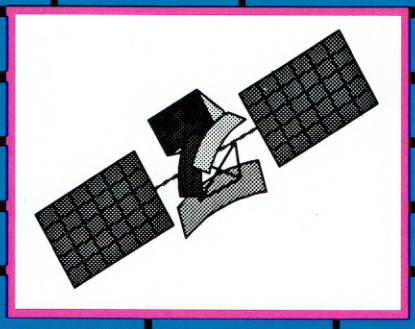
Human Resource Study of the Canadian Community Colleges and Institutes Sector

1993



ASSOCIATION OF CANADIAN COMMUNITY COLLEGES

DETAILED REPORT
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HUMAN RESOURCE STUDY OF CANADIAN COMMUNITY COLLEGES AND INSTITUTES

Prepared by

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Association of Canadian Community Colleges
June 1993

ACKNOWLEDGEMENTS

Human Resources and Labour Canada wishes to express its appreciation to all organizations and individuals who have contributed time and effort to make this study successful.

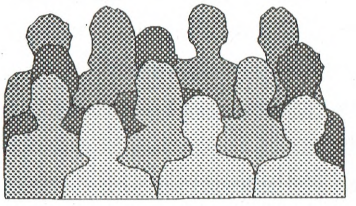
Human Resources and Labour Canada would particularly like to extend its appreciation and thanks to the Steering Committee for the Human Resource Study of the Canadian Community Colleges and Institutes Sector. The success of the study is greatly attributed to the Committee's overall guidance and consensus on the study process and analysis, and on resulting conclusions and recommendations which it provided.

The nature of this report is very complex. Without the knowledge and expertise of Price Waterhouse Management Consultants, the study would not have been as concise. Special thanks must be extended to Ms. Terry Lister of Price Waterhouse who was responsible for the final research and report writing.

Finally, this report would not have been possible without the participation of countless individuals who took the time to talk with the researchers on various aspects of the Canadian Community Colleges and Institutes sector. These individuals came from all parts of the sector, industry, and both levels of government. It is for these people that Human Resources and Labour Canada reserves its final thanks.

Table of Contents

1. Introduction



Canadians are learning how to adapt to an evolving economy. We have discovered that education and training pay off in economic development and innovation. Entry level workers require higher skills than ever before. Moreover, education is no longer a once in a lifetime experience. Market and technological changes mean that continuous upgrading of our workforce must be a key element in economic development. The community colleges and technical institutes across Canada are key to the achievement of continuous learning in the workforce. In this context, many provincial governments have recently focused attention on their college systems, either alone or as part of a larger examination of education.[1] The theme of human resource development as a basic element in economic renewal runs through these provincial studies. This report is based on a similar understanding of the role of the colleges. However, it focuses specifically on human resource requirements of the colleges.

The community colleges and technical institutes across Canada are key to the achievement of continuous learning in the workforce.

This is a long report. Some readers will ask whether they really should read it. We believe the report contains valuable information for faculty, staff, administrators, students and potential students, alumni, boards of directors, union leaders and employers. We urge you to take the time to read the report, consider the issues and participate in action.

This report seeks to encourage all those concerned with the colleges to focus attention on changes in the external environment and then shape their college to respond most effectively. It is not a road map for individual colleges and technical institutes to follow into the future. The future directions of economic restructuring are not readily predictable to individual industry sectors, much less to the colleges and technical institutes which serve a broad array of sectors. It is impossible to define precisely the future environment of the colleges then ask what training and education colleges will have to provide in that environment. In a context of economic uncertainty, responsiveness is the key to success. Moreover, the particular responses of individual colleges and technical institutes can and must vary. However, the reality is that colleges do not have 5 to 10 years to prepare for the future. This report is not the end of a human resource planning process but a first stage in on-going renewal. We have raised some very important issues. We hope this report will catalyse action in colleges and industry across the country.

In a context of economic uncertainty, responsiveness is the key to success.

ACCC Initiation of the Sector Study

In the context of education and training as economic development strategies, groups representing workers and managers in many large industrial sectors have recently begun collaborating to assess their human resource development needs. College representatives participated on steering committees for many of these sector human resource studies. These sector studies often recommended faculty renewal as a precursor to strengthening the training and education available to their workforce. Sector studies have often led to the formation of sectoral skills councils, aimed at improving workforce development and continuous learning in a specific sector. Many of the initiatives of these councils continue to implicate the colleges/technical institutes, for example, some sector councils are setting standards for occupations in their purview. In some cases, sector councils are considering accrediting college programs. Clearly, the sector councils have emerged as a new voice influencing colleges and technical institutes.

At the same time as sector councils were expressing the need for technical updating of faculty, colleges and technical institutes had begun to worry about the "greying" of their faculty. Many of the colleges and technical institutes were created in the sixties and recruited extensively during the sixties and seventies. While universities had examined the pattern of aging among their faculty and found that there was little cause for alarm, colleges and technical institutes considered that their situation could be quite different.

ACCC members recognized the value of the sector study process.

The concerns about the greying of the college faculty and the growing demands for continuous learning converged at the board of the Association of Canadian Community Colleges (ACCC). The ACCC asked Human Resources and Labour to sponsor a strategic human resource study of the community college sector.[2] Because of their experience with other sectors, ACCC members recognized the value of the sector study process. It was agreed that the sector study of the colleges/ technical institutes would generally follow the general model established by other sector studies. The scope of the sector study included all community colleges/technical institutes, and cégeps across Canada.[3]

