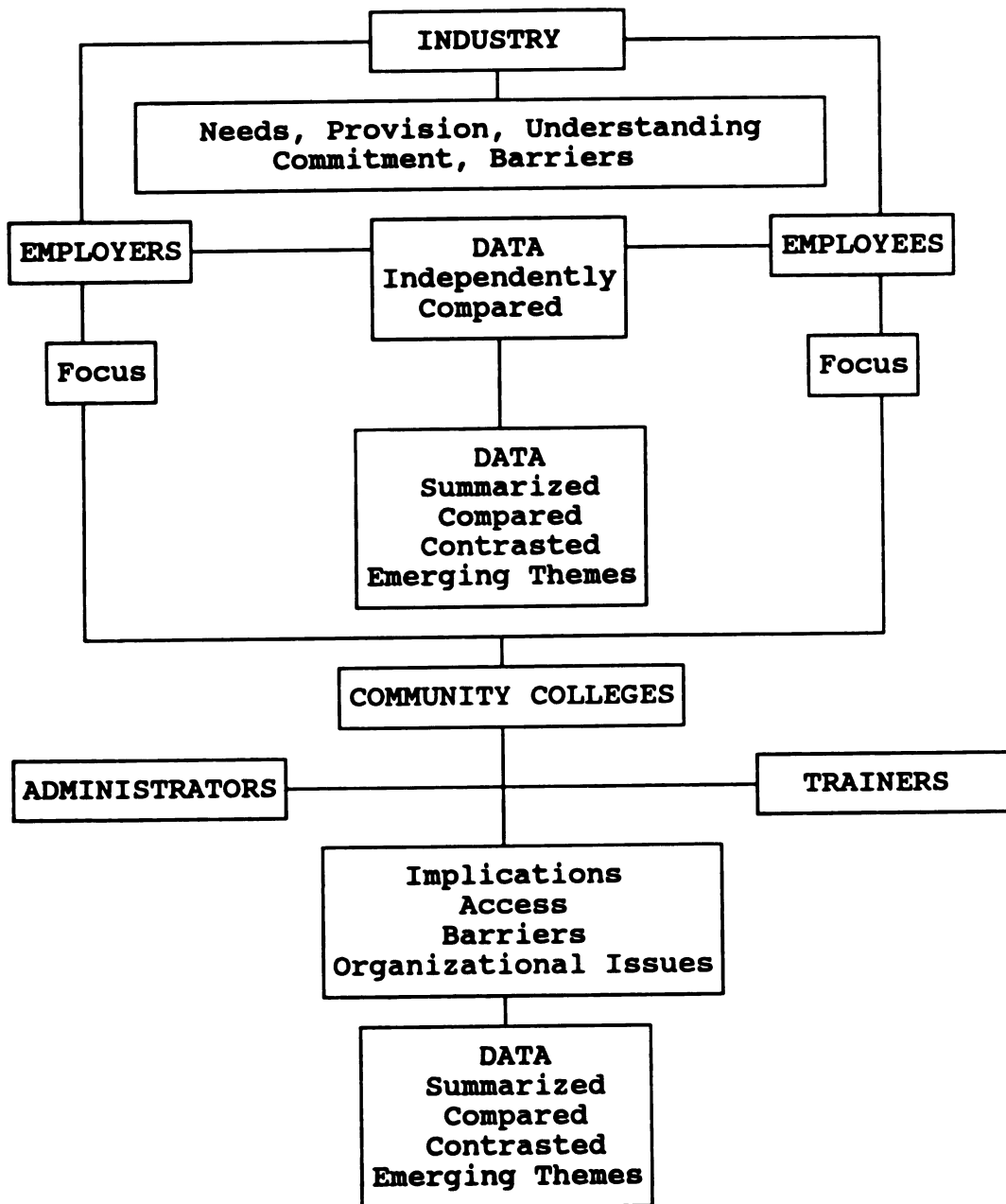


Figure 3.2
Data summary and contrast

SUPPORT FOR THE STUDY

Wherever possible, the research was carried out through existing organizations sharing similar goals, who were interested in sharing in the results. These were the Ontario Skills Development Office (OSDO) and the Business and Industry Service Center (BISC).

These organizations have offered help for arranging meetings with employer groups and have expressed interest in the results of the research.

A request for endorsement was made to the Canadian Federation of Independent Business (CFIB), an umbrella organization of small businesses in Canada (see Appendix G). The CFIB has expressed interest in the results, as its own educational and training research can only benefit from the direct feedback of employer focus group discussions.

A request for institutional endorsement of this project was made to Humber College (see Appendix H). It was supported by the Dean of Engineering Technology and endorsed by the Vice-President of Instruction. This assistance covered office expenses.

SUMMARY

The study compared the perceptions of two pairs of groups concerning barriers to access education and training for employees of small manufacturing businesses.

The populations for this study were employers and employees of small manufacturing businesses, and training administrators and trainers from community colleges.

For the first category, questionnaires were designed to address the issues derived from Blair's (1991) principles for improving the workforce : commitment; understanding; access; and, economic importance. These questionnaires were administered as part of discussion focus groups with samples of employers and employees.

For the second category, a list of discussion topics was produced to analyze implications and conclusions for community colleges. These were addressed in individual interviews.

Findings from this study were reported in Chapter IV. Conclusions and implications are further discussed in Chapter V. The questionnaires and lists of discussion topics

are in the appendices.

CHAPTER IV

FINDINGS

The focus of this research was on barriers to prevent access to education and training for employees of small manufacturing businesses. This chapter presents an analysis of the data gathered by the researcher.

The purpose of the study was to investigate the following research questions :

1. Identifying the needs :

- 1a. What are employee needs for education and training, as stated by managers/owners of small manufacturing businesses?
- 1b. What are employee needs for education and training, as stated by employees of small manufacturing businesses?
- 1c. What are employee needs for education and training, as perceived by community college administrators and instructors?

2. Identifying the barriers :

2a. What are the barriers to access education and training for employees, as stated by managers/owners of small manufacturing businesses?

2b. What are the barriers to access education and training for employees, as stated by employees of small manufacturing businesses?

2c. What are the barriers to access education and training for employees, as perceived by community college administrators and instructors?

3. Identifying the levels of understanding :

3a. What is the level of understanding about employee education and training related to the workplace, of managers/owners of small manufacturing businesses?

3b. What is the level of understanding about employee education and training related to the workplace, of employees of small manufacturing businesses?

4. Identifying the levels of commitment :

4a. What is the level of commitment to education and training related to the workplace of managers/owners of small manufacturing businesses.

4b. What is the level of commitment to education and training related to the workplace of employees of small manufacturing businesses?

4c. What is the level of commitment to education and training related to the workplace of community college administrators and instructors.

The study involved four populations : employers, employees, college administrators and trainers.

The findings are clustered in the following categories, reflecting the research questions :

- Employee need for education and training.
- Commitment to employee education and training.
- Understanding about employee education and training.
- Barriers to access employee education and training
(categorized as situational, organizational and dispositional barriers).

The development of these four clusters was based on Blair's four key principles for improving the U.S. work force (Ch.

I). These tenets are :

- 1) commitment to skill development,
- 2) understanding of skill requirements,
- 3) guaranteed access to training opportunities, and
- 4) belief in the economic importance of work and workers.

(a) EMPLOYER GROUPS :

The focus of this analysis was to gather information on the barriers to prevent access to education and training for employees of small manufacturing businesses, as seen by employers of these companies. This study was largely exploratory. The topic itself is a relatively new concept, and the data was collected from questionnaires filled out by employers and from employer focus group discussions.

The findings reported for employer groups were obtained from responses to questionnaires distributed prior to discussion focus groups. Meetings were organized with *focus groups of employers* (owners or managers) of small manufacturing businesses. At the start of these meetings, the purpose of the investigation was explained to the participants. They were requested to fill out a questionnaire (Appendix A : Questionnaire for Employers) prior to the focus group discussion, to avoid any influences on the questionnaire responses. Following completion of the questionnaires, discussions were then held around the questionnaire topics and related areas. On many occasions these focus groups turned into problem solving sessions as some participants raised certain issues associated with training, and others shared their own experiences. Some employers raised

questions related to various specific barriers in accessing education and training. Others provided solutions that had worked for them.

The questionnaire data and the focus groups' feedback have been summarized by the researcher in tables 4.1 through 4.7. Numerical findings were reported as means and standard deviations.

The majority of the questions asked of the employers in their questionnaires were also asked of the groups of employees of small manufacturing businesses. The reason for this process was to compare and contrast the employers' and employees' perceptions on a number of identical questions.

FINDINGS RELATED TO EMPLOYERS

To facilitate the process of reaching employers for this study, two sources were utilized : The Ontario Skills Development Office (OSDO) and Humber College's Business and Industry Service Center (BISC). Most of the employers contacted through OSDO had expressed an interest in exploring training or were already customers of OSDO. Most of the companies accessed through BISC were from different fields of the plastics industry and had very little, if any,

exposure to training. The feedback from these employers was used both for this research and at the same time as planning information for the Canadian Plastics Training Center (CPTC) recently opened at Humber College.

The investigation process included a small group meeting, filling out a survey and a focus group discussion with the researcher. In the meetings with employers sourced through OSDO, an OSDO consultant took part in the meeting as an additional resource person. For the meetings organized through BISC, the director of the CPTC was an interested participant.

The meetings had been planned for 10 - 12 employers, but no more than 6 or 7 were present at any session. Once the session was opened and introductions concluded, a short introduction of the project followed. "Employer" questionnaires were distributed and filled out. Discussions took place after the questionnaires were completed, thus separating the questionnaire results from the group discussions. The subsequent discussion included specific and open ended questions by the researcher. In many cases, though, after an employer discussed an individual company situation, he or she had specific, training related, questions. Other employers were in the situation of being able to provide answers and a most productive dialogue resulted. In some specific cases, the focus groups were followed by business discussions of mutual interest between

a specific employer and representatives of OSDO and BISC. The researcher helped stimulate the discussion, watched for specific cues and identified emerging or recurring themes. Feedback thus obtained was synthesized in a summary of employer comments.

A summary of the employer data is presented in tabular format in table 4.1.

Table 4.1

Summary of employer data (sorted by the total number of employees)					
Co.	Tot. Emp.	Prod Emp.	Major product	Employer Position	Union
1	5	5	Die cast dies	Owner	No
2	6	2	Flavours, mixes	President	No
3	8	6	Bottles	President	No
4	10	8	Pharmaceutical bottles	Manager	No
5	11	3	Dairy products	President/owner	No
6	14	4	Acrylics, loxan	Sales manager	No
7	15	9	Plastics, extrusions	Plant manager	No
8	15	10	Aerospace components	General manager	No
9	15	10	Doors and dock plates	Vice-president	No
10	20	8	Plastic pipe, fittings	Manager	No
11	20	12	Custom mfg., tanks	Plant manager	No
12	25	20	Metal nameplates	Owner	No
13	30	20	Theater seating	President	No
14	34	16	Silicates	Empl. relations manager	Yes
15	38	10	Bakery products	President	No
16	40	25	Kitchen cabinets	President	No
17	50	35	Rubber gaskets	Plant manager	No

Co.	Tot. Emp.	Prod. Emp.	Major Product	Employer Position	Union
18	55	22	Aluminum louvers	Controller	No
19	60	25	Identif. prod./systems	Human res. specialist	No
20	65	50	Drafting instruments	President	No
21	70	65	PE film and bags	Marketing	No
22	75	40	Acoustical baffles	President	Yes
23	75	50	Profile extrusion	Project manager	No
24	75	50	Flexible packaging	Plant manager	No
25	75	65	Food proc. (meats)	Hum. relations manager	No
26	87	87	Books	Hum. resources manager	No
27	90	66	Aircraft parts manuf.	General manager	No
28	90	80	Molds	V.P. finance	No
29	95	50	Acrylic polymer & sheet	Plant manager	No
30	95	75	Electrical transformers	General manager	No
31	95	80	Plastic bottling	Plant manager	Yes
32	100	80	Plastic bottles/cosmet.	Operations manager	No
33	100	85	Injection molds	Vice president	No
34	100	90	Expanded polystyrene	Plant manager	No
35	100	90	Fatty acids/derivatives	Mgr. HSE and training	Yes

The respondents were counted from one to thirty five in the first column, "Co", representing employer numbers one through thirty five. The size of the companies is given by the total number of employees in the second column in table 4.1. The table was sorted by this parameter in ascending order. The third column represents the number of production employees. The fourth column, "Major product" identifies the type of company. The fifth column supplies unionization information.

The positions or job titles of the respondent employers have been summarized in the table 4.2.

Table 4.2

Positions of respondents to employer questionnaire

No.	Employer Position (grouped category)	Number Reporting
1	Controller	1
2	Employee relations manager	1
3	General manager	3
4	Human relations manager	1
5	Human resources manager	1
6	Human resources specialist	1
7	Manager	2
8	Manager HSE and training	1
9	Marketing	1
10	Operations manager	1
11	Owner	2
12	Plant manager	5
13	President	7
14	President/owner	1
15	Project manager	1
16	Sales manager	1
17	Vice-president	1
18	Vice-president finance	1
	Total respondents	35

The questionnaires were completed by executives of respondent companies (tables 4.1 and 4.2).

The responses to employer questionnaires (Appendix A : Employer Questionnaires, and Appendix B : Means and Standard

Deviations for employer questionnaires) have provided the following feedback for the **EMPLOYER BASED RESEARCH**

QUESTIONS :

1a. What are employee needs for education and training, as stated by managers/owners of small manufacturing businesses?

The first four questions in the employers' questionnaire address their perceptions of their employees' need for training (table 4.3 : Mean and standard deviation for each question across the sample of 35 employers). Based on the means of the answers supplied by 35 respondents, the employers' aggregate perception of employees' needs is slightly above average, for a mean of means of 2.61. The specific answers emphasize the need for job skills and teamwork skills, with slightly less emphasis on basic skills, and health and safety.

Table 4.3
*Employee needs for education and training
as seen by employers*

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q1a : How much training do your present employees need in job skills ?	2.824	0.936
Q1b : How much training do your present employees need in basic skills ?	2.571	0.815
Q1c : How much training do your present employees need in teamwork skills ?	2.721	0.898
Q1d : How much training do your present employees need in health and safety ?	2.324	0.768
Mean of means	2.61	

The next four questions give an indication of the amount of training provided by employers to employees. The mean of the responses, at 2.43, indicates that the amount of training provided is somewhat lower in the employers' estimate than the amount of training required.

Table 4.4
Provision of training to employees

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q2a : How much training do you provide or is presently provided to your present employees in job skills ?	2.671	0.757
Q2b : How much training do you provide or is presently provided to your present employees in basic skills ?	2.257	0.980
Q2c : How much training do you provide or is presently provided to your present employees in teamwork skills ?	2.371	0.843
Q2d : How much training do you provide or is presently provided to your present employees in health and safety ?	2.441	0.960
Mean of means	2.43	

2a. What are the barriers to access education and training for employees, as stated by managers/owners of small manufacturing businesses?

The last 21 questions of the employers' questionnaire address specifically various barriers that prevent access to education and training for their employees. Of these, six

questions identify situational barriers, five are organizational (place of employment), six are also organizational (training institution) and four are dispositional barriers. The mean of the situational barrier means works out to approximately 2.3 (below average), with personal transportation the lowest and lack of time the highest. Organizational barriers related to the place of work produce a mean of means of 1.99, with retention of trainees in layoff the lowest at 1.76 and conflict between work schedule and training schedules the highest at 2.242. Organizational barriers related to the training institution average out to just over 2, with accreditation the lowest at 1.655 and relevance of skills the highest at 2.226. The average of means of responses on dispositional is just under 2.1, with "peer pressure" the lowest at 1.750 and "age (time away from school)" the highest at 2.441.

Table 4.5
*Barriers to employee participation in education
and training as seen by employers*

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q16 : To what extent do you believe that the following factors act as <i>barriers</i> to your employees' willingness to participate in education and training ?	-	
<i>Situational barriers</i>		
Q16a : fees or expenses employee must pay during training	2.333	1.242

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q16b : Potential lost income	2.606	1.321
Q16c : Lack of time	2.657	0.906
Q16d : Low prior educational attainment	2.543	0.852
Q16e : Personal transportation	1.471	0.662
Q16f : Job responsibilities ("too busy")	2.171	0.954
Mean of means	2.3	
<i>Organizational barriers (work)</i>		
Q16g : Conflict between work schedule and education & training schedules	2.242	1.032
Q16h : Amount of paperwork to be completed by the trainee	2.143	0.912
Q16i : Clarity of government guidelines	2.036	0.793
Q16j : Selection of applicants for training	1.767	0.817
Q16k : Retention of trainees in a lay-off situation	1.760	0.970
Mean of means	1.99	
<i>Organizational barriers (training institution)</i>		
Q16l : Accreditation to be given to employees	1.655	0.814
Q16m : Ability of training programs to cross occupational or trade jurisdictional programs	1.926	0.829
Q16n : Relevance of skills taught by the training programs	2.226	0.920
Q16p : Location of training programs relative to location of trainees	2.152	0.939
Q16r : Ability of training programs to train for multi-skill jobs	2.000	0.984
Q16s : Job and career expectations of employees	2.147	0.989
Mean of means	2.02	

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
<i>Dispositional barriers</i>		
Q16o : Portability of skills learned from training	1.879	0.927
Q16q : Length of time for program	2.273	0.944
Q16t : Peer pressure	1.750	0.762
Q16u : Age (time away from school)	2.441	0.824
Mean of means	2.1	

3a. What is the level of understanding about employee education and training related to the workplace, of managers/owners of small manufacturing businesses?