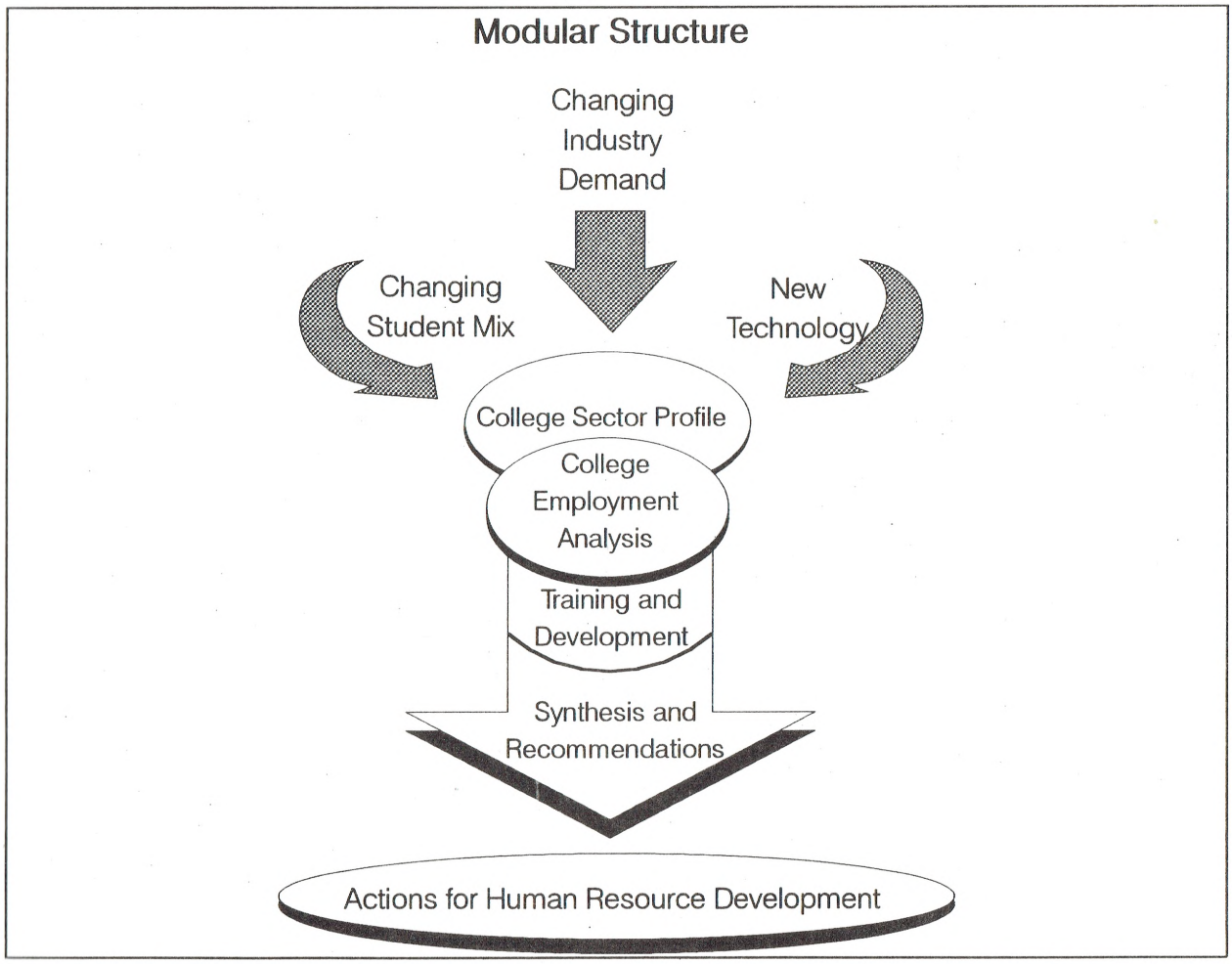
To begin the sector study process, the ACCC formed a steering committee which included college administrators, faculty, staff, students and board representatives, government representatives and labour and management representatives from other industries.[4] This committee developed the terms of reference and selected Price Waterhouse Management Consultants to conduct the study. Price Waterhouse had

already conducted a range of other sector human resource studies, and was well-positioned to take a comparable approach in examining the human resource situation in the colleges/technical institutes sector. Thus, the study examined the college system as an education service industry, identifying the challenges it faces as an employer, including the training and development needs of its employees. From the beginning the steering committee recognized that the sector study approach was not the typical way of looking at the colleges/technical institutes. However, the value was in the new perspective.

The study examined the college system as an education service industry, identifying the challenges it faces as an employer, including the training and development needs of its employees.

Objective and Approach

This study was driven by a desire to ensure that the colleges and technical institutes have the people and skills they need to respond to the demands for continuous learning in the workforce as a whole. The objective of the study was to examine current and emerging human resource issues with a particular focus on human resource development. We specifically examined:



- trends and pressures in the labour market and student demographic patterns, and their effects on the human resource needs of the colleges and technical institutes;
- professional development programs in the colleges/technical institutes and the degree to which they meet current and anticipated needs; and
- human resource strategies, including employment equity.

The central point was the development of the people employed in the college.

The terms of reference divided the project into seven modules, as depicted in the diagram below.[5] The central point was the development of the people employed in the college. Understanding those development needs began with a profile of the sector and an analysis of the pressures facing it. We considered how the demands of the students are changing, how the employment picture for graduates is changing and how trends in technologies influence the workplace and education.

In conjunction with the steering committee, Price Waterhouse defined a method which followed closely the patterns established in previous sector studies but which reflected distinctive features of the college/institute sector.[6] The research began with an extensive series of exploratory interviews with people experienced in the colleges/technical institutes and in industry and in government. These consultations served to identify major challenges faced by colleges/technical institutes. Subsequent fieldwork examined these challenges and the responses more closely, using four separate lines of enquiry:

- Twenty case studies of colleges/technical institutes across Canada. Each case study involved interviews and focus groups with administrators, union leaders, faculty, staff, students, and industry representatives in the community.
- Two separate panels of experts on emerging educational and workplace technologies were consulted for their views on the technology trends and their implications for college instruction.
- A survey of 1,168 respondents in colleges/technical institutes across Canada. The stakeholders surveyed included the college president, member of the board of governors, human resource manager, president of the faculty association, president of the staff association, registrar and president of the students association. The national response rate was 55%.[7]

- Further interviews were conducted with a range of people in industry and education.

The consultants met with the committee six times in the course of the research, reviewing and discussing the findings and identifying questions for further consideration. Over 600 people in all regions of Canada were contacted through interviews and meetings over the length of the project. People within the college systems included administrators, faculty, union/association representatives, support staff and students. Employers, representatives of industry associations and unions were also consulted.[8] Each of these groups has a strong stake in the future of the colleges/technical institutes. They voiced their concerns and aspirations very articulately. In summarizing their views, some of the richness has disappeared. Direct quotations are included in sidebars to the main text to provide more of the flavour of the comments.

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Structure of the Report

The report contains eight chapters. Following this introduction, chapter two profiles the colleges/technical institutes within the labour market. The next chapter focuses on the people working in the colleges/technical institutes, while chapter four outlines the existing human resource strategies of the colleges/technical institutes. The fifth chapter highlights economic pressures and trends affecting colleges/technical institutes today and in the future. Chapter six discusses the effects of technological change on the colleges/technical institutes. Chapter seven analyzes the changing student profile and expectations. Chapter eight summarizes the renewal challenge facing the colleges/technical institutes and outlines of areas for action. A separately bound appendix contains more detailed material.

The Canadian Colleges/Technical Institutes/Cégeps - A Brief Profile[9]

- There are about 160 colleges/technical institutes across Canada.
- There are over 700 college campuses across Canada and numerous other centres.
- The geographic reach of individual colleges/technical institutes extends beyond the regional community.
- The college system employs 25,000 full time instructors and an estimated further 150,000 part-time or occasional instructors.
- Total annual revenues of Colleges across Canada are estimated at $6 billion.
- The capital assets of the colleges as a whole are valued at $30 billion.
- An estimated two million Canadians enrol in college programs each year.
- While just over 20% of 18 to 24 year old Canadians are enroled on a full-time basis in community colleges/technical institutes, part-time enrolment of people active in the workforce is the fastest growing segment.
- Full-time post-secondary enrolment has increased by 16% since 1991.
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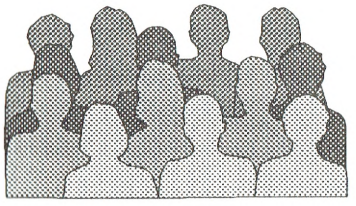
- Approximately 25% of the Canadian workforce has a college-level certificate or diploma.
- Almost 3/4 of the graduates of college career programs are in the fields of applied sciences, business and health science.
- Almost 80% of those holding a college certificate or diploma are active in the workforce, compared with 70% of those with a high school education.
- College graduates have lower levels of unemployment than the average Canadian. In 1991, 8.9% of community college graduates over 25 years old were unemployed compared with 10.4% of all workers over 25.

2. Community Colleges/Technical Institutes in a Dynamic Labour Market Context



Industry leaders have "discovered" the value of training and education. They urge the strengthening of a learning culture in Canada and a commitment to lifelong learning, with a focus on excellence and results. Social action groups also consider access to education to be an important precursor to the development of their communities. While labour leaders acknowledge the value of training for their members, they have cautioned about simplistic solutions to economic problems. They tend to argue that much of the existing workplace-based training does little to equip members for long-term employment security. Moreover, they note that even the best trained workers cannot achieve miracles with outdated equipment.

"Good training helps us take control over our working lives." Union leader

This "discovery" of education and training is both gratifying and disturbing to the colleges/technical institutes. The widespread acknowledgement of the importance of education and training is an affirmation of their work and points to a growing demand for educational services. Young people entering the workforce, while fewer in numbers, will need both vocational and general education. Those people caught in the economic restructuring will require retraining. Adults who have not been in the workforce will need basic skills upgrading as well as career-specific training. Finally, people employed in a wide range of occupations will need to develop their skills on an on-going basis, to keep pace with market, regulatory and technological changes.

The "discovery" of training and the expansion of the training market has led to an influx of new commercial training suppliers, some in direct competition with the colleges/technical institutes. Colleges/technical institutes have to adapt some of the tactics of the business world in competing to deliver new services. While some colleges have responded very quickly to these new opportunities, others seem unaware of the changing dynamics of the demand for training services.

"Colleges see themselves as service institutions, meeting the wants of business and industry on the one hand and students on the other." College Instructor

Colleges/Technical Institutes as labour market intermediaries

Across Canada, community colleges/technical institutes provide services from over 700 campuses plus numerous smaller learning centres across

"We made a mistake in the early eighties when we followed everyone down the road to comprehensiveness. We are now going back to our roots, to programs in which we have a strong advantage over a larger geographic area." College president

the country. Distance delivery modes allow colleges/technical institutes to reach even more widely. The colleges/technical institutes collectively employ 25,000 teachers full-time and a further 150,000 part-time. The skills and expertise of these 175,000 people are a lever for the development of an estimated two million people in or entering the workforce, those changing careers or upgrading their skills and those seeking general education as a stepping stone to university. The vast majority of students we consulted with explained that they were at the college to improve their employment opportunities. Students and graduates of the colleges/technical institutes are employed in a wide range of occupations and in virtually every industrial sector in Canada. From the perspective of the development of wealth-generating sectors, colleges/technical institutes are major trainers of the skilled technical and trades workforce. In 1989-90, over half of all college graduates from full-time programs were in applied sciences, engineering or business.[10]

Many colleges/technical institutes are consciously positioning themselves to be the co-suppliers of workforce development, in partnership with industry.

Colleges/technical institutes never were the sole suppliers of career and vocational training. Rather, they shared this role with employers, unions and commercial training firms. In the cases where colleges provide formal training, employers often provide practical development through apprenticeship, co-op and other work placement programs. Turning the spotlight on training focuses attention on training in the workplace.[11] In this context, many colleges/technical institutes are consciously positioning themselves to be the co-suppliers of workforce development, in partnership with industry. However, for other colleges/technical institutes, the labour market role is but one among many educational roles. Indeed, debates about the role of the college, its focus on economic development and the labour market versus a broader set of services occur on many campuses and in their communities. These debates are not readily resolved. Historically, colleges/technical institutes have responded to demands from their communities by adding new programs and services. It is increasingly clear that such comprehensiveness within individual colleges/technical institutes is no longer economically viable. Colleges/technical institutes must make some hard choices.

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Colleges/technical institutes in a competitive context

"We never had to compete before." College Instructor

The boundaries of the "community" served by a college are less often defined in geographic terms. While the local or regional population remains a significant market, colleges/technical institutes market specialized services to wider areas. This leads to more overt competition within the college/technical institute sector itself. While colleges/technical institutes

tend to have an advantage in their local retraining markets, colleges/technical institutes in major metropolitan areas often compete for students and for contract training opportunities.

Colleges/technical institutes face increasing competition in the training market, with different competitors in different service areas. In the market for fee-for-service training to industry, colleges/technical institutes compete with private sector training firms and with in-house training services of large employers. In addition, union-sponsored training centres are increasingly common. In the area of adult basic education and French English as a second language (ESL), colleges/technical institutes compete with school boards and with various para-public sector community training groups. Colleges/technical institutes also compete with other modes of career development for student enrolment.