The level of understanding was addressed by questions 3, 4, 6, 7, 12, 13 and 14. All responses indicated that employers believe their level of understanding to be above the "above average" level, with a mean of means of 3.14. The highest response was given to question 3, with a mean of 3.8 and a relatively small standard deviation of 0.584. This indicates that most employers believe that employee training is positively critical to their companies' success. The lowest answer was given to question 4. This shows that employers tend to rate employee belief in the importance of training for the success of the company much below their own.

Table 4.6

*Level of understanding of managers
about employee education and training*

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q3 : How much do you believe that employee training is critical for your company's success ?	3.800	0.584
Q4 : How much do your employees believe that employee training is critical for your company's success ?	2.714	0.750
Q6 : How knowledgeable do you consider yourself in education and training ?	2.800	0.677
Q7 : To what degree does your own education and training affect your thoughts and decisions on the training needs of your employees ?	3.486	0.742
Q12 : To what degree do you believe that training and retraining are preferable to hiring and firing ?	3.257	0.852
Q13 : How clearly can you communicate new job expectations that will require training by your employees ?	2.743	0.741
Q14 : To what degree are you a positive model, coach and reinforcer of the desired behaviors of your employees ?	3.206	0.687
Mean of means	3.14	

4a. What is the level of commitment to education and training related to the workplace of managers/owners of small manufacturing businesses.

The level of commitment was examined in questions 5, 8, 9, 10, 11, 15a, 15b and 15c. The mean of these means, 1.99 was far below the value for the level of understanding. The highest value, at 3.571 indicated a high commitment from the

managers in encouraging and supporting training for employees. The lowest value, much lower at 1.419, reflected managers' feedback on their use of community colleges for recruitment of staff. The low use of community colleges by managers was reflected in many of the focus group discussions.

Table 4.7
Level of commitment of managers
to employee education and training

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q5 : To what extent is employee education and training a part of your company's strategic goals ?	3.114	0.867
Q8 : How committed are you to encouraging and supporting training for your employees ?	3.571	0.608
Q9 : How committed are your employees to assume responsibility for their own training ?	2.329	0.813
Q10 : How much time and effort are you prepared to invest to help define the training needs of your employees ?	3.129	0.721
Q11 : How much time and effort would your employees be prepared to invest to help define their own training needs ?	2.294	0.676
Q15a : To what extent do you use the community college for employee education ?	1.603	0.860
Q15b : To what extent do you use the community college for employee training ?	1.567	0.935
Q15c : To what extent do you use the community college for recruitment of staff ?	1.419	0.720
Mean of means	1.99	

SUMMARY OF EMPLOYER COMMENTS

During the employer focus group discussions, the researcher took extensive notes. The notes were subsequently reviewed and specific ideas highlighted. As data began to accumulate, a pattern of topics began to emerge. After a while, the researcher became able to classify discussions into recurring or new themes. Following completion of the employer interviews, the themes were reviewed and listed as shown below, together with a summary of the appropriate comments.

The following comments were summarized from discussions in the employer focus groups following the filling in of the questionnaires :

training programs

- Our industry doesn't have a tradition of training.
- Relationship with the Ontario Skills Development Office (OSDO) was very beneficial for our company (several comments).
- OSDO should try to streamline the paperwork and documentation for funding of training.
- OSDO planning time is too long.
- We have found Humber College and OSDO to be very flexible.
- Colleges are traditional and conventional, definitely not in touch with the small business market and its needs.

Graduates have no feel for costs and pricing.

- We get our training from night school classes. The level of instructors is quite variable.
- We cannot keep pace with technological changes.
- Most of our workers know how, but have no idea why they do things. The new tradesman has to work mentally. He also requires some theory background.
- We find that our equipment supplier's repairmen are not that knowledgeable. They learn our equipment on our time and at our expense. They need training too.
- Our sales staff needs training in product knowledge.

motivation

- We don't know how to motivate our employees. Money doesn't help with most of them.
- Our long term employees will not change their approaches.
- Our employees see doing training as a favor to the company.
- Our people feel they don't need training. Actually they don't want to know about it.
- Many of our employees are afraid of training, particularly of computers.
- We have to empower our employees and give them more responsibility.
- In a small company such as ours, management is cut down to a minimum and each person must be multi-skilled.

basic skills

- Most employees have problems communicating in English.
- Our younger employees are illiterate in any language.
- We have many problems with our women employees (age, culture, math, etc). They are very resistant to change.

team work

- Team work is critical. We don't have company manuals.
 - We as managers are responsible for the work environment.
- We allocate two weeks to find out if new employees can get along.

certification

- Where applicable, we have to have each employee certified for process safety. At this stage, our certification is only internal.
- We would like to see all chemical operators in our industry certified. There is no current certification and we have no control over what we get.
- We need multiskilling. Union and apprenticeship approaches are too restrictive.

training logistics

- We would prefer to have all our training on site. Our employees would be much more comfortable in our own plant.
- Keep training as short as possible. Half days are best.

Saturdays are preferable.

- We run continental (12 hour) shifts. We prefer one week training courses, as it's hard to re-schedule in mid-week.
- We are very willing to become part of a training consortium of small companies.
- Our concern about a consortium is that we want our employees to listen to the competition but not tell them anything.
- Our concern about a consortium is that our employees may find out that the competition pays more than we do.
- We have used small "fix" courses composed of 3-4 hour videotapes. Best results are obtained when the trainer is another employee (pre-trained).

management issues

- We are in survival mode.
- Our owners started as workmen and still think as workmen, not as managers.
- We must share the responsibility for the lack of training in companies of our size.
- We have to pay time and a half for our employees to train on their own time. We don't make enough money to cover the costs.
- Customer expectations are forever increasing. Our training is oriented to our customers' expectations of value : quality, price and service.

- We need help with a performance evaluation system.
- We will pay for all employee training, up front if needed.
- You should make industry more aware of your services.

People either don't know or just don't take advantage of what you have to offer.

- I am here by accident. Most small businesses such as ours are unaware of the existence of these training programs.
- Information and guidance for small businesses is equally as important as training dollars.
- We have great turnover of employees, in spite of the economic situation. There is no more employee loyalty. We also can't pay too much.
- Some employees will quit if requested to work overtime.
- Our employees leave to go and work for larger companies who pay a dollar more per hour.

hiring

- We are not very successful in attracting trained people. We hire mostly entry-level employees.
- You can buy skill, but only so much. We must train.
- We are customer driven in our hiring and layoffs.

**ANALYSIS OF CONSISTENCY
BETWEEN EMPLOYER COMMENTS AND QUESTIONNAIRE ANSWERS**

Employee education and training needs :

The employers' comments indicate a definite need for training of employees, be they production employees, sales staff or equipment service people. A recurring theme among employers was that employees in general know how, but not why certain processes are performed. Yet in their answers to questionnaires, employers show a perception of employee training needs barely above average. Their estimate of training provided is even lower than their perception of the needs.

Barriers to employee access to education and training :

An incongruity is shown by a comparison of the employer comments on barriers to employee education and training, and their questionnaire responses. The comments are split in two categories : training logistics - which indicate future preferences rather than past experience, and motivational levels which are perceived to be very low. The responses to questionnaires show employers' perception that barriers are low. Are employers trying to relate their perception of low barriers to access to their insight of low motivation to scale these barriers ?

Understanding employee education and training needs :

In their expression of the level of understanding about employee education and training needs related to the workplace, employer comments and responses become more consistent. Their comments about needs for technological changes, work understanding through theory, multi-skilling, and certification, are all congruent with well above-average responses to the appropriate questions. An interesting discrepancy, however, was the expression by most employers of the need for employee team work abilities. When it came to employers showing team work by consolidating training among the companies themselves, most employers were reluctant. Their hesitation was divided between the desire to keep company processes a secret (learning secrets from others was acceptable, though) and the concern that employees might find out about higher salaries elsewhere.

Commitment to employee education and training needs :

Employer comments and questionnaire responses showed a variation in the extent of commitment. Lack of funds to cover costs of training, and need for total training flexibility (on the part of the training institution) were emphasized by most employers. These apparent barriers contrasted with the high level of commitment of employers in their questionnaire responses.

(b) EMPLOYEE GROUPS

The focus of this analysis was to gather information on the barriers to prevent access to education and training for employees of small manufacturing businesses, as seen by the employees of these companies.

This study was largely exploratory. This group of employees has not been adequately categorized and researched in the literature reviewed. The data was collected from questionnaires filled out by employees, and from employee focus group discussions.

The findings reported for employee groups were obtained from responses to questionnaires distributed at the beginning of meetings with them, and from subsequent discussions with these groups. They provide a preliminary picture of the variety of people, education and training needs, and barriers to access education and training.

The employees were selected at random among the large population of Continuous Education students at Humber College in Toronto. They were approached by the researcher during their class breaks. They were asked if they would like to participate in a training related research, at some convenient time. The only selection criteria was that the respondent be currently employed as a production worker in a

manufacturing business of no more than 100 employees. The meeting with the participants took place later in a conference room or an empty classroom.

The employee meeting agenda was the same as the one used for employers. A brief introduction dealt with the purpose of the study and the use of questionnaires (Appendix C : Questionnaire for Employees). Questionnaires were distributed and filled out. Subsequent discussions took place around the questionnaire topics and related areas. The discussions were initiated by the researcher with several open ended questions.

The discussions centered on the topics covered by the questionnaire. The participants were also invited to discuss any other related issues or concerns. The researcher watched for and noted cues that could shed additional light on the issues addressed by the questionnaire. Notes were also made on any additional related issues brought up by the participants.

The researcher's role was to initiate a discussion, keep it on track and watch for specific cues and emerging themes. The size of this group varied with the number of qualified employees available in a particular evening or Saturday, from as few as two or three to as many as six or eight.

Following completion of the session, feedback was organized and synthesized. When needed, specific issues were re-visited by the researcher through follow-up interviews with individual employees or re-introduced in subsequent focus groups.

Unlike the employers, many employees had serious communication problems. Some of these were due to language difficulties, as most were new immigrants. Other obstacles were caused by the lower educational background of some employees. The researcher had to ensure that all questions were well understood and that the answers were related to the questions.

The sample respondents were employed in a large variety of positions (see table 4.9). The researcher had to assist them in filling out the questionnaires due to overall poor English proficiency. The assistance was strictly limited to further clarifying or explaining a word or a question to assure comprehension and factual responses. This process was pursued until it was obvious that the matter was clearly understood by all group discussion participants. Particular care was exercised to communicate without influencing the response process. In general, communication skills were found to be a widespread concern during the gathering of data for the research with this particular group. It may be

essential that this kind of questionnaire be administered in person in any future research because of the participants' limited communication skills and possibility of misunderstandings.

The majority of the questions asked from the employees in their questionnaires had also been asked from the groups of employers of small manufacturing businesses. The reason for this process was to examine and compare the employers' and employees' perceptions on a number of related issues. This procedure will permit some conclusions to be drawn as to how employers and employees view the same issues.

General information about the respondents is reported in table 4.8. This includes the total number of employees, the number of production employees, the major product of the company, the position of the respondent and the union status.

Table 4.8
Summary of Employee Data
(sorted by the total number of employees)

Emp.	Tot. Emp.	Prod Emp.	Major Product	Employee Position	Union
1	2	1	General metal cutting	Milling mach. operator	No
2	4	2	Jigs& fixtures	Machine operator	No
3	4	3	Skids/pallets	Operator	No
4	8	5	Electrical cabinets	Brake press operator	No
5	10	8	Blow mold	Buyer/production welding	No
6	11	8	Electrical cabinets	General help CNC	No
7	13	11	Electrical components	General helper	No
8	14	5	Stationary	Shipping/receiving,mach.	No
9	20	15	Heatsinks	CNC machinist	No
10	20	16	Trailer parts	Fabricator	No
11	20	10	Conveyors	Shipper/receiver.	No
12	25	15	Injection molding machines	CNC programmer	No
13	30	20	Lab photography	Shipper/receiver.	No
14	30	24	Acrylic fixtures	Acrylic fabricator	No
15	30	25	Custom machining	Boring mill operator	No
16	30	15	Roll forming machines	CNC machinist	No

Emp.	Tot. Emp.	Prod Emp.	Major Product	Employee Position	Union
17	35	30	Bottle manufacturing	Set up person	No
18	35	30	Aircraft parts	CNC programmer	No
19	35	25	General fabricating	General machinist	No
20	40	30	Satellite/cable television	Machinist	No
21	40	30	Plastic bottles	Bench	No
22	50	40	Gears & molds	Milling mach. operator	No
23	50	26	Aircraft parts	Tool maker	No
24	50	20	Water chillers	Wiring technician	No
25	50	45	Dies	Tool & die maker	No
26	50	45	PVC extrusion	CNC programmer	No
27	50	40	Extrusions	Assistant supervisor	No
28	50	40	Automotive hoists	Design draftsman	No
29	60	30	Spray booths	Draftsman	No
30	60	50	Automotive fittings	Production administrator	No
31	60	45	Store interfaces	CNC programmer operator	No
32	60	40	Hydro switch gear	Inspector	No
33	70	60	Injection molds	Mold tester	No
34	75	45	Heatsinks/aluminum	CNC programmer/superv.	No
35	75	40	Heatsinks/aluminum	CNC leadhand	No
36	75	40	Heatsinks/aluminum	CNC operator	No

Emp.	Tot. Emp.	Prod Emp.	Major Product	Employee Position	Union
37	75	65	Molds	Mechanical designer	No
38	80	55	Nuclear instruments	Apprentice	No
39	85	50	Heatsinks	CNC operator	No
40	85	70	Auto parts	Machine operator	No
41	90	50	Heatsinks	Maintenance	No
42	90	60	Power transformers	Sr. mechanical draftsman	CAW
43	90	45	Aircraft equipment	Chief Eng./Design	CAW
44	90	80	Rebuilt engines	Cylinder honer	SWA
45	95	90	Bacardi rum	Machinist/millwright	Yes
46	100	90	Brake rotors	CNC operator	No
47	100	90	Oil pumps	Machine operator	No
48	100	80	Lighting equipment	Setup assembler	SWA
49	100	69	Transformers	Winder, inspector	No
50	100	60	Packaging equipment	Service technician	No

The respondents have been counted from one to fifty in the first column, "Emp.", representing employee number one through fifty.

The size of the companies employing the respondents is represented by the second column in table 4.8. This column shows the total number of employees in the companies, and the table has been sorted by this parameter in ascending value. The range is 2 to 100, and the distribution is fairly uniform.

The third column represents the number of production employees, as identified by the participants. The numerical difference between columns two and three (total and production employees) gives an indication of the nature of the company. Most of this difference was represented by sales, marketing or engineering personnel, according to the respondents' verbal comments.

The different areas to which the above manufacturing companies belong are illustrated by the column 'Major Product'. The variety of companies is practically equal to the number of employees interviewed. There is no apparent connection between the size of the company and the position or the grouping of positions of employees.

The fifth column gives an indication of the respondent employee position in the company. The positions or job titles of the respondent employees have been separately

summarized in table 4.9.

The last column supplied information on unionization. Five respondents, or 10% worked in unionized companies, with the overwhelming majority reporting non-unionized shops.

Table 4.9
Positions of respondents to the employee questionnaire

No.	Employee Position (grouped category)	Number reporting
1	Machine operator	9
2	CNC operator	6
3	CNC programmer	5
4	Designer/draftsman	5
5	Shipper/receiver	3
6	Apprentice/bench	2
7	General helper	2
8	Production supervision	2
9	Tool and die maker	2
10	Inspection	2
11	Operator	2
12	Set up assembler	2
13	Cylinder honer	1
14	Maintenance	1
15	Mold tester	1
16	Service technician	1
17	Wiring technician	1
18	Plastic (acrylic) fabricator	1
19	Mechanical fabricator	1
20	Buyer/production/welding	1
	Total respondents	50

Looking at table 4.9, 37 or 74% of the respondents are directly engaged in production, 3 or 6% are indirectly involved, and 10, or 20% are engaged in technical office work. Among the production workers, 32 or 86% are skilled workers. There was no information on whether these were formally qualified in their trade. In general, the more knowledgeable people are, the more training they feel they need.

EMPLOYEE RELATED RESEARCH QUESTIONS.

The responses to the employee questionnaires and the employee group discussions have provided the following feedback for the employee based research questions :

1b. What are employee needs for education and training, as stated by employees of small manufacturing businesses?