"We have long acted as though colleges were a monopoly. In fact, we have competition, lots of it."
College President

In general, the commercial competition to the colleges/technical institutes is fragmented. Three-quarters of all commercial training firms employ 20 people or less.[12] Even the smallest colleges/technical institutes are larger than most of the private sector training organizations. However, it should be noted that the private sector training organizations tend to be much more narrowly-focused in their services. These commercial training firms do not compete with the college as a whole, but in the market for short-term courses and specialized training. Executive, management and supervisory development training are the most common services offered by commercial firms. Computer-related training is also significant. Despite the evidence of growing competition, the college survey found that stakeholders tended to rate the need to become more competitive with private trainers as less important than other challenges.

In general, the commercial competition to the colleges/technical institutes is fragmented.

Colleges/technical institutes also face international competition, both at home and in the global market. Many Canadian colleges/technical institutes have experience with international development projects. Participation in international development projects is often considered a professional development opportunity. Thus far, relatively few colleges/technical institutes treat these projects as a market. Some colleges/technical institutes close to the U.S. border have marketed programs into the U.S. Increasingly, colleges/technical institutes are considering the export market for their services, both through delivery in the other country or through enrolment of foreign students in Canada. Colleges/technical institutes are also pooling their resources in the export market. However, export marketing works both ways. American colleges/technical institutes and, perhaps more importantly, private training provid-

ers, are looking northward, offering specialized training services to employers.

Research conducted by Industry, Science and Technology Canada (ISTC) points to the potential for export sales of commercial training and education services. Canada lags behind countries such as Australia, France, Great Britain and Japan in this regard. The Canadian industry is criticised as being "reactive in marketing commercial education and training services" internationally.[13]

Strategic Challenges

Stakeholders put a high priority on increasing the colleges/technical institutes' ability to keep pace with technological, economic and industrial changes.

"Financial viability is not optional." Senior administrator

Colleges/techical institutes in all parts of Canada are facing severe budgetary constraints.

Colleges/technical institutes face strategic challenges due to economic, technological and social changes. In all consultations, stakeholders put a high priority on increasing the colleges/technical institutes' ability to keep pace with technological, economic and industrial changes. Some stakeholders consider that declining government funding severely constrains their capacity to keep pace with such changes. Others regard the government funding constraints as an impetus to more radical change in the colleges/technical institutes. There is no question that colleges/techical institutes in all parts of Canada are facing severe budgetary constraints. None of the administrators we consulted forecast possible increases in core operational funding. Indeed, many noted that government funding has eroded and would continue to erode. Colleges/ technical institutes are pursuing two approaches to coping with the financial reality. They are seeking ways of increasing productivity in existing programs and identifying new or alternative sources of funds.

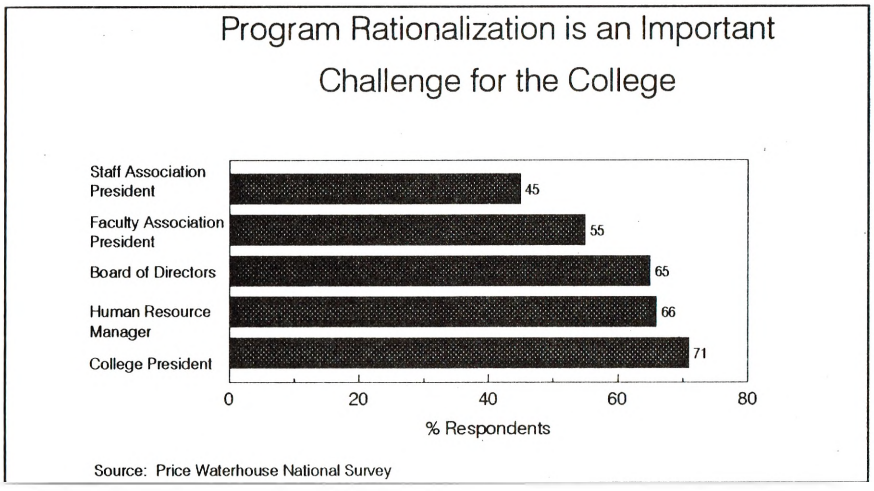
Training delivered on a fee-for-service contract basis has increased in many colleges/technical institutes, and expansion of contract training is a deliberate thrust of future strategies. The mix and total amount of government expenditures on colleges/technical institutes has shifted since the mid-eighties. The shift is in response to the need for more involvement of the labour market partners in determining strategies for workforce development. Increasingly, programs targeted to specific groups are tendered competitively. This trend is expected to continue although the pace of change is uncertain. Sector councils and/or local labour force development boards are expected to influence the expenditure choices, purchasing skills training which responds to their assessments of requirements.[14] Colleges will have to operate in this competitive environment or lose market share.

Responding to the Challenges

Focusing and differentiating programs and colleges

Individual colleges/technical institutes are reviewing the range of their programs in order to focus on those in which they have a strong competitive advantage. They are differentiating their services from those of other colleges/technical institutes. In some cases, colleges/technical institutes have formed or are forming centres of excellence. Those interviewed in the course of case studies generally predicted further differentiation of programs, although faculty and staff often expressed concern about such changes. The college survey found that college presidents, human resource managers and board representatives were more likely to rate program rationalization as an important challenge than were faculty or staff association representatives. This is shown in the graph.

"How much duplication can Canadians afford?" Senior administrator



Program evaluation processes are seen as important contributors to ongoing evolution of programming. However, many administrators acknowledged that rigorous program evaluation has eluded their colleges. Indeed, in some cases, program evaluation has been actively resisted. Others note that evaluation does not necessarily lead to rationalization or differentiation. Many of the colleges/technical institutes we visited are currently strengthening their program evaluation approach, focusing on outcomes valued by their customers and integrating views of students, graduates, employers and equity groups.

"It is a quality question. We need to focus on the performance of graduates." Senior administrator

Collaboration across colleges/technical institutes

"Competition is a good thing, but this may be too much of a good thing. Colleges should be forming alliances." Employer

The vision of more specialized colleges/technical institutes within a larger, comprehensive system requires links among colleges/technical institutes and between colleges/technical institutes and other educational institutions. The strength of these links varies considerably across Canada. While colleges and technical institutes guard their independence, there are many examples of collaboration, whether at the program level or the institutional level. Colleges/technical institutes have formed various consortia. These are often, but not always, within a province. Some focus on particular areas of expertise, while others are more generic. A few colleges/technical institutes have developed partnerships and articulation agreements with Aboriginal institutions as a means of better serving the aboriginal communities. While some of these relationships are more formally structured than others, they all serve both to increase accessibility of Aboriginal students to college programs and to increase the colleges/technical institutes' understanding of the distinctive needs of the Aboriginal communities.

Spokespersons from larger employers/industry associations perceive a lack of integration and co-operation among colleges/technical institutes across Canada.

Despite these emerging patterns of collaboration, spokespersons from larger employers/industry associations perceive a lack of integration and co-operation among colleges/technical institutes across Canada. Similarly, faculty and administrators in several colleges/technical institutes referred to a "not-invented-here" syndrome which restricts the college from adopting programs from other areas.

Just under half the commercial training firms surveyed by ISTC reported having formed some sort of partnership or alliance with a public educational institution.[15] Firms providing computer-related training were least likely to have such links, while those providing industrial technical and remedial basic education were most likely to have partnered with a public institution. However, the college survey found that relatively few college stakeholders rated establishing alliances with private sector trainers as important.

Collaboration with employers in developing college services

"To change the paradigm, we have to look at it from the students' perspective, and in turn, the employers'. We have to consider what they need to learn, not what we want to teach." Senior administrator

The financial situation of the colleges/technical institutes and their need to access new sources of funds have led to more active institutional development strategies as well as new mechanisms for accountability. Some colleges/technical institutes have established institutional or business development units. Others have explicitly developed the financial and business planning capabilities of their program heads. The college sur-

vey found that about 70 percent of all stakeholders rated the improvement of program marketing as important. However, the marketing concept is not well understood by staff and faculty within colleges/technical institutes. Indeed, it is often equated with selling. Representatives of colleges where the business development function is working effectively explained that they positioned marketing activities within the context of a broader needs analysis. It is not a question of stimulating demand for a service but rather of assessing opportunities to create economically viable programs to meet identified needs.

The control exercised by provincial governments over college programming decisions varies. However, the mechanisms for program review and approval typically involve multiple hurdles within the college and in the provincial government department. Board members commented that these multiple hurdles can reduce the pace with which the college can respond to market opportunities. College/technical institute programming strategies are increasingly shaped by funding considerations. While the colleges still aim to respond to needs in their communities, they recognize that with finite resources available, they cannot do everything. Revenue generating opportunities must be pursued. Financial planning and budgeting competencies are increasingly important among all administrators.

"There is a new recognition that we are part of a bigger learning system, tied to global competitiveness." College Instructor

Senior managers in industry acknowledged that, historically, industry did not articulate clear and consistent messages about skills requirements. The current initiatives in setting occupational standards are an effort to change this pattern. Both college and industry representatives recognize that it is often very difficult to get a sound, realistic yet forward-thinking picture of changing needs. Relatively few business have the longer-term strategic outlook needed to indicate the skill requirements of the future. Local small businesses tend to focus on their immediate needs, yet program development must have a longer time horizon.

"Business doesn't always communicate needs well." Instructor

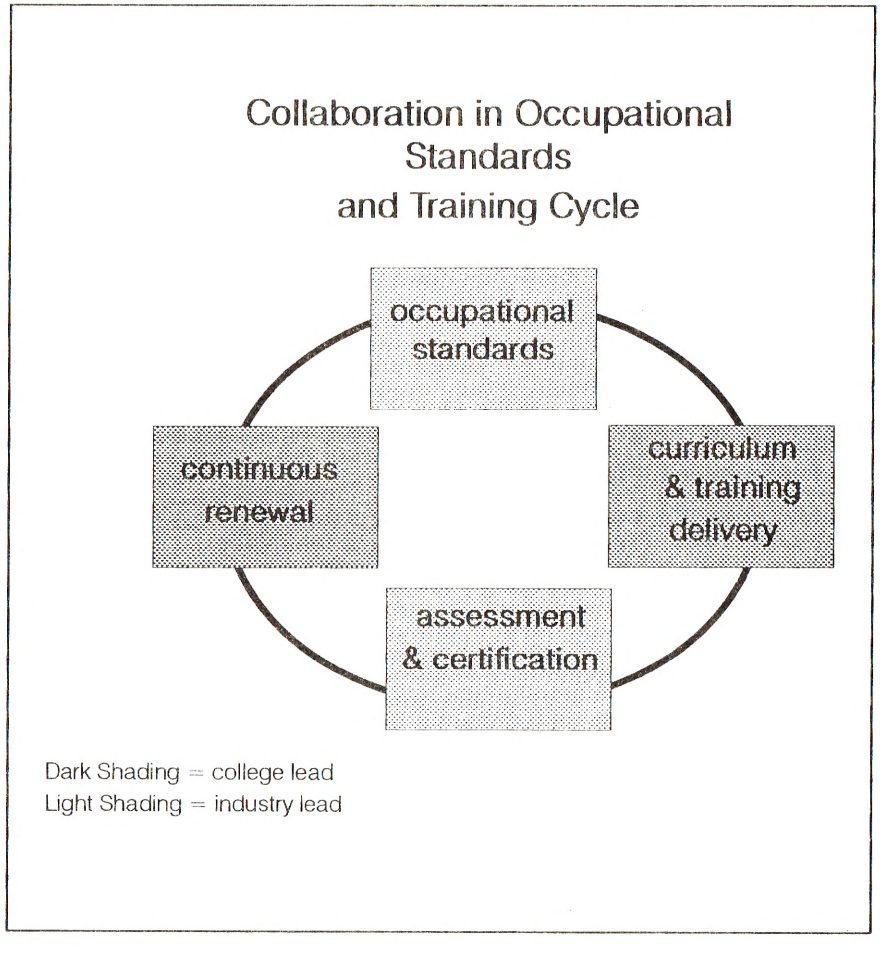
Many other industries would be envious of the colleges/technical institutes for their ready access to a range of "customers" who volunteer their time to provide insight into the needs of the market. Program advisory committees are mandatory in colleges/technical institutes in many provinces. However, committee members and faculty commented that there is a need to widen the scope of program advisory committees. An innovative approach used in a growing number of colleges draws committee members from far beyond the local community, even internationally. The formation of province-wide advisory committees for programs which are

Many other industries would be envious of the colleges/technical institutes for their ready access to a range of "customers" who volunteer their time to provide insight into the needs of the market..

offered at many colleges/technical institutes would allow for more strategic input from industry.