The first four questions in the employees' questionnaire address their perceptions of need for education and training. Based on the means of the answers supplied by 50 employees, their perception of need is "average", for a mean of means of 2.4. This answer is located almost half way between the questionnaire's answers of "somewhat" or 2, and "above average" or 3. It indicates that the employees state the need for some training, with somewhat higher need reported in the areas of job skills and teamwork skills, and

lower in basic skills and health and safety.

Table 4.10
*Employee needs for education and training
as seen by employees*

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q1a : How much training do you need in job skills ?	2.545	1.118
Q1b : How much training do you need in basic skills ?	2.217	1.036
Q1c : How much training do you need in teamwork skills ?	2.497	1.053
Q1d : How much training do you need in health and safety ?	2.322	0.856
Mean of means	2.4	

2b. What are the barriers to access education and training for employees, as stated by employees of small manufacturing businesses?

The last 17 questions of the questionnaire represent half of all the questions. They specifically address barriers to access education and training for employees of small manufacturing businesses (see table 4.11).

No barriers were identified in the range between "above average" and "a great amount".

Three barriers were identified between "somewhat" and "above average", closer to the latter.

The balance of the barrier oriented questions, mainly *dispositional*, were identified as between very little and

somewhat.

Interestingly enough, a barrier perceived by the researcher as very meaningful - low prior educational attainment - as reflected by very poor communication skills, was not identified as such by the respondents. Nor was the need for basic skills - specifically literacy - identified as a major problem by the respondents.

Four of the barriers are *situational* - lack of time, low prior educational attainment, job responsibilities and financial support. The mean of means is about 2.4, ranging from the lowest, low prior education, at 1.887, to the highest, "too busy", at 2.8.

Five barriers are *dispositional* - return on employee's investment, portability of skills, difficulty to meet job or entry requirements, peer pressure and age. The mean of means is about 1.9, ranging from the lowest, peer pressure and/or time away from school, at 1.683, to the highest, financial support during training, at 2.280.

There are three *organizational barriers, related to work*. These are conflict between schedules, selection for training and retention in layoff. The mean of means is about 2.2, ranging from the lowest, selection of applicants for training, at 2, to the highest, conflict between schedules, at 2.368.

The remaining five barriers are *organizational barriers*, related to the training institution. These are the ability of the program to cross occupational lines, location of the training program, multi-skilling and career expectations. The mean of means is about 1.9, ranging from the lowest, relevance of skills taught, at 1.774, to the highest, ability of programs to cross jurisdictional lines, at 2.104.

Table 4.11
Barriers to employee participation in
education and training as seen by employees

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q14 : To what extent do you believe that the following factors act as barriers to your participation in education and training ?		
<i>Situational barriers</i>		
Q14a : Lack of time	2.700	1.111
Q14b : Low prior educational attainment	1.887	0.931
Q14c : Job responsibilities ("too busy")	2.800	0.969
Q14f : Financial support for you during (institutional training)	2.289	1.195
Mean of means	2.42	
<i>Organizational barriers (work)</i>		
Q14e : Conflict between work schedules and education & training schedules	2.368	1.090
Q14g : Selection of applicants for training	2.000	0.872
Q14h : Retention of trainees in lay-off situations	2.224	0.772
Mean of means	2.2	

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
<i>Organizational barriers (training institution)</i>		
Q14i : Ability of training program to cross occupational or trade jurisdictional confines	2.014	0.995
Q14j : Relevance of skills taught in the college	1.774	0.903
Q14l : Location of training programs relative to your location	1.943	1.093
Q14m : Ability of training programs to train for multi-skill jobs	1.819	0.804
Q14n : Your job and career expectations	1.802	1.743
Mean of means	1.87	
<i>Dispositional barriers</i>		
Q14d : Return on your investment	2.680	1.076
Q14k : Portability of skills learned from training	1.722	0.884
Q14o : Difficulty for you to meet job or entry requirements	1.802	2.013
Q14p : Peer pressure	1.683	1.572
Q14q : Your age (time away from school)	1.683	1.572
Mean of means	1.91	

3b. What is the level of understanding about employee education and training related to the workplace, of employees of small manufacturing businesses?

The level of understanding was mainly addressed by questions 2, 3, 7, 10, 11 and 12.

The responses were variable, with means ranging from about 2.720 to a high of 3.520, with a mean of means of 3.04.

The highest scoring responses indicated that the respondents believed that training would help their knowledge, skills and attitude towards work. This particular response had been anticipated, as all the respondents were continuing education students. The lowest response indicated a corresponding level of confidence in the ability of the manager to communicate new job expectations that would require training by the employees.

The higher scoring responses related to the connection between training and knowledge, skills and attitude towards work. The inconsistency between the low score and the high score answers arose from the lack of connection between increased knowledge and skills, and company success. This may be related to some extent to the lack of effort in smaller companies in emphasizing a corporate image and corporate success.

Table 4.12
*Level of understanding of employees
about employee education and training*

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q2 : How much do you believe that training is critical for your company's success ?	3.184	1.009
Q3 : How much does your manager believe that training is critical for your company's success ?	3.004	1.024
Q7 : How clearly can your manager communicate new job expectations that will require training by employees ?	2.720	0.965

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q10 : How much would training help your knowledge, skills and attitude towards work ?	3.520	0.707
Q11 : How much does your manager believe that training would help knowledge, skills and attitude towards work ?	2.989	0.829
Q12 : To what extent is your manager a positive model, coach and reinforcer of the desired behaviors on the job ?	2.831	0.912
Mean of means	3.04	

4b. What is the level of commitment to education and training related to the workplace of employees of small manufacturing businesses?

The level of commitment was addressed by questions 4, 5, 6, 8, 9, 13a and 13b.

The highest value was placed upon the time and effort the employee was prepared to invest in helping to define employee training needs.

The lowest score represented the employee's appreciation of the time and effort a manager would invest to help define employee training needs.

The contrast between the highest and the lowest scoring values represent clearly the current poor communications between employees and managers. Managers had low opinion of employee training motivation, and employees did not express high regard for management dedication to their training needs.

Table 4.13
Level of commitment to
education and training of employees

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.
Q4 : To what extent would work related training increase your work motivation ?	3.360	0.749
Q5 : How critical for successful training are appropriate evaluation and follow-up ?	3.240	0.716
Q6 : To what extent is employee education and training emphasized by your company ?	2.564	1.147
Q8 : How much time and effort are you prepared to invest to help define your own training needs ?	3.393	0.811
Q9 : How much time and effort would you manager be prepared to invest to help define training needs ?	2.405	0.986
Q13a : To what extent do you use the community college for your own education ?	3.072	1.009
Q13b : To what extent do you use the community college for your own training ?	3.252	0.857
Mean of means	3.04	

SUMMARY OF EMPLOYEE COMMENTS.

During discussions with employee groups, the researcher took detailed notes. Overall there were far fewer remarks from the employees than from the employers. This prevented the researcher from categorizing the employee feedback along the same lines as the comments from the employers.

The statements below were summarized from the discussions

with the respondents :

- Our company is top heavy in office staff.
- My company does not look seriously at training. They are always trying to get readily-trained people so they won't have to train.
- In layoff situations, the company will hang on to the qualified people (non-union shops).
- In layoff situations, it goes strictly by seniority (union shops)
- Studies never finish, no matter how old you are.
- The course I am taking is part of a whole quality assurance program.
- An occasional problem is presented by course cancellations due to low enrollment in various specialty areas.
- We receive no training, we are on our own (very small companies).
- Some trainers do not deliver on all the promises.
- My company knows nothing about the training you offer.

Employee sample statistics have been examined by looking at each question as answered by all the respondents (Appendix D) and clustering the questions by categories.

**ANALYSIS OF CONSISTENCY
BETWEEN EMPLOYEE COMMENTS AND QUESTIONNAIRE RESPONSES**

Employee education and training needs :

There is some discrepancy between comments and responses in the area of needs. Comments, however brief, indicate a higher need. Questionnaire answers express only an "average" need.

Barriers to employee access to education and training :

This area shows consistency, as barriers raise very few concerns in comments from employees. The responses show barriers as being below "average" as well.

Understanding employee education and training needs :

This domain shows a good level of consistency. The comments were few on the topic, but the respondents were all continuing education students. The responses to the questionnaire were variable, ranging from just below "average" to well "above average".

Commitment to employee education and training needs :

Again there was no conflict, as the employees were all registered in continuing education courses, and their average responses to the questionnaire were in the "above

average" zone.

**COMPARISON BETWEEN EMPLOYER (APPENDIX B)
AND EMPLOYEE (APPENDIX D) RESPONSES.**

This comparison was summarized in table 4.14. The standard deviations were not used in this comparison because, in most cases, the value of standard deviations for employees' responses showed a greater dispersion than that for employers.

Not all employer and employee responses have direct equivalencies. As the two source tables are not identical, some gaps were shown, where applicable, in the employer or employee columns. Where that was the case, only one set of means was shown in table 4.14 and the difference of the means was not calculated.

To facilitate location of the questions, the corresponding numbers in the employer and employee questionnaires are shown for each question.

The questions were sorted by category, rather than in numerical order of the questionnaires, to facilitate the correlation of the tables with the research questions.

The abbreviations used in the first column of table 4.14
are :

- * org/work : organizational/structural (place of employment)
- * org/inst : organizational/structural (educational inst.)

Table 4.14
Comparison of mean and standard deviation
across the samples of employers and employees

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
		Quest. No.	Mean (a)	Quest. No.	Mean (b)	
• NEED • PROVISION • UNDER- STANDING • COMMIT- MENT • BARRIERS	1 : very little 2 : somewhat 3 : above average 4 : a great amount					(a-b)
Need for training	How much training do employees need in job skills ?	Q1a	2.824	Q1a	2.545	0.274
Need for training	How much training do employees need in basic skills ?	Q1b	2.571	Q1b	2.217	0.354
Need for training	How much training do employees need in teamwork skills ?	Q1c	2.721	Q1c	2.497	0.224
Need for training	How much training do employees need in health and safety ?	Q1d	2.324	Q1d	2.322	0.002
Need for training	Mean of means		2.61		2.4	

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
Provision of training	How much training is provided to employees in job skills ?	Q2a	2.671	-	-	-
Provision of training	How much training is provided to employees in basic skills ?	Q2b	2.257	-	-	-
Provision of training	How much training is provided to employees in teamwork skills ?	Q2c	2.371	-	-	-
Provision of training	How much training is provided to employees in health and safety ?	Q2d	2.441	-	-	-
Provision of training	Mean of means		2.43	-	-	
Under- standing	How much do employees believe that training is critical for the company's success ?	Q4	2.714	Q2	3.184	-0.470
Under- standing	How much do managers believe that training is critical for the company's success ?	Q3	3.800	Q3	3.004	0.796
Under- standing	How knowledgeable does the manager consider himself or herself in education and training ?	Q6	2.800	-	-	-

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
Under-standing	To what degree does the manager's own education and training affect thoughts and decisions on the training needs of employees ?	Q7	3.486	-	-	-
Under-standing	To what degree do managers believe that training and retraining are preferable to hiring and firing ?	Q12	3.257	-	-	-
Under-standing	How clearly can the manager communicate new job expectations that will require training by employees ?	Q13	2.743	Q7	2.720	0.023
Under-standing	How much would training help employee knowledge, skills and attitude towards work ?	-	-	Q10	3.520	-
Under-standing	How much do managers believe that training would help employee knowledge, skills and attitude towards work ?	-	-	Q11	2.989	-
Under-standing	To what extent is the manager a positive model, coach and reinforcer of the desired behaviors on the job ?	Q14	3.206	Q12	2.831	0.375
Under-standing	Mean of means		3.14		3.04	

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
Commit- ment	To what extent would work related training increase employee work motivation ?	-	-	Q4	3.360	-
Commit- ment	How critical for successful training are appropriate evaluation and follow-up ?	-	-	Q5	3.240	-
Commit- ment	To what extent is employee education and training (Part of the company's strategic goals) emphasized by the company ?	Q5	3.114	Q6	2.564	0.550
Commit- ment	How committed are managers to encouraging and supporting training for their employees ?	Q8	3.571	-	-	-
Commit- ment	How committed are employees to assume responsibility for their own training ?	Q9	2.329	-	-	-
Commit- ment	How much time and effort are employees prepared to invest to help define their own training needs ?	Q11	2.294	Q8	3.393	-1.099
Commit- ment	How much time and effort are managers prepared to invest to help define training needs ?	Q10	3.129	Q9	2.405	0.724

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
		Q15a	Q15b	Q13a	Q13b	
Commit- ment	To what extent do employees use the community college for their own education ?			1.603	3.072	-1.469
Commit- ment	To what extent do employees use the community college for their own training ?			1.567	3.252	-1.685
Commit- ment	To what extent do managers use the community college for recruitment of staff ?			1.419	-	-
Commit- ment	Mean of means			1.99	3.04	
BARRIERS • SITUA- TIONAL • ORG/WORK • ORG/INST • DISPOSI- TIONAL	To what extent do the following factors act as barriers to employees' participation in education and training ?					
Situa- tional	Fees or expenses employee must pay during training ?	Q16a		2.333	-	-
Situa- tional	Potential lost income ?	Q16b		2.606	-	-
Situa- tional	Lack of time	Q16c		2.657	Q14a	-0.043
Situa- tional	Low prior educational attainment	Q16d		2.543	Q14b	0.656

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
Situa-tional	Personal transportation	Q16e	1.471	-	-	-
Situa-tional	Job responsibilities ("too busy")	Q16f	2.171	Q14c	2.800	-0.629
Situa-tional	Financial support for employee during (institutional) training	-	-	Q14f	2.289	-
Situa-tional	Mean of means		2.3		2.42	
Org/work	Conflict between work schedules and education & training schedules	Q16g	2.242	Q14e	2.368	-0.126
Org/work	Amount of paperwork to be completed by trainee	Q16h	2.143	-	-	-
Org/work	Clarity of government guidelines	Q16i	2.036	-	-	-
Org/work	Selection of applicants for training	Q16j	1.767	Q14g	2.000	-0.233
Org/work	Retention of trainees in lay-off situations	Q16k	1.760	Q14h	2.224	-0.464
Org/work	Mean of means		1.99		2.2	
Org/inst	Accreditation to be given to employees	Q16l	1.655	-	-	-

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
Org/inst	Ability of training program to cross occupational or trade jurisdictional confines	Q16m	1.926	Q14i	2.014	-0.178
Org/inst	Relevance of skills taught in the college training program	Q16n	2.226	Q14j	1.774	0.452
Org/inst	Location of training programs relative to employees' location	Q16p	2.152	Q14l	1.943	0.209
Org/inst	Ability of training programs to train for multi-skill jobs	Q16r	2.000	Q14m	1.819	0.181
Org/inst	Employees' job and career expectations	Q16s	2.147	Q14n	1.802	0.345
Org/inst	Mean of means		2.02		1.87	
Dispositional	Return on employee's investment	-	-	Q14d	2.680	-
Dispositional	Portability of skills learned from training	Q16o	1.879	Q14k	1.722	0.157
Dispositional	Length of time for the program	Q16q	2.273	-	-	-
Dispositional	Difficulty for employee to meet job or entry requirements	-	-	Q14o	1.802	-

CATEGORY	QUESTIONS	EMPLOYER		EMPLOYEE		MEAN DIFF.
Disposi- tional	Peer pressure	Q16t	1.750	Q14p	1.683	0.067
Disposi- tional	Employees' age (time away from school)	Q14u	2.441	Q14q	1.683	0.758
Disposi- tional	Mean of means		2.1		1.91	

**ANALYSIS OF THE EMPLOYER - EMPLOYEE
QUESTIONNAIRE FEEDBACK COMPARISON TABLE**

Table 4.14 showed a comparison of the means across the samples of employers and employees. It also provided a difference of the means (a-b) of the employer means (a) and the employee means (b) for the same questions.

In a number of cases, the value of the mean of means is larger for employers than for employees. These are : (a) the managers' belief that training is critical for the company, (b) the time and effort managers are prepared to invest in defining training needs, (c) low employee prior educational attainment as a barrier and (d) employees' age (time away from school) as a barrier as well. Managers believe, more than employees do, that : employees require training; that employee education and training are emphasized by the company; and, that managers are positive role models and coaches.

In some cases, the value of the mean of means is larger for the employees. These are : (a) time and effort employees are prepared to invest in defining training needs, (b) employee use of community colleges for their own education, (c) employee use of community colleges for their own training, and (d) job responsibilities ("too busy") as a barrier.

For most of the barriers to education and training, there is a reasonable level of agreement between employers and employees. In summary, it can be stated that :

(a) managers and employees each believe that they are prepared to invest more time and effort than the other side of the employment equation;

(b) managers appear to be unaware to a large extent of the use of community colleges by employees for their own education and training; and,

(c) managers and employees mostly agree with each other on the levels of barriers to access education and training for employees.