"We are developing more programs in partnership with trade associations. We have to work with people outside the college in developing our programs." Senior academic administrator

Faculty and administrators noted that program decisions are increasingly collaborative. They added that it was never solely the domain of the college. Accreditation processes are well established, particularly in medical and dental programs. As a quality assurance technique, professional or occupational societies define criteria and characteristics which programs must meet to receive accreditation. This is often done in a collaborative manner, with college representatives participating in the accreditation committees. However, some concern has been voiced among senior administrators that the accreditation processes tend to "force" colleges/technical institutes to adjust some program components. They contend that, given resource constraints, accreditation processes can distort the capacity of the college and its board to make balanced decisions on programs.



Sectoral human resource councils are a relatively new phenomena in the college environment. With seed funding from Human Resources and Labour Canada, nineteen national industrial sectors have formed joint labour-management councils aimed at improving human resource planning and development across the sector.[16] The establishment and implementation of occupational standards and certification has been a primary activity of many sectoral councils. In seeking to implement their occupational standards or otherwise improving human resource development in their sector, the sectoral councils send a strong message to the colleges/technical institutes. The diagram highlights the standard setting and training cycle, showing the co-supplier relationship envisioned by sector councils.

Collaboration is evident through the cycle although the lead role shifts. Industry takes the lead in defining its needs. The colleges/technical institutes take the lead in curriculum development and delivery. Industry assesses performance and both colleges/technical institutes and industry are active in the continuing renewal and development.

Collaboration and linkages with industry increasingly extend into partnerships. At the program and department level, this strengthened voice of industry is often viewed positively. However, as is the case with the more established accreditation mechanisms, the college as a whole has to balance many demands. This emphasizes the need for a clear vision.

The college as a whole has to balance many demands. This emphasizes the need for a clear vision.

There is a parallel need for collaboration between colleges/technical institutes with university transfer or general programs and the universities. In many cases, colleges and universities have formal articulation agreements. However, it is difficult for a college to have formal links with multiple universities, even though students may want to freedom to transfer to a wide range of university programs.

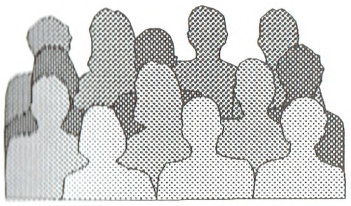
Conclusions

Colleges/technical institutes face a rapidly evolving labour market. Ever-changing employment demands require shifts in the mix of programs and support services as well as new modes of program delivery. Moreover, colleges/technical institutes are operating in an increasingly competitive context. Keeping pace with a changing environment requires more than a one-time change. Faculty, administrators and students in the college all pointed to the need to renew the colleges/technical institutes to increase their on-going versatility. In order to remain a prime source of

Keeping pace with a changing environment requires more than a one-time change.

labour force development, colleges/technical institutes will need a more collaborative approach. Collaboration across colleges/technical institutes and with industry as a co-supplier is envisioned. The emergence of joint sectoral human resource councils and local boards will give industry and equity groups a stronger voice in allocating training resources. Ongoing human resource development within the institutions is a critical element in the transformation of the colleges/technical institutes to respond to the challenges in the labour market. Colleges and technical institutes must practice what they preach regarding continuous learning, building a life-long learning culture within the college as a support to such a culture in Canada as a whole.

3. The College Human Resource Base

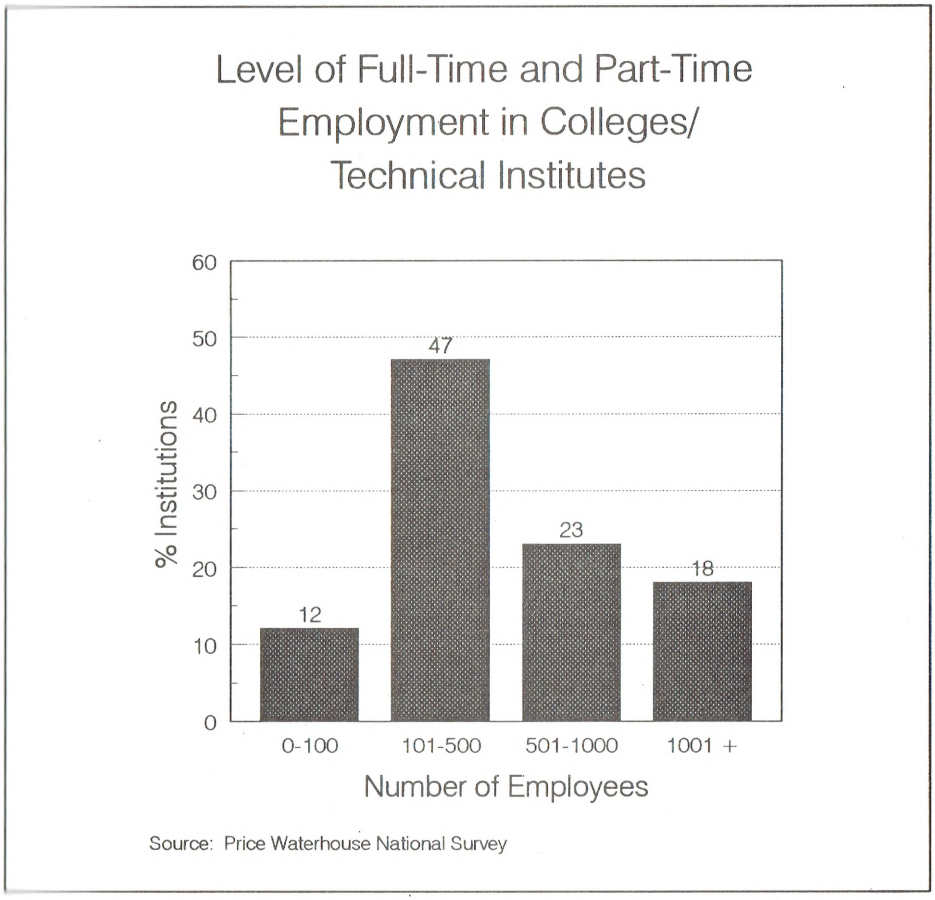


This chapter summarizes the characteristics of the people currently working in colleges and technical institutes. It covers the employment patterns, demographics, occupations and career paths, as well as patterns of turnover and recruitment. In this context, it is important to emphasize the lack of consistent and in-depth data on college human resources, either within individual colleges/technical institutes or across colleges/technical institutes. It is a problem both in the consistency of data definitions and in the scope of human resource data which are captured, recorded and available for analysis.[17]

It is important to emphasize the lack of consistent and in-depth data on college human resources.