ANALYSIS OF CONSISTENCY

BETWEEN EMPLOYER AND EMPLOYEE COMMENTS

There is a definite lack of consistency between employers and employees in issues related to several areas of training needs. Employers suggest that they provide on-the-job skills training and they feel that many of their employees are afraid of training. They comment that some employees see training as a favor to the company. They feel that most employees will only train on company time, for full pay, and that the few who will train after hours require overtime pay. Yet the employees consulted, all of them continuing education students, feel that their companies "do not look

seriously at training". They indicate that they receive no training, and they are aware that studies never really finish. They complain about the few courses which are cancelled due to lack of sufficient enrollment, and they see that as a barrier to their plans.

Where employers and employees definitely agree in their comments, is in the area of poor marketing by the colleges. Both suggest that they are neither sufficiently aware of the services offered by the colleges nor are they taking advantage of what little they do know.

A side-by-side comparison of employer and employee comments shows that far fewer comments were collected from the employees. It was quite apparent in the employee group discussions that employees had a completely different way of viewing issues than employers. The employees' communication abilities were more limited, and language difficulties were a definite obstacle in communication. Employees appeared to be less informed, their problems were less complicated, and their depth of appreciation definitely shallower. Most organizational management issues, paybacks, cost-benefit analyses, etc. were totally foreign to them. Company priorities were not their priorities. On the opposite, the employer focus groups appeared to be an extension of a company management production meeting. They continuously

addressed issues such as : production; productivity; supervision; evaluation; incentives; communications; team work; personnel; training; finances; etc. Over half of the employers interviewed were immigrants from non-English speaking countries, some fairly recent, but there was not at any time a communication problem with them.

**AGGREGATE ANALYSIS OF CONSISTENCY
BETWEEN QUESTIONNAIRE FEEDBACK
AND RESPONDENT COMMENTS**

Because sufficient verbal feedback from employees was fairly difficult to obtain, a direct comparison with the written feedback from the questionnaire would not be meaningful. It appeared to be easier for the employees to follow the structured direction of a written questionnaire, but it was harder to respond verbally even when prompted.

There was though definite consistency in the divergent beliefs expressed by both employers and employees. Both sides agreed on the need for education and training. Neither side, however, showed sufficient confidence in the other's commitment to the same.

Barriers to access education and training were also viewed differently in the two approaches. The questionnaires reflected the belief of employers and employees that most of

the barriers were "below average". The comments, however, brought forth serious motivational concerns from both sides. Employers commented on employee lack of motivation. Employees did not view the company as a training force. Another area, insufficiently reflected by the questionnaires but emphasized by both respondent groups, is the perceived lack of training marketing by the colleges.

(c) FINDINGS

RELATED TO COLLEGE ADMINISTRATORS

Another category providing feedback was that of senior college administrators associated with industrial training. This group looked at implications for community colleges in the analysis of barriers to access education and training by employees of small manufacturing businesses.

The researcher sought to address this area by identifying knowledgeable individuals, not necessarily affiliated with the same college, and connected with industrial training in widely distinct ways.

Five college administrators with specific training responsibilities were interviewed by the researcher. Their positions were :

- Director, client services, in the Business and Industry Service Center (BISC). This position's mandate is providing training-for-pay to business and industry as a non-subsidized organization. Client services is essentially a marketing and sales organization. It targets and establishes a market, contacts the prospects, determines needs, prepares proposals, arranges for trainers, and handles all the logistics, including post-training follow-up.
- Director, college research and development, affiliated

with BISC. This position specializes in needs analysis, curriculum design, working extensively with groups of business clients. Its approach is more from a corporate point of view. It helps potential clients develop job profiles, determine what their requirements are and what types of training might meet those needs.

- Director, Ontario Skills Development Office (OSDO). This position co-ordinates a group of consultants whose mandate is to analyze needs and prepare training plans for industrial clients. This department is not specifically a provider of training. It will work mainly with small businesses with no training background, budgets or staff. It will perform this function at no cost to the client, and it will identify provincial government funding for training in each case. As a courtesy to the company, (as this is not part of its mandate), it will help identify trainers.

- Dean, Engineering Technology. This position combines academic management, multi-disciplinary delivery resources, curriculum, equipment and facilities. In addition to its conventional role as a post-secondary college division, the department is a provider of instructors and facilities to industry, as requested by BISC or OSD0.

- Vice-President, Government Affairs. This position co-ordinates all college-industry relations for training at any level and any type of funding. Among the areas reporting to this position are all government funded programs delivered

by the college for outside organizations and companies, all apprenticeships, continuing education, and any kind of industrial training. The function includes academic management, administration, budgets and all necessary liaison.

Individual meetings took place with college administrators, specifically involved with industrial training. These meetings focused around a specific set of topics (Appendix E : Discussion Topics for College Administrators). The administrators were supplied with a list of the topics, and discussions took place with them around each area included in the list, as well as other related areas that came up in the discussions. Most of the issues were also included in the list of discussion topics with the group of trainers. This enabled the researcher to compare directly the perceptions of the two groups.

Interview formats were similar, in that they followed a pre-established list of discussion topics. The interviews lasted on the average between one and two hours and took place at the locations most convenient to the interviewees. On one occasion, the list of topics was faxed to the interviewee, and an extensive discussion took place over the telephone.

SUMMARY OF DISCUSSION TOPICS (ADMINISTRATORS)

1. How much training do employees in small manufacturing businesses need in job skills, basic skills, teamwork skills, health and safety, or other (specify)?

Job skills and basic skills are in major demand in small manufacturing companies. The importance of teamwork is still misunderstood by many small companies. There is a feeling that many small companies are still hiring "hands", not "heads". Health and safety training is provided only when companies find no way around mandated governmental requirements. This is one situation when employers and employees must work together in establishing needs and solutions in joint committees. Most small companies do not have full time trainers or training co-ordinators who can help identify training needs. They usually concentrate on training "on-the-job", and have a "problem" when anything different occurs. They typically do not hire highly-skilled people and cannot afford to pay very high wages. Many on-going efforts are hampered by communications (language) problems. Troubleshooting and problem solving are two major concerns. Many small companies will look for training in financial and business management or government mandated training (health and safety, dangerous goods, etc).

2. In your opinion, to what extent should the college address the issues of education, skills and training for employees of small manufacturing businesses ?

The consensus of the respondents was that colleges do not see themselves in this business, yet they have to find ways of addressing these issues. Colleges are not sufficiently aware that most new jobs come from small business. Jobs generate taxes, and these are used to fund colleges in Ontario. Colleges should find ways to make training for small manufacturing businesses a priority, meeting the needs and the convenience of these companies. Colleges should play the role of needs assessor, training department, trainer and occasional business consultant. Small manufacturing businesses in the community are a neglected part of the colleges' mandate. The college-industry relationship is not helped by the companies themselves and the constraints they face. Most of these small companies cannot afford custom training and are dependent upon funded training, much of which does not meet their requirements of specificity. Colleges should organize within the college system to provide an organized response. Colleges should also find a way to provide recognition through credentials for skills acquired by small business employees.

3. How does your college fulfil its mandate of training people in small business ?

The perception of most of the respondents is that colleges fulfill their mandate very poorly, if at all. New ways are required to enable the colleges to see those people as customers. Colleges find it a lot easier and a lot more profitable to work with large companies, and they pass their small business training responsibilities to Continuing Education (night school), and agencies such as the Ontario Skills Development Office (OSDO). The process of training is not made any easier by the small businesses themselves. These communicate poorly, pay poorly and are concerned about losing employees in whose training they would invest. Often times, small businesses will get management training before worker training. Part of the college's mandate should be the identification of emerging job profiles and the specification of the skills required for them. Once identified, these skill profiles should be updated on an annual basis.

4. How are the people reporting to you involved in providing education, skills and training for employees of small manufacturing businesses ?

Different areas provide different approaches. OSDO will provide a coaching role to encourage the growth of a training culture. They advise small companies to build training in their budgets as a normal way of doing business. Other college areas work with large companies as they cannot

cover their costs with small business. In some specific cases when outside organizations (industrial training councils) group enough small business workers in a "consortium" and provide funding to cover costs, the college provides excellent training.

5. What are the college's approaches to date in introducing linked industry - college programming ?

Some current approaches to date in introducing linked industry-college programming are :

- Co-operative education (in a few programs).
- Instructors' own field experience (time spent in and with industry), reflected in their program preparations.
- The new Canadian Plastics Training Center (CPTC), which specifically looks at a common set of programming for industry and college needs, and will provide a benchmark of linked industry - college programming.
- Industrial advisory committees which provide advice for in-college programs based on their experience of industrial needs.
- A new "advisory committee to the Dean", in the process of being formed, to provide for new structures and approaches.

Government is proactive in promoting sectoral initiatives and it is hoped these will encourage small manufacturing business employers to start talking to one another within

their common sectors, and subsequently to the colleges.

6. What are the constraints in committing resources to linked industry - college programming ?

Some of these constraints are : faculty-union related; faculty interest and availability; college bureaucracy (lack of response flexibility); and, budgetary problems in the absence of specific funding. Other constraints are the historical domination of the college scene by diploma areas, and the historical reliance by industry on immigrant human resources. The college respondents also perceive that industry has a hiring-in-lieu-of-training mentality. They also point to difficulties in trying to commit resources when small business people don't even know 'what' they don't know and what they need. The province of Ontario has no standardized industrial job skill profiles. A major constraint is also the cost of marketing all this information to industry.

7. Which department of the college is best equipped to manage entrepreneurial risks in order to promote education, skills and training for employees of small manufacturing businesses ?

The Business and Industry Service Center (BISC) is best equipped for this purpose, but their fees are a major problem for small business as they are not subsidized. Their mandate is to earn money for the college, not to train small

business. The consensus of the respondents is that this topic requires a special mandate for a team (composed of BISC, OSDO, Engineering Technology, School of Business) whose performance will be measured by results.

8. What are the remaining institutional (structural or organizational) barriers to providing competent and timely education, skills and training for employees of small manufacturing businesses ?

These barriers include costs, scheduling and access to staff and equipment. Some institutional barriers are not caused by the institutions themselves. They are the result of the lack of an industrial training priority mandate for the colleges from the appropriate government ministry, caused by absence of a governmental industrial policy. All these various levels recognize the problems, but no strategy for solutions has been forthcoming to date.

9. In your opinion, what are the mechanisms for introducing the right balance between the needs of administration control and the field requirement of empowering industrial instructors?

There does not seem to be a problem in this area, as the instructors are usually part of administration's discussions with the industrial clients. The perception is that fully qualified, knowledgeable and up-to-date instructors are

empowered to handle all issues and make all decisions in the field as related to the industrial training side of the college-industry relationship.

10. What are the changes and requirements that colleges should adopt in order to promote the perception that industrial training is at par with academic training ?

There are perceptions that some of the problem is systemic, in that, before college, academically ungifted students are channelled towards "trades". In order to promote the perception that industrial training is at par with academic training, there has to be a change in the college mission statement. This has to be followed by specific goals, objectives and strategies. The commitment of the President and the Board must permeate throughout the organization. Colleges should maximize prior learning assessment and provide appropriate credits. Trainees should be encouraged by being provided training modules which lead to academic courses and credits, as an incentive. There has to be close continuous liaison between the industrial trainers and their 'academic' counterparts. Training courses developed for industry can be brought back into the college. For instance a "math review" for "skilled trades", offered in a plant, is developed totally around shop parts and components. The basics remain conventional, but they are completely overshadowed by the fact that a formerly trivial "triangle ABC"

is now meaningfully represented by the centerlines connecting three holes in a robot component detail drawing. The principles are the same, but the apparent relevancy is totally different. A number of these modules could be grouped into a "new" Math 101. A similar approach could be utilized in developing a course in robotics, in mechanisms or in other disciplines.

11. What professional development would be required to improve your faculty's ability of training employees of small manufacturing businesses ? Who should be the facilitators ?

There is a perception that faculty should get out and update their own field experience. There is a need for faculty who can work with small groups on practical, industrial topics. These instructors must be able to function in a multi-cultural environment with people who are not fluent in English. Developing specific job instructional techniques and skills in putting continuous education or distance education materials together, is essential. Applied knowledge of the respective industries through work and a certain level of "education" courses (M.Ed.) would be very helpful for credibility and success. Many faculty are not fluent with adult learning techniques that require more flexibility and adaptability. Facilitators of the faculty professional development process can only be other

experienced industrial training faculty or 'good' trainers from industry. The probability of success can only be enhanced if workers (or unions, where applicable) are involved in the process from the beginning.

12. How necessary is the college participation in college - industry staff exchanges for enhancing faculty's ability to train employees of small manufacturing businesses ?

The college must find ways to encourage staff to participate in industrial training, rather than leaving it to individual initiative. The expressed concern was that staff exchanges would work much better with larger companies, as small ones would lack the scope and the opportunities of a beneficial interchange. Business could be more co-operative if colleges were to subsidize one-way "exchanges", by sending faculty to business as "free labor".

13. How could the college address the issue of flexible work hours in order to provide convenient training for employees of small manufacturing businesses ?

Collective agreements do not block flexibility, but place a large price on it. Better organization with specific goals could open up time, space, facilities and instructors. That would include availability of training at various hours, seven days a week. Current experience has identified scheduling preferences of industrial organizations. Training

could be divided in "specific", for given organizations, or "generic" at times convenient for consortia of companies. The process should be client-driven for ultimate success. Given the unionization level in most colleges, joint management-union training steering committees and joint curriculum committees would go a long way toward a better working relation between management and union in the college with the resultant training benefits for employees in industry.

14. In your opinion, how could the current curriculum be modified to better adapt it to the needs of training for employees of small manufacturing businesses ?

The curriculum can be better adapted to the needs of trainees by making it as job-related as possible, recognizing available skills and building-in flexibility. Curriculum should start with what workers do in industry, and then work its way back into the college.

Credits should be modularized, and granted for demonstrated achievement rather than time served. Packaging should be shorter and flexibly scheduled, and speed of response should be a major consideration to maintain client interest.

15. Problem solving, critical thinking, decision making, organizational planning, conflict management, leadership,

team work, financial awareness and diversity management are important components of industrial training. In your opinion, to what extent should the college address these issues in its regular academic planning ?

All the above are critical issues, normally not part of conventional curricula. They should become part of current curriculum as projects, as many employers perceive them to be equal to, or more important than, technical skills. These points are classified as employability skills and should become part of "general education". They should become part of every instructor's professional development plan.

16. In your opinion, how deeply are the colleges currently involved in providing employee training for multi-skill jobs ?

Multi-skilling is a major requirement for training through BISC, and an unknown to the rest of the college community. There is need for recognition of this concern on a province-wide basis. Accordingly, an approach should be developed for a system providing appropriate credentialling for multi-skilled industry employees. It should be recognized that conventional apprenticeships are organized along single-skilled training and that their time is past.

17. How are the colleges providing for portability of skills learned by employees during training ?

There is a difference between specific and generic skills. There is a perception that the latter are in less demand, although they are the ones providing for skill portability. As industry is not pressing for portability, colleges should provide the lead in this matter. One of the answers is provided by the "learning to learn" process, grafted on a multi-skilled base. One of the respondents suggested that if a skill cannot be transferred, it should not be taught. Again, an innovative definition of new job profiles will help the process of portability of skills.

18. How difficult is it for the average employee of a small manufacturing business to meet college entry requirements ?

Two trends have emerged from this discussion topic. One group suggested that college entry is not a problem as most employees will not access regular programming with its ensuing entry requirements. For the exceptional situations, the "mature student" test and available upgrading courses will facilitate admission. There are no definite requirements for industry specific courses. The other group defined colleges as being very user-unfriendly in regards to entry requirements.

19. How is the college currently assuring relevancy of skills taught to trainees from industry ?

The college can only assure relevancy of skills taught to

industrial trainees by selecting the best potential trainers, and by providing them with the opportunity to participate in practice teaching activities and in actual industrial training. Relevancy can only be evaluated after a set time, by measuring the outcome through trainee increased productivity. This feedback should be provided jointly by employer and employee.

(d) FINDINGS

RELATED TO INDUSTRIAL TRAINING INSTRUCTORS

The last group to provide feedback in the analysis of barriers to access education and training by employees of small manufacturing businesses, and its implications for the community colleges, are the industrial training instructors. Five industrial training instructors, long-term employees of the college, were interviewed for this research. In each case the instructor was contacted, the purpose of the contact explained, and an interview was sought. The interviews took place in the instructor's or the researcher's office, and in one case by telephone, following the faxing of a list of discussion topics (Appendix F : Discussion Topics for Instructors) to the instructor's office. The same procedure was followed as with the training administrators. Most of the issues discussed with the trainers were included in the list of questions discussed with the college administrators. This enabled the researcher to analyze the responses in parallel. In all cases, detailed notes were taken by the researcher. The instructors' qualifications covered a broad spectrum of training expertise, ranging from certified electrician, toolmaker and technologist to professional engineers with bachelor's and

master's degrees. They average over 10 years of training in industry. Their training areas are industrial electrical installations, multidisciplinary industrial maintenance, industrial instrumentation, programmable logic controllers, industrial controls, electronics, electrical and computers. The following is a result of these interviews.

SUMMARY OF DISCUSSION TOPICS (TRAINERS)

1. In your opinion, to what extent should the college address the issues of education, skills and training for employees of small manufacturing businesses.

The consensus of the five trainers was that this topic must be a high priority for the college. Small business represents a low priority for all training agencies. It cannot afford fees for courses offered by equipment suppliers. Manufacturers' courses were started by providing training on equipment for their own maintenance employees, and subsequently for paying clients who had purchased the equipment. In order to amortize the cost of maintaining expensive training facilities, manufacturers started to offer their training courses to the public-at-large. Eventually, their in-house training departments have evolved into profit centers in their own right, priced out of the range of small businesses.

The colleges' "community training" mandate extends to small manufacturing business in the community and it should become a high priority.

2. How does your college fulfil its mandate of training people in small business ?

"The college does not fulfill the mandate of training people in small manufacturing business". One of the respondents, based on his field experience with various companies, attempted to categorize them by level of technology. He concluded that up to 80% of these businesses are into "old technologies", 15% are into "new" and only 5% could classify as "advanced". Most non-union shops are in poorer condition because of both smaller size and non-negotiated mandatory employee training. Financially, neither the colleges nor the small manufacturing companies can afford the training in their present structures. This observation accounts for the perception that a large part of the efforts of the Canadian Federation of Independent Business appear to be directed toward training funding issues. The only areas where small manufacturing company employees are currently trained, are continuing education, where they register on their own, and some government funded training through OSDO or the Canadian Industrial Training Councils (CITCs).

3. How are you involved in providing education, skills and

training for employees of small manufacturing businesses ?

Involvement with small manufacturing companies varied among the respondents from 50% of their industrial training time to none. Most of the actual involvement related to a specific period of time when some funding became available for providing training. The only other involvement with small business employees occurs when the trainer teaches continuing education classes where such employees are registered on their own.

4. To date, what have been the college's approaches to introduce linked industry - college programming ?

The college's current approaches to introduce linked college-industry programming are few. Some efforts have originated from faculty, industry, and college. Examples are : training in controls; math; blueprint reading; CNC programming and operating; industrial maintenance multi-skilling; etc. The approach is based on an industry-college partnership, but the majority of these partners are large companies. The process is initiated with an approach from either side and continued by some college assistance with needs analysis, a preliminary proposal, a contract and delivery. Linked programming is required in most cases in order to make the training possible. Linking is achieved by organizing consortia of employees from different companies, having similar interests. Many companies, though, will not

allow their employees to congregate with employees of competing companies.

5. What are the constraints in committing resources to linked industry - college programming ?

These constraints are largely organizational. The college's commitment, in time and money, to linked college-industry programming, does not indicate a high priority. The competition for financial resources is extremely high, due largely to scarcity of funding. Human resources represent a problem due to the lack of structural flexibility, partially rooted in financial shortages.

On the industry side, no small company can afford to plan long-range for training. A training effort is usually caused by a current problem requiring a current solution.

6. Which department of the college is best equipped to manage entrepreneurial risks in order to promote education, skills and training for employees of small manufacturing businesses ?

Currently, the Business and Industry Service Center or equivalent departments in other colleges, are the only departments equipped for some entrepreneurial risk. The Engineering Technology divisions have the technical and human resources, but not the finances, to manage these

entrepreneurial risks.

The conclusion of the respondents, though, was that not one department can undertake this task in isolation. The "new team" organization should include empowered elements of the Business and Industry Service Center, the Engineering Technology and Business divisions, as well as the appropriate Service areas.

7. What are the remaining institutional (structural or organizational) barriers to providing competent and timely education, skills and training for employees of small manufacturing businesses ?

The following were among the remaining institutional barriers identified by the respondents : A lack of priority for this type of training; some key people's concept of what a college should be; overall co-operation and flexibility; college union/management level of co-operation; a better understanding of the key concept that the needs of the client cannot usually be met "off the shelf"; and, the lack of willingness to risk the necessary funds.

8. In your opinion, what are the mechanisms for introducing the right balance between the needs of administration control and the field requirement of empowering industrial instructors?

Administration control should be limited to support systems,

liaison, feedback and reporting. All respondents stressed the need for the college to select the right instructor and maximize empowerment. Most instructors felt sufficiently empowered to do the job. A prerequisite for the success of balancing the process was identified as more involvement from the client industry.

9. What are the changes and requirements that colleges should adopt in order to promote the perception that industrial training is at par with academic training ?

Currently, the perception of parity does not exist in the eyes of the college, judging by the relative allocation of resources. Much work remains to be done to formally relate the offerings to employees' needs. The courses must become relevant and be seen as such. The courses must be integrated to provide only what is needed, even if this leads to shallower offerings. Selection of participants, or other tests, must be put in place to assure relevant results. Testing would of course be a mandatory requirement for accreditation, as opposed to some current, non-threatening, certificates of "attendance" or "participation". Current field feedback is excellent, but this does not change the perceptions of college managements with no industrial background or exposure. The training instructors felt that there are not enough capable instructors with up-to-date skills.

10. What professional development would be required to improve your own ability in training employees of small manufacturing businesses ? Who should the facilitators be ?

Most respondents agreed that the professional development efforts should involve staff exchanges with industry ranging from 2 to 12 months. These would provide for industrial trainers with first hand industrial exposure. To date, staff exchanges have not been initiated or facilitated by the college. They require faculty and union interest and co-operation and increased numbers of college-industry partnerships. Another approach recommended by respondents for instructional professional development, was peer training.

11. How necessary is your participation in college - industry staff exchanges for enhancing your ability to train employees of small manufacturing businesses ?

The majority of respondents felt that participation in college staff exchanges is essential to enhance not only the ability to train employees of small manufacturing businesses but also all other "regular" students. It was felt that every college and every program would greatly benefit from such exchanges.

12. How could the college address the issue of flexible work hours in order to provide convenient training for employees

of small manufacturing businesses ?

Flexible work hours require : flexibility through a local union-management agreement; flexible department heads; flexible replacements; and, flexible mentalities.

Instructors must be able to respond to industry's needs at its own convenience, and that may be anytime during the day or weekend.

13. In your opinion, how could the current curriculum be modified to better adapt it to the needs of training for employees of small manufacturing businesses ?

Flexibility was again the consensus of the respondents. Some of the solutions proposed included : offering blocks of courses at times convenient to the client during the day; modularizing existing courses to allow offering only specifics; and, working with government to reorganize government mandated training. To a large extent, though, the needs of small manufacturing industry are far too specific to fit in the framework of "regular" curriculum.

14. Problem solving, critical thinking, decision making, organizational planning, conflict management, leadership, team work, financial awareness and diversity management are important components of industrial training. In your opinion, how and where do these issues fit in your departmental courses ?

Most of these issues are not covered by "regular" departmental courses. These issues should not be taught separately, in isolation from the technical issues but as part of project work carried out by teams. Their priorities would vary in relation to client needs.

15. In your opinion, how deeply are the colleges currently involved in providing employee training for multi-skill jobs ?

The respondents had the perception that very little training was specifically planned for multi-skilling industrial employees. The college lacks sufficient multi-skilled instructors. In some particular industrial training areas, the college does specific multi-skilling training. Regular programming contains very little multi-skilling training.

16. How are the colleges providing for portability of skills learned by employees during training ?

The colleges are not specifically providing for portability of skills, particularly in areas where training is client-controlled and company-specific. When it happens, it is by default. The long term solution would hinge on the development of a "soft-skills tool-box" for employees.

17. How difficult is it for the average employee of a small manufacturing business to meet college entry requirements ?

It is fairly difficult for the average employee of a small manufacturing business to meet college entry requirements. Less than 10% have technological training. Fewer than half have grade 12. Employees of small manufacturing businesses take specific "continuing education" or other courses and are usually not affected by the college's normal entry requirements.

18. How is the college currently assuring relevancy of skills taught to trainees from industry ?

The college is not formally assuring the relevancy of skills, and detailed statistics of past training are lacking. Most of the actual training is determined and provided by the individual specialist instructor, who goes out to companies, talks to clients, does needs analysis and prepares and delivers courses. Some government mandated training is perceived to be profoundly out of date. Very recently, there has been talk of an educational "warranty" process, which, once in place, could be extended to industrial training.

ADDITIONAL COMMENTS BY TRAINERS.

- There does not appear to be enough commitment to provide industrial training for employees of small manufacturing

businesses.

- Industrial trainer proficiency is critical.
- The reality is that poor government funding is a major issue in the lack of results, as neither college nor small industry can afford to do what is needed.
- Both a formal government industrial strategy and an industrial training policy are very much required.
- The colleges could very rapidly gear up for extensive training given appropriate government support.
- Most small companies would feel a lot more comfortable having training done on their site.
- A majority of small industry is still not aware of training services currently available.
- Courses should be oriented toward prevailing company employability needs, combined with badly needed management systems.
- Colleges should provide professional development time for instructors to "apprentice" with seasoned industrial trainers.
- Most small company trainees have no background in, and no time for basics. Different approaches are necessary, which do not include extensive background courses.
- College gathers feedback on industrial training but there is no evidence that the feedback is followed up.

In brief, the above comments can be summarized under four

headings : Industry, government, and colleges.

A majority of *industry* still does not have an awareness of training availability, or a training mentality as reflected by a training budget.

Government has no industrial policy, and support of training through budgets is very much behind training needs.

Colleges are in the best position to provide the needed training. Their commitment is inadequate and there is a shortage of competent trainers.

Some of the key ideas conveyed by both administrators and industrial trainers are :

- Certification of the new, emerging, multi-skilled trades;
- Packaging of training in small modules for flexibility of selection;
- A new definition of training based on job profiles (as opposed to the classical disciplines); and,
- A new definition of instructor professional development based on industrial training needs.

RESEARCH QUESTIONS
(ADMINISTRATORS AND TRAINERS) .

1c. Identify employee need for education and training as stated by community college administrators and instructors.

Both administrators and trainers agree that there is a major employee need for education and training. Training requirements are in basic skills, job related technological areas (theory and practice), team work and safety. There is however, a major gap between demand and supply, as colleges supply little directed training to small manufacturing business employees.

2c. Identify barriers to access education and training, as perceived by community college administrators and instructors.

Administrators and trainers have identified numerous barriers to prevent access education and training for employees of small manufacturing businesses. Most of these barriers are institutional (structural or organizational). One of them is the unavailability of funds, related to the lack of an effective government policy. Colleges are particularly sensitive to this issue as it is related to their ability to provide the required training and cover their own costs. Another obstacle is that training for small

business is not as yet an expressed objective of most colleges' mission statements. Additional barriers are created by the inertia of college bureaucracy, and the lack of flexibility due to management-union constraints.

4c. Determine the level of commitment to education and training related to the workplace, as perceived by community college administrators and instructors.

Both administrators and trainers report a high level of commitment to workplace related training. They agree on all the steps required to show that commitment, but they blame the lack of action on various institutional barriers. Both groups identify the same college area best equipped to manage this training (BISC or equivalent). They also agree that industrial trainers require a high degree of empowerment. They support prior-learning assessment and the development of course modules in an industrial environment. They concur in faculty training approaches and training delivery strategies. They advocate multi-skill training and the need for relevant and portable skills.

Table 4.15

Summary

comparison between responses of administrators and trainers

Questions	Administrators	Trainers	Agreement
To what extent should the college address the issues of education, skills and training ?	To a major extent.	These issues should be a high priority.	Yes
How does your college fulfill its mandate of training people in small business ?	Very poorly.	It does not.	Yes
How is the instructor involved in providing education, skills and training ?	The involvement is quite limited.	Limited to specific situations.	Yes
To date, what have been the college's approaches to introduce linked industry-college programming ?	Limited to a few government funded initiatives.	Limited to a few cases.	Yes
What are the constraints in committing resources to linked industry-college programming ?	Union contracts, constituent interest.	Mainly funding issues	Yes
Which department of the college is best equipped to manage entrepreneurial risks in order to promote education, skills and training ?	BISC, quite successful with large companies.	Currently BISC. Recommended a multi-divisional team approach.	Yes

Questions	Administrators	Trainers	Agreement
What are the remaining institutional barriers to providing competent and timely education, skills and training?	Costs, scheduling, access to faculty and equipment. Lack of mandate.	Costs, scheduling, access to faculty and equipment. Lack of mandate.	Yes
What are the mechanisms for introducing the right balance between the needs of administration control and the field requirement of empowering industrial instructors?	Industrial instructors are fully empowered to make all necessary tactical decisions in the field.	Industrial instructors are fully empowered. They would welcome more involvement by industry.	Yes
What are the changes and requirements that the colleges should adopt in order to promote the perception that industrial training is at par with academic training?	Mission statement, policies, prior learning assessment and accreditation, etc., etc.	More work to relate instruction to client needs.	Yes
What professional development would be required to improve the instructors' ability in training?	Attitude changes, apprenticing with experienced staff, working in industry.	Staff-industry exchanges, partnerships, peer training.	Yes
How necessary is the instructor's participation in college-industry staff exchanges for enhancing the ability to train?	Vital to success of project. Easier with large companies.	Essential. Find ways to organize exchanges with small companies.	Yes
How could the college address the issue of flexible work hours in order to provide convenient training?	Better relationship with union, accepting a client driven process.	Overall flexibility.	Yes

Questions	Administrators	Trainers	Agreement
How could the current curriculum be modified to better adapt it to the needs of training ?	By becoming job related in content and modularized.	By making it client driven and by repackaging.	Yes
Problem solving, critical thinking, decision making, organizational planning, conflict management, leadership, team work, financial awareness and diversity managements are important components of industrial training. How and where do these issues fit in departmental courses ?	These issues do not have a present fit. They are recognized as being important.	These issues should be actively worked into team learning projects.	Yes
How deeply are the colleges currently involved in providing employee training for multi-skill jobs ?	Colleges overall are not involved.	Involvement is very shallow.	Yes
How are the colleges providing for portability of skills learned by employees during training ?	Not very well at the current time. In future through generic skills.	They are not currently providing it.	Yes
How difficult is it for the average employee of a small manufacturing business to meet college entry requirements ?	Conventional college entry is normally not applicable. Usually unfriendly	Fairly difficult in general. Most interest is however training specific.	Yes

Questions	Administrators	Trainers	Agreement
How is the college currently assuring relevancy of skills taught to trainees from industry ?	There is no formal process in place. Reliance on trainer skills.	It is not. A proposed "educational warranty" could extend to training.	Yes

DISCUSSION OF THE ADMINISTRATOR - TRAINER FEEDBACK.

As the table in the preceding page shows, there appears to be total agreement on the above issues between the administrators and the instructors interviewed by the researcher. As expected, the administrators' responses are more general and more conceptual. The instructors have addressed the practical implications of potential successful large-scale industrial training .

**ANALYSIS OF CONSISTENCY
BETWEEN INDUSTRY AND COLLEGE FEEDBACK*****Employee education and training needs :***

The level of employee education and training needs is generally viewed as higher by the college people than by industry. Employees recognized some level of need and employers felt that the need was higher than that expressed by employees. The college perception of need, particularly as viewed by the trainers, is broader and deeper than that of industry.

Barriers to employee access to education and training :

Industry's perceptions were that these barriers were not

very high. Colleges bring the added perspective that significant obstacles are in place because of the lack of institutional readiness of the colleges to deliver small-manufacturing-business specific training.

Understanding employee education and training needs :

Both industry and the colleges expressed a comprehensive understanding of employee education and training needs. Colleges' understanding may be considered somewhat higher, as their introspective view of the implications is clearer than that of industry.

Commitment to employee education and training needs :

Both industry and the colleges are committed to employee education and training. Unfortunately, in both cases, the commitment appears to be limited by a number of constraints, chiefly related to size and funding.

SUMMARY

The results of the focus group discussions, summaries of questionnaires and outcomes of the interviews are presented in this chapter.

Perceptions of training need are reported as average by both employers and employees. Neither group displayed major

concerns regarding barriers to access, and both groups showed reasonable consistency in their understanding of education and training for employees. Each group, though, revealed a certain lack of confidence in the other group's commitment to this topic.

Much information was garnered from the employer focus group discussions. Employee verbal feedback was limited by the respondents more finite scope and English communication ability. Both groups expressed as a major concern the lack of information about college offerings in their areas of interest.

Discussions with college administrators and trainers showed total agreement on the role of the college in this process. The issues involved curriculum development, trainer preparation, adult learning essentials and institutional barriers.

CHAPTER V

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS.

INTRODUCTION

Most small manufacturing companies are looking for ways to survive and prosper in to-day's globally competitive economy, compounded by a world-wide, post-industrial recession.

The focus of this research was to determine the barriers that prevent access to education and training by small business employees. In order to address these issues, the research was designed to gather information using questionnaires, interviews and focus groups.

In this chapter, each of the individual research questions are addressed, individually or in some groups. Subsequently, further observations and recommendations are offered, based upon the researcher's consolidated review of the data obtained.

The specific research questions were :

1. Identifying the needs :

1a. Identify employee need for education and training, as stated by managers/owners of small manufacturing businesses.

1b. Identify employee need for education and training, as stated by employees of small manufacturing businesses (continuing education enrollees at Humber community college).