Colleges/technical institutes are large employers

While the smaller colleges/technical institutes in Canada would fit into the definition of a small to medium sized employer, many colleges/technical



institutes are relatively large employers. The graph shows the breakdown in employer size.

Although larger employers employ the majority of Canadian workers, over 85% of all employers in Canada are small employers, much smaller than most colleges/technical institutes. Particularly by comparison to other employers in their regions, colleges/technical institutes offer relatively secure employment with good pay and benefits. Jobs are attractive and sought after. There may be no other employers offering similar career opportunities in the community. This can reduce the chances for people to leave the college without also leaving the community.

Part-time employment has grown

Full-time employment in colleges and technical institutes is estimated at 30,000, with estimates of part-time employment ranging from five to ten times the level of full-time.

Full-time employment in colleges and technical institutes is estimated at 30,000, with estimates of part-time employment ranging from five to ten times the level of full-time. Employees in the colleges/technical institutes fall into three relatively distinct occupational groups: faculty, staff and administration. Faculty are the largest category, and instructors make up the majority of faculty. While part-time employment exists in all occupational groups, it is most pronounced among instructors. Many part-time instructors teach only one course for one term. However, a large number teach several courses over a number of years.

Full-time employment in the colleges/technical institutes expanded during the seventies. However, hiring of full-time employees has been very slow in recent years. Over three quarters of the colleges/technical institutes responding to the survey hired ten or fewer new full-time faculty last year. Instead, most of the employment growth which occurred in the eighties and early nineties has been concentrated in the part-time, temporary or contract workforce. Interviews and the survey suggest that this trend is likely to continue.

Low turnover among full-time employees

Turnover among college employees has been very low in recent years. Survey respondents reported an average turnover among all full-time employees of about 5%, with resignations making up about half that rate. Turnover is above average among support staff but below average among faculty. While data are not available to allow direct comparisons with other industries, these turnover levels among the full-time workforce appear low. Turnover levels of 20% or more are cited in some service sectors. However, voluntary separations are very closely tied to age.

Young workers are much more likely to leave a job. The relative maturity of the college workforce may thus contribute to its low level of resignations. At the same time, the mature college workforce is not yet ready to retire in large numbers. While more and more faculty have accumulated the years of service to be eligible to retire, so far few have chosen to retire. There is a pattern of higher rates of retirement among administrators.

The low level of employment growth coupled with low turnover among full-time employees reduces but does not eliminate the capacity of the colleges/technical institutes to adjust to a changing environment by changing the mix of people. An annual rate of 4% turnover equals about 20% turnover in five years. Recruitment of part-time or temporary instructors also contributes to the human resource adjustments needed to launch new programs. Nevertheless, colleges/technical institutes will achieve many changes in programming through internal redeployments rather than new hires.

The low level of employment growth coupled with low turnover among full-time employees reduces but does not eliminate the capacity of the colleges/technical institutes to adjust to a changing environment by changing the mix of people.

Middle-aging of the college workforce

Concerns about the greying of the college workforce were an impetus to the sector study of the colleges/technical institutes. Both the survey data and data from Employment and Immigration Canada confirm that the average age of faculty and administrators in many colleges/technical institutes has increased steadily through the eighties. This aging is the consequence of relatively rapid recruitment of people in their late twenties and thirties about 20 to 25 years ago, followed by much lower rates of recruitment. While retirements among administrators are likely in the near future, large scale retirements from among this faculty cohort will begin in approximately ten years. Thus, external recruitment will not have a major rejuvenating effect until the next decade. Colleges already employ most of the people they will employ in five to ten years. Changes in college programming and strategies must be largely accommodated through the development and redeployment of existing employees.

Changes in college programming and strategies must be largely accommodated through the development and redeployment of existing employees.

Current recruitment patterns will not adjust age profile

According to the survey, the level of recruitment activity is generally expected to remain about the same or decrease somewhat in the immediate years ahead, with most recruitment geared to attrition replacement. About a third of the respondents expect an increase in recruitment of part time instructors, suggesting some opportunity for rejuvenation. However, the current hiring patterns are not likely to readjust the age profile. EIC data show that new recruits are getting older. This was

confirmed with the survey. About half of survey respondents reported that their most recent instructor recruit was 35 years or older. Indeed, in 25% of cases, the average age was over 40. Given the minimum experience requirements for college employment, we cannot expect recruits to be less than 25 years of age. However, a mix of recruits in their late twenties to early forties would benefit the age balance.

Occupational ghettoes resemble those in industry

The absence of women in trades and technologies has an impact beyond the immediate employment equity statistics of the college.

Women are over-represented in support occupations and under-represented in management. While women account for over a third of the full-time instructors across Canada,[18] they are concentrated in medical and social programs. This reflects the fact that colleges/technical institutes recruit from these industries and professions. Colleges/technical institutes contend that they share with industry at large the challenge of recruiting women in non-traditional occupations. However, the absence of women in trades and technologies has an impact beyond the immediate employment equity statistics of the college. The lack of female role models poses a subtle but nevertheless important barrier to women's educational equity. Without women instructors, students may get the message that women do not "belong" in a particular occupation. The survey indicates that the pace of recruitment of women has increased. Two-thirds of most recent hires were in career programs, and 57% were female. However, even at this pace, a complete gender balance in non-traditional roles is still in the future.