1c. Identify employee need for education and training, as perceived by community college administrators and instructors.

2. Identifying the barriers :

2a. Identify barriers to access education and training for employees, as stated by managers/owners of small manufacturing businesses.

2b. Identify barriers to access education and training for employees, as stated by employees of small manufacturing businesses (continuing education enrollees at Humber community college).

2c. Identify barriers to access education and training for employees, as perceived by community college administrators and instructors.

3. Identifying the level of understanding :

3a. Determine the level of understanding about employee education and training related to the workplace, as expressed by managers/owners of small manufacturing

businesses.

3b. Determine the level of understanding about employee education and training related to the workplace, as perceived by employees of small manufacturing businesses. 4.

4. Identifying the level of commitment :

4a. Determine the level of commitment to education and training related to the workplace, as expressed by managers/owners of small manufacturing businesses.

4b. Determine the level of commitment to education and training related to the workplace, as stated by employees of small manufacturing businesses (continuing education enrollees at Humber community college).

4c. Determine the level of commitment to education and training related to the workplace, as perceived by community college administrators and instructors.

Policies such as the recruitment of skilled immigrants, the hiring away of experienced employees and unplanned on-the-job training, have resulted in problems, such as : lost productivity; reduced quality; late deliveries; higher costs; and, decreased worker commitment. Years of lack of investment in organized training have led to a situation where many skilled jobs go unfilled at a time of high unemployment.

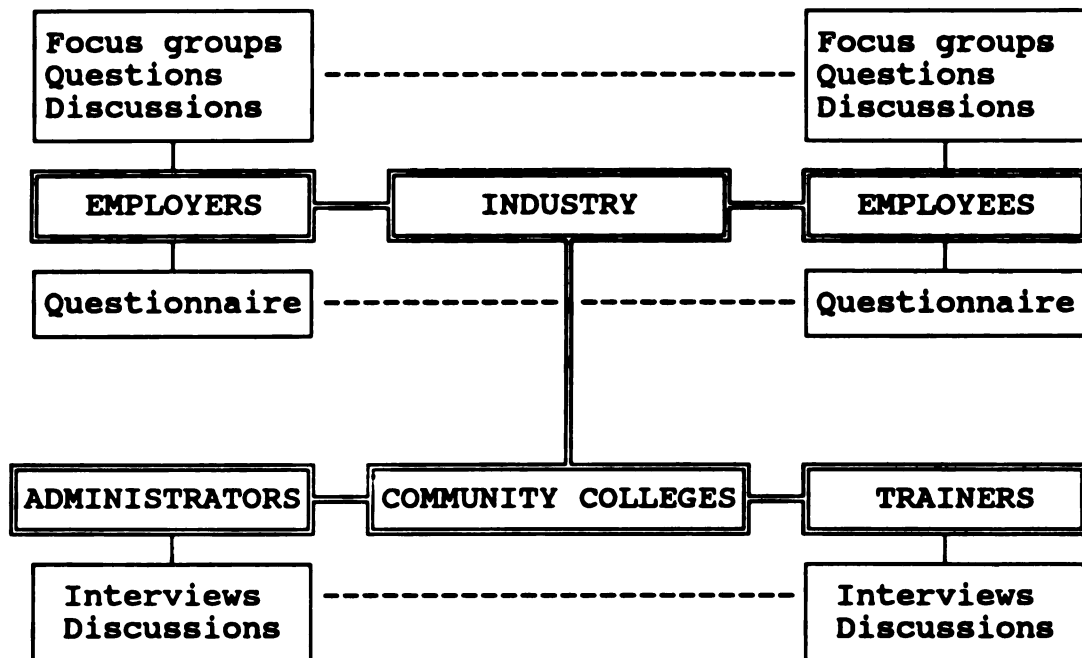
The research reported in this study has helped focus on some

of the issues in accessing education and training for small manufacturing business employees.

The interviews, discussions and focus groups over the duration of this research have shown the critical importance of workforce skills (Blache, 1988 and Reich, 1990). The more successful companies interviewed (and sometimes success was measured by still being in business at the depth of the recession) have shown the applicability of Blair's (1991) principles used as the theoretical basis of this study.

These principles are : *(1) commitment to developing the skills of all; (2) understanding of the knowledge and skills required today and tomorrow; (3) guaranteed access to a wide range of education and training opportunities; and (4) belief in the economic importance and inherent dignity of all kinds of work and workers.*

The research for this project, as shown in the model from Figure 3.1 (see below), focused on industry, represented by employers and employees, and community colleges, through training administrators and trainers. The overall purpose of this study was twofold : 1) to identify barriers to access education and training of employees of small business, as perceived by employers and employees of those businesses, and 2) to examine the implications of the above research for the community colleges, as seen by industrial training administrators and instructors.



(Figure 3.1)
Research model

The employers in the sample were identified through the resources of the Ontario Skills Development Office (OSDO) and those of the Humber College Business and Industry Service Center (BISC).

The field investigation of this research was facilitated by excellent co-operation of most people approached by the researcher. The most involved process was the work of putting together focus groups of employers.

All companies were first contacted by telephone to explain the purpose of the study and obtain their agreement to participate. It was also explained to the potential participants that as part of their participation in this research project, they would have the opportunity to

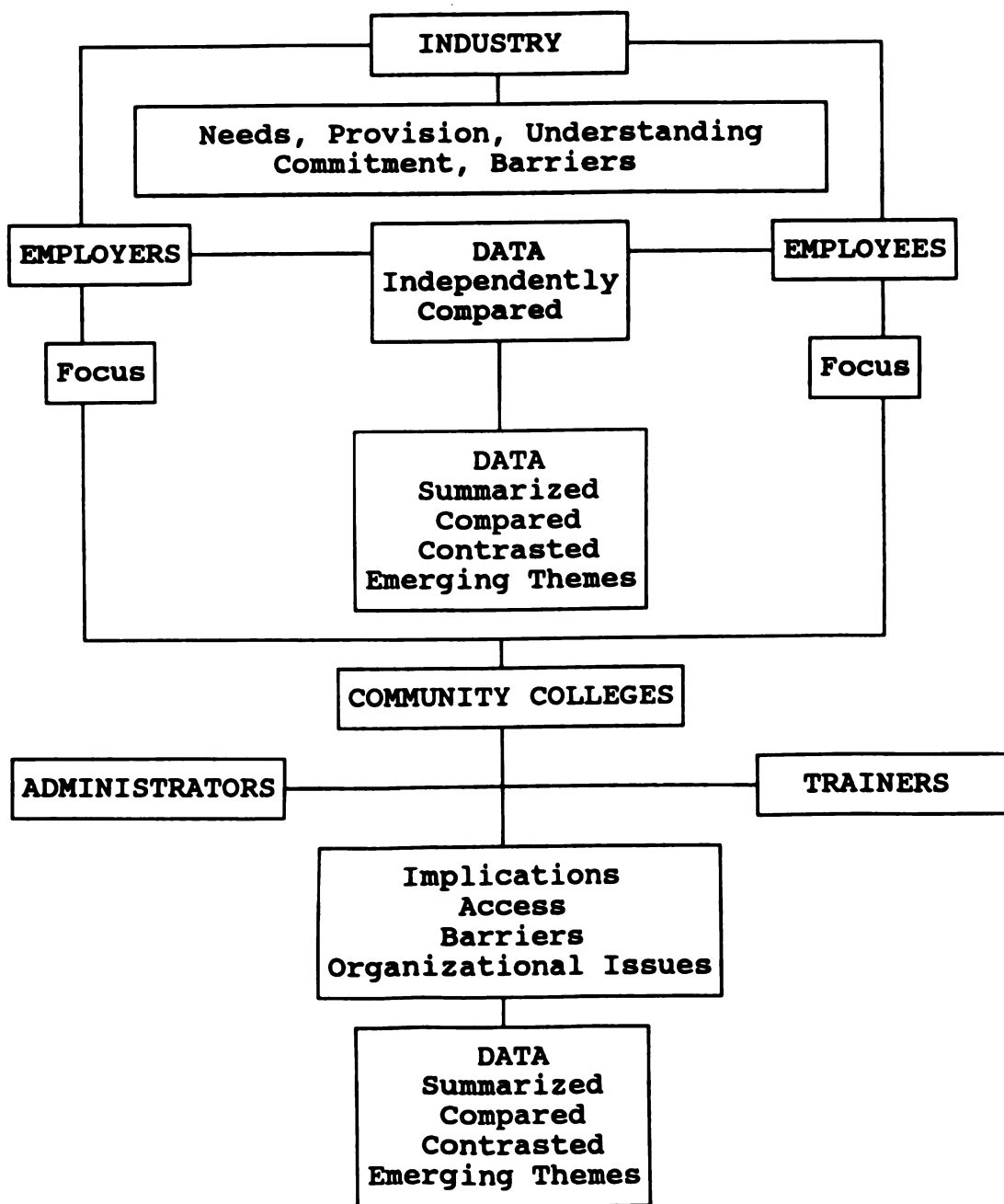
interact with their peers in discussion focus groups. Subsequently, the meeting arrangements were confirmed by letter. Actual attendance for employers was about 60%. This was to be expected, as people who manage small manufacturing businesses at the bottom of a recession have usually more pressing things to do than to meet with a researcher. In some instances, people who missed a particular meeting were able to get themselves scheduled in another one. As a result of this research, excellent contacts and further training opportunities were established. The employees were drawn from among the Continuing Education population at Humber College. They were contacted directly by the researcher during breaks in their classes. They were asked if they would like to participate in a training related research. The training administrators and trainers were also contacted directly by the researcher. Both groups indicated a willingness to participate in the study and continued interest in the results.

Denommé (1990) stated that in the new economy. *"the focus must change from investment in machinery and equipment to investment in people"*. The results of this research would suggest modifying somewhat the above statement as follows : *"the focus must change from a mentality of investment in machinery and equipment to concurrent investing in people,*

machinery and equipment".

The original statement of the problem of this study - identifying the barriers to employee education and training in small manufacturing businesses - was shown to be a real issue. As shown later in "Recommendations for further research", the original statement of this research has generated a large number of additional relevant and reasonable research topics.

The data from industry, accumulated by the research process, was summarized and compared (contrasted) as shown in the model in Figure 5.2. The industry data (employer and employee feedback) was first compared independently, then contrasted as specific themes started to emerge. The same process was followed for college administrators and trainers.



(Figure 3.2)
Data summary and contrast

**SUMMARY OF FINDINGS, CONCLUSIONS,
IMPLICATIONS AND RECOMMENDATIONS.**

Analyzing and synthesizing the data from questionnaires and focus group discussions was a complex operation. The results, though, indicate a great deal of potential education and training for employees once the process is better understood.

The barriers to employee education and training were found to conform with the literature classifications (Cross, 1981 and Charner and Fraser, 1986). Situational, dispositional and organizational barriers were identified by all participants. This study distinguished between work and training institution-based organizational barriers. None of the potential barriers discussed was found to be critically large. Yet there must be a cumulative effect of a number of "small" barriers to account for the low level of education and training for employees of small manufacturing businesses. There is a high level of agreement among and between employers and employees that training is critical for the success of the company. As expected, some differences between the views of employers and employees were found as well. Lack of time was identified by both as a problem, but job responsibility ("too busy") barriers obtained a much higher reading from employees than from employers. Employers identified employee age as an "average"

barrier, while employees classified age as much less important.

Harvey (1980) had classified companies into training and non-training firms. A few companies stated outright that training for employees was not part of their priorities. The majority of employers considered their companies as training firms, with on-the-job skills training as their criterium of classification. Yet only a very small number of respondents, closer to the upper size limit (100 employees) could classify as "actual" training firms, with a training budget and yearly targets for each employee. Interestingly, most of the employers who considered themselves as "training" companies because of the "on-the-job" training acknowledged the fact that their employees had learned "how" but not "why" to follow specific manufacturing procedures. Most of them indicated a definite need for process and equipment "theory" training for their key staff. The above conclusions relate to the findings of Lusterman (1977), Knowles (1984) and others who analyzed training needs and training differences by company size and type.

The critical role of management, as identified by Robinson and Robinson (1985), was present in each one of the training companies. As expected for firms of this size, the number of unionized companies was very small. A number of employers

agreed with the President of Xerox Canada (Goar, 1992) that there is an insufficient assumption of responsibility for worker training by the private sector. Employee literacy and basic skills was brought up as an issue in many focus groups, with employers citing school deficiencies or systemic illiteracy as a major problem in improving productivity.

A strong endorsement was given to Rosenberg's (1990) paradigm shift from traditional training to "performance technology", a composite of knowledge, performance and education. This will have an effect in the way future college programs will have to be designed for both trades and post-secondary programs.

The role of the colleges in lifelong training (Gordon, 1989 and Beckman & Doucette, 1993) was substantiated by the researcher's discussions with the employee groups. These people have sought help from colleges in assessing their current knowledge, identifying their training needs and accessing continuing education as the most cost-effective means of achieving their objectives.

Cost of training was identified in the literature as a major problem for small companies. The data showed that the success of programs administered through the Ontario Skills

Development Office is due to some large extent to the attached funding for needs assessment and course delivery. Very few respondents (all at the top of the size range) indicated that employee training was a part of the company's regular budget.

Employee need for education and training was found by both employers and employees to be an "average" need, as expressed by the means of their responses (tables in Appendices B and D). Both means and standard deviations of responses were found to be comparable. Average results were obtained even though the questionnaires had been designed to stream responses either below or above the "average". Administrators and trainers felt that employee need for education and training was major, as old technologies need updating, and new technologies have many training implications.

Managers of small manufacturing businesses identified barriers to access education and training for their employees as "below average". The feedback from employees was similar. Administrators and instructors identified these barriers as higher, but their approach was more systemic and their criteria somewhat different.

Managers expressed the belief, as indicated by their

responses, that their level of understanding about employee education and training related to the workplace was higher than average. All employees interviewed were continuing education students and the researcher expected to find higher levels of understanding about education and training in their responses. Yet very similar numerical results were obtained from the groups of employees.

The level of commitment of managers was above average, with a meaningful difference between the managers' perception of their own and their employees' commitment to education and training. In the focus group discussions with the researcher, most managers professed to be committed to education and training. Only a small group indicated point-blank that education and training were not among their corporate objectives. The employees indicated an above average commitment as well, but they showed a low rating of their perception of their managers' commitment.

Administrators and instructors cited a number of objective reasons for their observation that if small businesses are committed to education and training for their employees, their behaviors do not substantiate this commitment.

CONCLUSIONS

1) *Employers are concerned about the skill improvement of their employees.* Employers are willing to support the training of their employees so long as it meets criteria of appropriateness, timeliness and cost effectiveness.

2) *Employees of small manufacturing businesses do not view their employers as being adequately informed or skilled to help them in increasing their knowledge and skills.*

Employees are positive about education and training for themselves. Employees view the colleges as a primary delivery agent of education and training.

3) *Employers are poorly informed* about the following areas : adult learning principles; employee training needs; government funding availabilities; training institution offerings; and, potential help from training institutions.

4) *No single barrier to employee education and training is critically large.* Yet there must be a cumulative effect of the number of "small" barriers to account for the general low level of education and training for employees of small manufacturing businesses.

5) *College mission statements, organizational structures and faculty responsibilities do not encourage participation in education and training for small business employees and response to small business needs.* Some of the detailed issues are that the mission statements do not : address the issues of education, skills and training for employees; the training of people in small business; the preparation of a relevant curriculum; the provision of specially trained and experienced instructors; and, the overcoming of institutional barriers such as organizational flexibility or prior learning assessment.

IMPLICATIONS

The field of manufacturing is changing very rapidly. Modern manufacturing requires a radically different kind of employee. This person must be multi-skilled, cross-trained, with portable skills, a critical thinker, problem solver and team worker. Most colleges have outdated equipment and facilities, associated with a curriculum designed for traditional training. College managers need to get a better understanding of the requirements to meet the needs of the new employee. Job profile definition, non-traditional certification, instructor competence re-evaluation, multi-skilling and overall flexibility are but some of the components of the new strategy.

The colleges will become more effective in this role only after implementing the paradigm shift from "traditional" training. This issue was discussed extensively by some of the industrial trainers who provided feedback for this research. Colleges need to be brought in closer touch with the market and its needs. Their institutional barriers need to be lowered, then dismantled.

Colleges will have to improve communication with employers, using perhaps some of the employers' own channels of communication for this purpose.

Trainee needs analysis will have to be systematized for all levels and types of training. Perhaps a "small business job analysis kit" could be developed.

A new approach could also be a combination of basic skills and "technical foundation" training by the college, with "finishing" skills, company specific, on the job. For this purpose, both college and on-the-job trainers would require specific help. Colleges will have to work with industry to "return teachers to the workplace". A Price Waterhouse study on 25,000 college instructors (Duffy, 1993) suggests that colleges set specific guidelines for instructor technical renewal. On the industry side, peer trainers will require "train-the-trainer" preparation in order to provide some

structure to the process (Filipczak, 1993).

Training for small manufacturing businesses will have to meet business constraints. Foundation training could be part of an inexpensive off-the-shelf continuing education package. Job training, however, will have to consist of modules, conveniently offered. These will have to be short, relevant and specific. Training will have to show a correlation with business results. In some instances, training may be hybrid, such as interrelating motivational training for line employees with supervisory training for employers.

Training will face some long term challenges, such as operating in conditions where pay is low and employee turnover high. In many companies, language barriers are too serious to ignore. In some of them, employees face a communication barrier in any language.

In the short run, funding of training will have to continue in its present limitations until companies will be able to assume more, or full, responsibility for training funding. Small businesses will have to participate in training consortia in order to improve their training power, as they join in buying consortia in order to improve their purchasing power.

RECOMMENDATIONS FOR FURTHER RESEARCH

The conclusions of this study are based on thoughts resulting from a fairly limited set of cases in an exploratory study. Much specific additional research needs to be done related to the education and training needs of small business. The barriers to access education and training also require further exploring. The following specific topics would be relevant and reasonable research areas to follow up on the findings from this study :

- Studies to investigate developing training curriculum in a college by starting with what workers do in plant and working backwards towards a training plan and a curriculum development.

- Studies to investigate the possibility of developing college curriculum based on industrial training curriculum. One approach to the industrial training curriculum process could be described as follows : The college specialist personnel will work with industry to determine training needs. Industry will provide on-the-job training to the college instructor. Course material will be developed using material off the shelf, modified, or new material. This material will be reviewed by the expert instructor and whenever possible finalized by a technical writer in

specific modules. The material will be then optimized following delivery to industrial trainees. Lastly, this material should be *brought back* to the college where it will update the materials taught to "conventional" students.

- Studies to investigate the need for a tight link between the entrepreneurial activity of the colleges and their delivery activity. The latter must be staffed by talented flexible people, available on a constantly changeable basis.

- Studies to analyze "employer" and "employee" questionnaires for the purpose of further simplification and better effectiveness. More space could be provided for individual feedback to some of the questions.

- Studies to investigate the need for administering employee questionnaires in person. This is necessary because of the participants' limited communication skills. Alternative methods of administration in similar situations should also be examined.

- Studies to explore the possibility of day release by industry (small business cannot afford block release). The studies should also examine the need for logistical support across the "system" to track students and staff on a seven day per week basis.

- Studies to investigate employee participation in a research of this nature where employee participants are recruited directly from industry, rather than from among the

night school students from a community college.

- Studies to research the approach and thinking of companies who have introduced or who plan to introduce pivotal technological changes without making appropriate allocation for training. Individual employees cannot be expected to shoulder the costs of major re-training following such technological changes.

- Studies to research the issue of technological training through apprenticeship. Some of the employees have identified the vulnerability of apprentices to lay-off, which results in the interruption of the training process.

- Studies to investigate the relationship between the conventional apprenticeships and the specific needs of manufacturing companies.

- Studies to investigate the optimization of course packaging for small manufacturing businesses as related to company size, major product cycles and types of production work shifts (conventional 1, 2 or 3 8-hour shifts, "continental" 1 or 2 12-hour shifts or combination thereof).

- Studies to investigate generic profiles, skill profiles, and cross-skilling (multi-skilling) profiles. Co-ordinate these profiles across the 19 current sectoral training councils to avoid ending up, for instance, with 19 different electronic technician profiles. Investigate an outline for a new national training system.

- Studies to investigate the issue of credentialling for

multi-skilled employees of manufacturing companies.

- Studies to investigate the relationship between a shorter but more relevant (multi-skilled) apprenticeship program and shorter and more specific training modules for colleges.

- Studies to investigate the trend to shorter, more relevant programs and courses.

- Studies to investigate professional development in colleges as related to the faculty's ability to function in an industrial setting.

- Studies to investigate ways in which training institutions can assure the relevancy of skills taught to industrial trainees.

- Studies to investigate college access (entry requirements) based on specific needs at specific times and not on calendar dates and offerings.

- Studies to investigate the extension of current college "warranty programs" to training programs offered to industry.

- Studies to investigate an effective approach to employee education and training in an environment where language communication problems are a major issue in production and safety.

SUMMARY

If our economy is to experience a resurgence of economic health leading once again to global competitiveness, there is no alternative to a well prepared and motivated small manufacturing business workforce.

This study was designed to fill a gap in the knowledge about education and training problems for employees of small manufacturing businesses.

The instruments designed to gather the data for this investigation can be a useful tool in helping small manufacturing companies explore needs and provision, understanding of and commitment to, education and training for their employees. They can also analyze the perception of barriers to access education and training for these employees.

Employers view on-the-job training as vitally important, but have come to realize that new technologies require foundation training as well. Employees place more accent on college based training. Neither group views the various categories of barriers as major impediments. This is contrasted by poor participation in organized education and training programs.

Both employers and employees see a crucial role for colleges, yet perceive lack of information about college

offerings as a major barrier to utilization.

Colleges can play a vital role in small manufacturing employee education and training, and this study has identified a series of activities which would integrate colleges with their market.

The recommendations for further research have been arrived at in the desire to complement the results of this study. All these issues are interconnected and require careful and co-operative handling and a persistent sense of urgency.

APPENDIX A

EDUCATION AND TRAINING IN SMALL BUSINESS

QUESTIONNAIRE FOR EMPLOYERS

Dear Questionnaire Recipient :

I am examining how employers, employees and educators view the role of education and training for small manufacturing businesses. I appreciate your willingness to assist me. Your participation in this study is purely voluntary. All information will be held in the strictest confidence. Your name and organization will not be reported. All information will be reported anonymously as part of the entire population.

Thanking you in advance for your assistance and co-operation,

Sincerely,

Michael Sava

Associate Dean, Mechanical/Safety Programs

Humber College

COMPANY NAME : _____

Mailing Address : _____
No. Street

Unit City Province Postal Code

Telephone : (_____) _____

Contact Person : _____

Position : _____

Major Product(s) : _____

Number of Employees : Total ____ Production Employees ____

Unions (if any) : _____

Date Completed : _____

QUESTIONNAIRE FOR EMPLOYERS

You are asked to participate in this survey by answering the following questions. Please circle the factor which best applies to your answer.

1. How much training do your present employees need in :

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
a. job skills	1	2	3	4	NA
b. basic skills	1	2	3	4	NA
c. teamwork skills	1	2	3	4	NA
d. health and safety	1	2	3	4	NA
e. other (specify)					
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	

2. How much training do you provide or is presently provided to your present employees in :

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
a. job skills	1	2	3	4	NA
b. basic skills	1	2	3	4	NA
c. teamwork skills	1	2	3	4	NA
d. health and safety	1	2	3	4	NA
e. other (specify)					
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	

3. How much do you believe that employee training is critical for your company's success ?

1 2 3 4 NA

4. How much do your employees believe that employee training is critical for your company's success ?

1 2 3 4 NA

5. To what extent is employee education and training a part of your company's strategic goals ?

1 2 3 4 NA

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
6. How knowledgeable do you consider <i>yourself</i> in education and training ?	1	2	3	4	NA
7. To what degree does <i>your</i> own education and training affect your thoughts and decisions on the training needs of your employees ?	1	2	3	4	NA
8. How committed are <i>you</i> to encouraging and supporting training for your employees ?	1	2	3	4	NA
9. How committed are <i>your employees</i> to assume responsibility for their own training ?	1	2	3	4	NA
10. How much time and effort are <i>you</i> prepared to invest to help define the training needs of your employees ?	1	2	3	4	NA
11. How much time and effort would <i>your employees</i> be prepared to invest to help define their own training needs ?	1	2	3	4	NA
12. To what degree do <i>you</i> believe that training and retraining are preferable to firing and hiring ?	1	2	3	4	NA
13. How clearly can <i>you</i> communicate new job expectations that will require training by your employees ?	1	2	3	4	NA
14. To what degree are <i>you</i> a positive model, coach and reinforcer of the desired behaviors of your employees ?	1	2	3	4	NA

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
15. To what extent do you use the community college for					
a. employee education	1	2	3	4	NA
b. employee training	1	2	3	4	NA
c. recruitment of staff	1	2	3	4	NA
16. To what extent do you believe that the following factors act as barriers to your employees' willingness to participate in education and training ?					
a. fees or expenses employee must pay during training	1	2	3	4	NA
b. potential lost income	1	2	3	4	NA
c. lack of time	1	2	3	4	NA
d. low prior educational attainment	1	2	3	4	NA
e. personal transportation	1	2	3	4	NA
f. job responsibilities ("too busy")	1	2	3	4	NA
g. conflict between work schedule and education & training schedules	1	2	3	4	NA
h. amount of paperwork to be completed by the trainee	1	2	3	4	NA
i. clarity of government guidelines	1	2	3	4	NA

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
j. selection of applicants for training	1	2	3	4	NA
k. retention of trainees in lay-off situations	1	2		4	NA
l. accreditation to be given to employees	1	2	3	4	NA
m. ability of training programs to cross occupational or trade jurisdictional confines	1	2	3	4	NA
n. relevance of skills taught by the training programs	1	2	3	4	NA
o. portability of skills learned from training	1	2	3	4	NA
p. location of training programs relative to location of trainees	1	2	3	4	NA
q. length of time for program	1	2	3	4	NA
r. ability of training programs to train for multi-skill jobs	1	2	3	4	NA
s. job and career expectations of employees	1	2	3	4	NA
t. peer pressure	1	2	3	4	NA
u. age (time away from school)	1	2	3	4	NA

APPENDIX B

**Mean and standard deviation for each question
across the sample of 35 employers (sorted by cluster)**

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Cluster
Q1a : How much training do your present employees need in job skills ?	2.824	0.936	Employee need for education and training
Q1b : How much training do your present employees need in basic skills ?	2.571	0.815	Employee need for education and training
Q1c : How much training do your present employees need in teamwork skills ?	2.721	0.898	Employee need for education and training
Q1d : How much training do your present employees need in health and safety ?	2.324	0.768	Employee need for education and training
Mean of means	2.61		Employee need for education and training
Q2a : How much training do you provide or is presently provided to your present employees in job skills ?	2.671	0.757	Provision of training by employer

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Cluster
Q2b : How much training do you provide or is presently provided to your present employees in basic skills ?	2.257	0.980	Provision of training by employer
Q2c : How much training do you provide or is presently provided to your present employees in teamwork skills ?	2.371	0.843	Provision of training by employer
Q2d : How much training do you provide or is presently provided to your present employees in health and safety ?	2.441	0.960	Provision of training by employer
Mean of means	2.43		Provision of training by employer
Q3 : How much do you believe that employee training is critical for your company's success ?	3.800	0.584	Level of understanding
Q4 : How much do your employees believe that employee training is critical for your company's success ?	2.714	0.750	Level of understanding
Q6 : How knowledgeable do you consider yourself in education and training ?	2.800	0.677	Level of understanding
Q7 : To what degree does your own education and training affect your thoughts and decisions on the training needs of your employees ?	3.486	0.742	Level of understanding
Q12 : To what degree do you believe that training and retraining are preferable to hiring and firing ?	3.257	0.852	Level of understanding

<i>Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)</i>	Mean	Std. Dev.	Cluster
Q13 : How clearly can you communicate new job expectations that will require training by your employees ?	2.743	0.741	Level of understanding
Q14 : To what degree are you a positive model, coach and reinforcer of the desired behaviors of your employees ?	3.206	0.687	Level of understanding
Mean of means	3.14		Level of understanding
Q5 : To what extent is employee education and training a part of your company's strategic goals ?	3.114	0.867	Level of commitment
Q8 : How committed are you to encouraging and supporting training for your employees ?	3.571	0.608	Level of commitment
Q9 : How committed are your employees to assume responsibility for their own training ?	2.329	0.813	Level of commitment
Q10 : How much time and effort are you prepared to invest to help define the training needs of your employees ?	3.129	0.721	Level of commitment
Q11 : How much time and effort would your employees be prepared to invest to help define their own training needs ?	2.294	0.676	Level of commitment
Q15a : To what extent do you use the community college for employee education ?	1.603	0.860	Level of commitment

<i>Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)</i>			Mean	Std. Dev.	Cluster
Q15b : To what extent do you use the community college for employee training ?			1.567	0.935	Level of commitment
Q15c : To what extent do you use the community college for recruitment of staff ?			1.419	0.720	Level of commitment
Mean of means			1.99		Level of commitment
Q16 : To what extent do you believe that the following factors act as barriers to your employees' willingness to participate in education and training ?			-		-
Q16a : fees or expenses employee must pay during training			2.333	1.242	Situational barrier
Q16b : Potential lost income			2.606	1.321	Situational barrier
Q16c : Lack of time			2.657	0.906	Situational barrier
Q16d : Low prior educational attainment			2.543	0.852	Situational barrier
Q16e : Personal transportation			1.471	0.662	Situational barrier
Q16f : Job responsibilities ("too busy")			2.171	0.954	Situational barrier
Mean of means			2.3		Situational barrier
Q16g : Conflict between work schedule and education & training schedules			2.242	1.032	Organizational barrier (work)
Q16h : Amount of paperwork to be completed by the trainee			2.143	0.912	Organizational barrier (work)

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)		Mean	Std. Dev.	Cluster
Q16i : Clarity of government guidelines		2.036	0.793	Organizational barrier (work)
Q16j : Selection of applicants for training		1.767	0.817	Organizational barrier (work)
Q16k : Retention of trainees in a lay-off situation		1.760	0.970	Organizational barrier (work)
Mean of means		1.99		Organizational barrier (work)
Q16l : Accreditation to be given to employees		1.655	0.814	Organizational barrier (training institution)
Q16m : Ability of training programs to cross occupational or trade jurisdictional programs		1.926	0.829	Organizational barrier (training institution)
Q16n : Relevance of skills taught by the training programs		2.226	0.920	Organizational barrier (training institution)
Q16p : Location of training programs relative to location of trainees		2.152	0.939	Organizational barrier (training institution)

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Cluster
Q16r : Ability of training programs to train for multi-skill jobs	2.000	0.984	Organizational barrier (training institution)
Q16s : Job and career expectations of employees	2.147	0.989	Organizational barrier (training institution)
Mean of means	2.02		Organizational barrier (training institution)
Q16o : Portability of skills learned from training	1.879	0.927	Dispositional barrier
Q16q : Length of time for program	2.273	0.944	Dispositional barrier
Q16t : Peer pressure	1.750	0.762	Dispositional barrier
Q16u : Age (time away from school)	2.441	0.824	Dispositional barrier
Mean of means	2.1		Dispositional barrier

APPENDIX C

EDUCATION AND TRAINING IN SMALL BUSINESS

QUESTIONNAIRE FOR EMPLOYEES

Dear Questionnaire Recipient :

I am examining how employers, employees and educators view the role of education and training for small manufacturing businesses. I appreciate your willingness to assist me. Your participation in this study is purely voluntary. All information will be held in the strictest confidence. Your name and organization will not be reported. All information will be reported anonymously as part of the entire population.

Thanking you in advance for your assistance and co-operation,

Sincerely,

Michael Sava
Associate Dean, Mechanical/Safety Programs
Humber College

COMPANY NAME : _____

Position : _____

Major Product(s) : _____

Number of Employees : Total ____ Production Employees ____

Unions (if any) : _____

Date Completed : _____

QUESTIONNAIRE FOR EMPLOYEES

You are asked to participate in this survey by answering the following questions. Please circle the factor which best applies to your answer.

1. How much training do you need in :

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
a. job skills	1	2	3	4	NA
b. basic skills	1	2	3	4	NA
c. teamwork skills	1	2	3	4	NA
d. health and safety	1	2	3	4	NA
e. other (specify)					
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
_____	1	2	3	4	
2. How much do you believe that training is critical for your company's success ?	1	2	3	4	NA

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
3. How much does your manager believe that training is critical for your company's success ?	1	2	3	4	NA
4. To what extent would work related training increase your work motivation?	1	2	3	4	NA
5. How critical for successful training are appropriate evaluation and follow-up ?	1	2	3	4	NA
6. To what extent is employee education and training emphasized by your company ?	1	2	3	4	NA
7. How clearly can your manager communicate new job expectations that will require training by employees ?	1	2	3	4	NA
8. How much time and effort are you prepared to invest to help define your own training needs ?	1	2	3	4	NA
9. How much time and effort would your manager be prepared to invest to help define training needs ?	1	2	3	4	NA
10. How much would training help your knowledge, skills and attitude towards work ?	1	2	3	4	NA
11. How much does your manager believe that training would help knowledge, skills and attitude towards work ?	1	2	3	4	NA

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
12. To what extent is your manager a positive model, coach and reinforcer of the desired behaviors on the job ?	1	2	3	4	NA
13. To what extent do you use the community college for					
a. your own education	1	2	3	4	NA
b. your own training	1	2	3	4	NA
14. To what extent do you believe that the following factors act as barriers to your participation in education and training ?					
a. lack of time	1	2	3	4	NA
b. low prior educational attainment	1	2	3	4	NA
c. job responsibilities ("too busy")	1	2	3	4	NA
d. return on your investment	1	2	3	4	NA
e. conflict between work schedules and education & training schedules	1	2	3	4	NA
f. financial support for you during (institutional) training	1	2	3	4	NA
g. selection of applicants for training	1	2	3	4	NA
h. retention of trainees in lay-off situations	1	2	3	4	NA

	Very little	Somewhat	Above average	A great amount	Not applicable or No answer
i. ability of training program to cross occupational or trade jurisdictional confines	1	2	3	4	NA
j. relevance of skills taught in the college	1	2	3	4	NA
k. portability of skills learned from training	1	2	3	4	NA
l. location of training programs relative to your location	1	2	3	4	NA
m. ability of training programs to train for multi-skill jobs	1	2	3	4	NA
n. your job and career expectations	1	2	3	4	NA
o. difficulty for you to meet job or training entry requirements	1	2	3	4	NA
p. peer pressure	1	2	3	4	NA
q. your age (time away from school)	1	2	3	4	NA

APPENDIX D

**Mean and standard deviation for each question
across the sample of 50 employees (sorted by cluster)**

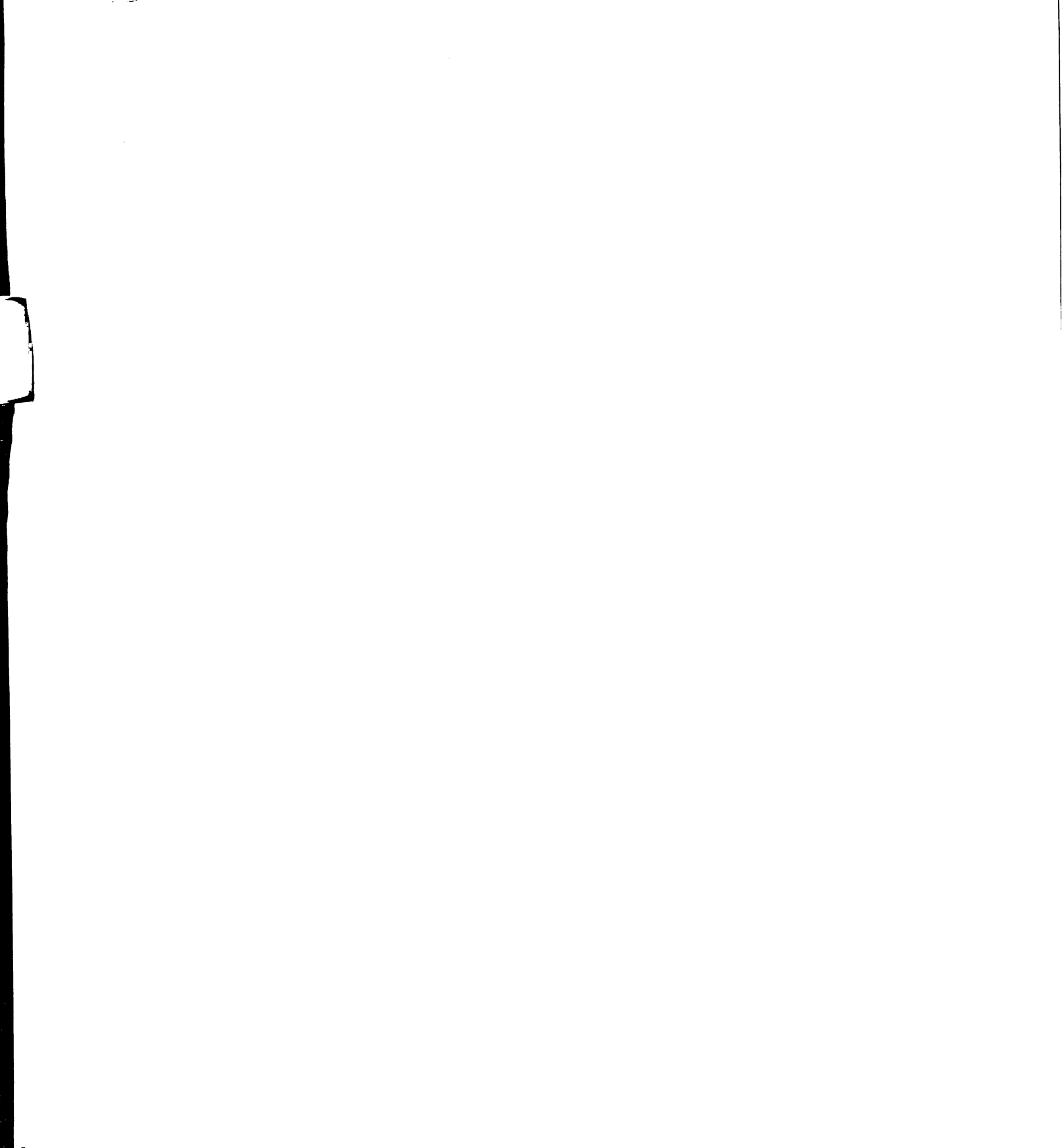
Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Question category
Q1a : How much training do you need in job skills ?	2.545	1.118	Employee need for education and training
Q1b : How much training do you need in basic skills ?	2.217	1.036	Employee need for education and training
Q1c : How much training do you need in teamwork skills ?	2.497	1.053	Employee need for education and training
Q1d : How much training do you need in health and safety ?	2.322	0.856	Employee need for education and training
Mean of means	2.4		Employee need for education and training

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Question category
Q2 : How much do you believe that training is critical for your company's success ?	3.184	1.009	Level of understanding
Q3 : How much does your manager believe that training is critical for your company's success ?	3.004	1.024	Level of understanding
Q7 : How clearly can your manager communicate new job expectations that will require training by employees ?	2.720	0.965	Level of understanding
Q10 : How much would training help your knowledge, skills and attitude towards work ?	3.520	0.707	Level of understanding
Q11 : How much does your manager believe that training would help knowledge, skills and attitude towards work ?	2.989	0.829	Level of understanding
Q12 : To what extent is your manager a positive model, coach and reinforcer of the desired behaviors on the job ?	2.831	0.912	Level of understanding
Mean of means	3.04		Level of understanding
Q4 : To what extent would work related training increase your work motivation ?	3.360	0.749	Level of commitment
Q5 : How critical for successful training are appropriate evaluation and follow-up ?	3.240	0.716	Level of commitment

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Question category
Q6 : To what extent is employee education and training emphasized by your company ?	2.564	1.147	Level of commitment
Q8 : How much time and effort are you prepared to invest to help define your own training needs ?	3.393	0.811	Level of commitment
Q9 : How much time and effort would you manager be prepared to invest to help define training needs ?	2.405	0.986	Level of commitment
Q13a : To what extent do you use the community college for your own education ?	3.072	1.009	Level of commitment
Q13b : To what extent do you use the community college for your own training ?	3.252	0.857	Level of commitment
Mean of means	3.04		Level of commitment
Q14 : To what extent do you believe that the following factors act as barriers to your participation in education and training ?			
Q14a : Lack of time	2.700	1.111	Situational barrier
Q14b : Low prior educational attainment	1.887	0.931	Situational barrier
Q14c : Job responsibilities ("too busy")	2.800	0.969	Situational barrier
Q14f : Financial support for you during (institutional) training	2.289	1.195	Situational barrier
Mean of means	2.42		Situational barrier

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Question category
Q14e : Conflict between work schedules and education & training schedules	2.368	1.090	Organizational barrier (work)
Q14g : Selection of applicants for training	2.000	0.872	Organizational barrier (work)
Q14h : Retention of trainees in lay-off situations	2.224	0.772	Organizational barrier (work)
Mean of means	2.2		Organisational barrier (work)
Q14i : Ability of training program to cross occupational or trade jurisdictional confines	2.014	0.995	Organizational barrier (training institution)
Q14j : Relevance of skills taught in the college	1.774	0.903	Organizational barrier (training institution)
Q14l : Location of training programs relative to your location	1.943	1.093	Organizational barrier (training institution)
Q14m : Ability of training programs to train for multi-skill jobs	1.819	0.804	Organizational barrier (training institution)

Questions (1 : very little; 2 : somewhat; 3 : above average; 4 : a great amount)	Mean	Std. Dev.	Question category
Q14n : Your job and career expectations	1.802	1.743	Organizational barrier (training institution)
Mean of means	1.87		Organizational barrier (training institution)
Q14d : Return on your investment	2.680	1.076	Dispositional barrier
Q14k : Portability of skills learned from training	1.722	0.884	Dispositional barrier
Q14o : Difficulty for you to meet job or entry requirements	1.802	2.013	Dispositional barrier
Q14p : Peer pressure	1.683	1.572	Dispositional barrier
Q14q : Your age (time away from school)	1.683	1.572	Dispositional barrier
Mean of means	1.91		Dispositional barrier



APPENDIX E

DISCUSSION TOPICS FOR COLLEGE ADMINISTRATORS

- 1. How much training do employees in small manufacturing businesses need in job skills, basic skills, teamwork skills, health and safety, or other (specify)?**
- 2. In your opinion, to what extent should the college address the issues of education, skills and training for employees of small manufacturing businesses.**
- 3. How does your college fulfil its mandate of training people in small business ?**
- 4. How are the people reporting to you involved in providing education, skills and training for employees of small manufacturing businesses ?**
- 5. To date, what have been the college's approaches to introduce linked industry - college programming ?**
- 6. What are the constraints in committing resources to linked industry - college programming ?**

7. Which department of the college is best equipped to manage entrepreneurial risks in order to promote education, skills and training for employees of small manufacturing businesses ?

8. What are the remaining institutional (structural or organizational) barriers to providing competent and timely education, skills and training for employees of small manufacturing businesses ?

9. In your opinion, what are the mechanisms for introducing the right balance between the needs of administration control and the field requirement of empowering industrial instructors?

10. What are the changes and requirements that colleges should adopt in order to promote the perception that industrial training is at par with academic training ?

11. What professional development would be required to improve your faculty's ability of training employees of small manufacturing businesses ? Who should the facilitators be ?

12. How necessary is the college participation in college - industry staff exchanges for enhancing faculty's ability to

train employees of small manufacturing businesses ?

13. How could the college address the issue of flexible work hours in order to provide convenient training for employees of small manufacturing businesses ?

14. In your opinion, how could the current curriculum be modified to better adapt it to the needs of training for employees of small manufacturing businesses ?

15. Problem solving, critical thinking, decision making, organizational planning, conflict management, leadership, team work, financial awareness and diversity management are important components of industrial training. In your opinion, to what extent should the college address these issues in its regular academic planning ?

16. In your opinion, how deeply are the colleges currently involved in providing employee training for multi-skill jobs ?

17. How are the colleges providing for portability of skills learned by employees during training ?

18. How difficult is it for the average employee of a small manufacturing business to meet college entry requirements ?

19. How is the college currently assuring relevancy of skills taught to trainees from industry.

APPENDIX F

DISCUSSION TOPICS FOR INSTRUCTORS

1. In your opinion, to what extent should the college address the issues of education, skills and training for employees of small manufacturing businesses.
2. How does your college fulfil its mandate of training people in small business ?
3. How are you involved in providing education, skills and training for employees of small manufacturing businesses ?
4. To date, what have been the college's approaches to introduce linked industry - college programming ?
5. What are the constraints in committing resources to linked industry - college programming ?
6. Which department of the college is best equipped to manage entrepreneurial risks in order to promote education, skills and training for employees of small manufacturing businesses ?

7. What are the remaining institutional (structural or organizational) barriers to providing competent and timely education, skills and training for employees of small manufacturing businesses ?

8. In your opinion, what are the mechanisms for introducing the right balance between the needs of administration control and the field requirement of empowering industrial instructors?

9. What are the changes and requirements that colleges should adopt in order to promote the perception that industrial training is at par with academic training ?

10. What professional development would be required to improve your own ability in training employees of small manufacturing businesses ? Who should the facilitators be ?

11. How necessary is your participation in college - industry staff exchanges for enhancing your ability to train employees of small manufacturing businesses ?

12. How could the college address the issue of flexible work hours in order to provide convenient training for employees of small manufacturing businesses ?

13. In your opinion, how could the current curriculum be modified to better adapt it to the needs of training for employees of small manufacturing businesses ?

14. Problem solving, critical thinking, decision making, organizational planning, conflict management, leadership, team work, financial awareness and diversity management are important components of industrial training. In your opinion, how and where do these issues fit in your departmental courses ?

15. In your opinion, how deeply are the colleges currently involved in providing employee training for multi-skill jobs ?

16. How are the colleges providing for portability of skills learned by employees during training ?

17. How difficult is it for the average employee of a small manufacturing business to meet college entry requirements ?

18. How is the college currently assuring relevancy of skills taught to trainees from industry ?

APPENDIX G

REQUEST FOR STUDY ENDORSEMENT CANADIAN FEDERATION OF INDEPENDENT BUSINESS

November 12, 1992

Mr. Jim Bennett
Vice-President and General Manager
The Canadian Federation of Independent Business
4141 Yonge Street, Suite 401
Willowdale, Ont.
M2P 2A6

Dear Mr. Bennett :

Confirming our telephone discussion, I am currently working on a dissertation research proposal titled : "Barriers to Employee Education and Training in Small Business : Implications for the Community College". This dissertation is a part of the requirements for the PhD degree in Higher, Adult and Lifelong Education with Michigan State University.

The project has received the endorsement at all levels from my own employer, Humber College of Applied Arts and Technology, an institution with a well established reputation for industrial training.

My research will involve managers and employees of small manufacturing businesses in the Toronto area. As these are members of CFIB, I would like to request your Federation's endorsement for this project.

I will be pleased to meet with you and bring you up to date on our current work with industry in Ontario, and specifically with my work for this proposal.

I would also like to thank you very much for your kind words of support and encouragement during our discussion today, as well as for the training cost information you sent me.

Thanking you in advance for your kind consideration,

Yours truly,

Michael Sava, M.A.Sc., P.Eng.
Associate Dean, Mechanical
Engineering Technology Division

APPENDIX H

REQUEST FOR STUDY ENDORSEMENT - HUMBER COLLEGE

MEMORANDUM

To : M. Harper, Dean, Engineering Technology
From : M. Sava, Associate Dean, Mechanical
Re : Institutional Support for Research Study
Date : September 21, 1992

I am currently working on a dissertation research proposal titled : "Barriers to Employee Education and Training in Small Business : Implications for the Community College".

This study will impact all our training, from full-and part-time to continuing education to skills training through the Business and Industry Service Centre, our "customer" service, and indirectly our future planning and development process.

I am therefore requesting institutional endorsement and support for this research in the form of :

- 1. permission to use Humber College letterhead stationery and envelopes for all mailings,**
- 2. permission to use copy and printer facilities for this research project,**
- 3. permission to use the library facilities for searches associated with this project,**
- 4. permission to use institutional mailing privileges for this project where necessary.**

Thank you for the support you have already extended to me during my quest to complete this degree.

APPENDIX J

MEMORANDUM

To : M. Overholt and the OSDO staff
 From : M. Sava
 Date : October 25, 1993
 Re : Research project : Barriers to education and training for employees in small manufacturing businesses.

Our hopes for the recovery of the economy are based on jobs to be created by small business. I am working on a research project in order to address the major component of successful businesses : well educated and trained employees. My goal is to explore the barriers in their quest to access education and training. I have the full support of the College for this undertaking.

Given our common objectives, I have approached your department in order to access employers. I was promised assistance and I thank you.

When contacting employers (in small manufacturing businesses) for this project, you should indicate that we are conducting a study to explore

- the need for education and training for employees in small manufacturing businesses, and
- the barriers to access education and training, and that as principals or senior managers of their companies, we require their feedback.

We would need about an hour of their time, in groups of 5 to 10 people, for a total of 50 employers. The best time of the day for a meeting will probably result from the arrangements for the first group meeting.

I will do a very brief introduction, ask the participants to fill in a short questionnaire, and then I will lead a focus group on the two topics above.

The results of the project would, of course, be available to your office and to the employers. Any company specific data would remain strictly confidential.

As I understand it, you would participate in the groups composed of people with no prior exposure to OSD's mission and goals.

Thank you again for your kind offer of assistance with this project and for your help.

APPENDIX K

ONTARIO SKILLS DEVELOPMENT OFFICE

Ministry of
Skills Development

Humber
College

Suite 901, 6700 Finch Avenue West
Etobicoke, Ontario, M9W 5P5
(416) 675-5014 (416)675-3111
FAX (416) 675-9908

^D

1~

Dear 2~ :

Re : Barriers to Education and Training.

3~, training consultant, of the Ontario Skills Development Office, has contacted you to participate in a Humber College Research Project, conducted by the Technology Department.

The purpose of the study is to explore the need for education and training for employees in small businesses, and identify barriers to access education and training.

This will also be a prime opportunity for you to meet some of yours peers and exchange ideas and comments on common problems and solutions.

Thank you for taking the opportunity to come and meet with us on 4~, 1993, from 11:00 a.m. - 12:00 p.m.. Attached is a map for your convenience.

Looking forward to seeing you,

Yours truly,

Co-ordinator

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