Limited employment of Aboriginals, visible minorities and persons with disabilities

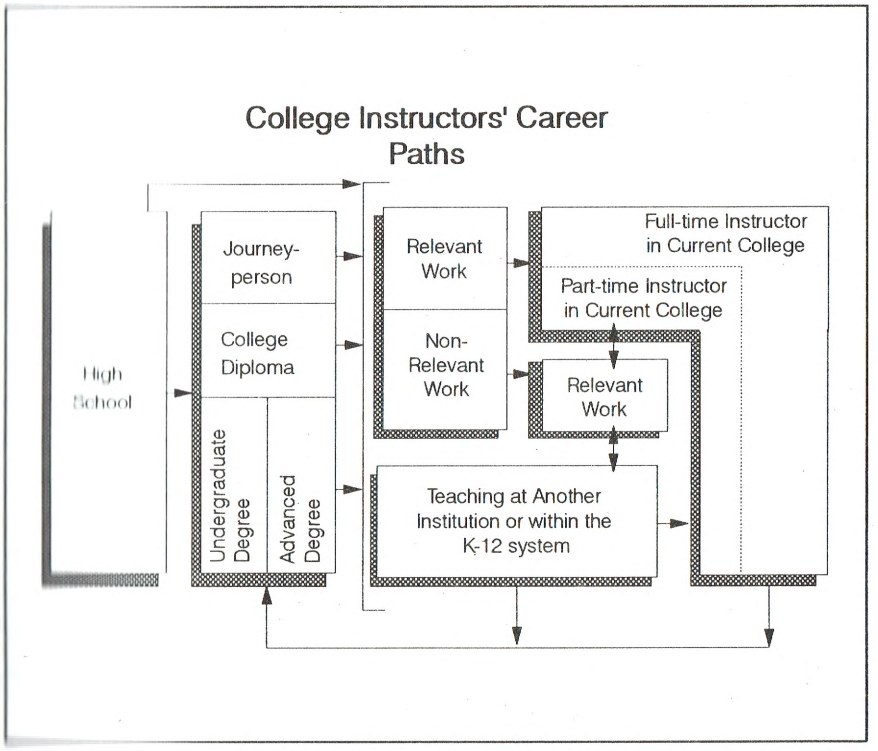
If colleges/technical institutes do not become more aggressive in outreach recruitment of employment equity target groups over the next few years, they will actually become less representative of the diversity in their communities.

Given that the majority of full-time employees in the colleges/technical institutes have fifteen or more years of service, it is not surprising that most colleges/technical institutes employ few Aboriginals, visible minorities or persons with disabilities. Much of the growth in workforce participation of Aboriginals, visible minorities and persons with disabilities has occurred in the last ten years. The greater concern is the fact that, despite the weaknesses in their human resource databases, college human resource managers reported no change in the employment equity pattern over the last five years. Workforces in many major urban areas of Canada are rapidly changing, due to the arrival of new immigrants and the growth in aboriginal populations. Colleges/technical institutes are not keeping pace. If colleges/technical institutes do not become more aggressive in outreach recruitment of employment equity target groups over the next few years, they will actually become less representative of the diversity in

their communities.[19] Human resource managers attribute this lack of change to the low turnover. However, the level of part-time recruitment suggests opportunities to recruit employment equity groups into part-time positions, as a stepping stone to full-time work.

Colleges hire practitioners

The following chart provides an overview of instructor career development, based on interviews and focus groups conducted during the case studies.



Colleges/technical institutes typically hire people with previous work experience. Indeed, in recent years many colleges/technical institutes have found candidates who exceed their minimum experience requirements. Almost 60% reported that their most recent recruit had more than five years of relevant industry experience. EIC data show that almost 50% of recruits previously worked in business or industry. The next highest portion (16%) of recruits come from community colleges and public trade schools. Fourteen percent of recruits come from government services. Relatively few college recruits come from university (5%) or K-12 (10%) employment. Moreover, less than one third of college faculty had formal teaching experience prior to entry. This is especially true for part-time in-

In recent years many colleges/technical institutes have found candidates who exceed their minimum experience requirements.

structors. The part-time instructors acquire teaching skills on the job. Sixty-five percent of human resource managers reported that recent full-time recruits had experience teaching at the college level, often acquired through part-time work.

Part-time work is a stepping stone

Part-time work is a major avenue for developing teaching experience. Many of the college instructors who participated in the case studies began their college careers in a part-time capacity. This is particularly true of those recruited more recently. In some colleges/technical institutes, individuals had worked several years in a contract position before getting a permanent position. In some cases, they worked in industry while teaching part time. In other cases, employees accepted a term contract or part-time position as a conscious stepping stone to full-time employment in the college. It was a way of getting a "toe in the door." This entry pattern appears to be expanding. About a third of the part-time and term faculty employed in colleges/technical institutes do not hold another job in industry. A significant portion of part-time instructors work at more than one college.

Part-time position as a conscious stepping stone to full-time employment in the college.

Instructors' careers are stable

Instructors are generally satisfied with their careers. Many said they loved teaching and intended to continue where they were. The one drawback which many mentioned was the relative isolation of teaching. Instructors see limited opportunities for advancement, and even fewer opportunities which really interest them. The main opportunities for career advancement are to positions as program chair or co-ordinator, but such career moves are not really seen as an advantage. When we asked groups of instructors about their future career plans, relatively few expressed interest in administration. Often, they expressed the view that administrative jobs were not "worth it." Senior administrators also noted that many instructors are reluctant to move to administration. Moreover, in some systems instructors lose their seniority in such a move.

Many said they loved teaching and intended to continue where they were.

Instructors' career paths tend to be concentrated in a particular discipline or area of expertise. Jumps to new program areas are uncommon. Pressures for redeployment associated with program shifts may change this. However, the reality is that many of the faculty will remain in the same positions they hold today. Their own personal challenge and that of the colleges/technical institutes is one of personal and professional development without significant opportunity for promotion. Many senior

administrators interviewed pointed to the need to build a sense of self-guided or self-initiated development among instructors.

Education is a common mode of professional development

Apart from the part-time cadre, movement from college employment back to industry is also very unusual. Instructors and administrators agreed on the value of further industrial experience as a mode of professional development for instructors. However, very few instructors who participated in our focus groups had worked in industry since starting work in the college. Instructors see further education as more advantageous to career development. A good proportion of the instructors we met are currently enroled in first or advanced degree programs. Seminars and conferences are also heavily used in professional development. The survey confirmed the predominance of further education as a mode of professional development. Many faculty and administrators pointed to the compensation structure as the reason they chose further education despite the acknowledged value of experience.[20]

Many faculty and administrators pointed to the compensation structure as the reason they chose further education despite the acknowledged value of experience.

Focus groups with faculty and interviews with administrators confirmed that a large number of faculty were currently enroled in graduate degrees, often masters in education. A surprising proportion are enroled in programs from US universities. Faculty and administrators in many colleges/technical institutes contrasted the US universities to their Canadian counterparts in their willingness to serve the particular needs and interests of college instructors. This begs the question of why Canadian universities are not as accessible for further education of college faculty and administrators. However, we caution against taking action to increase access to Canadian universities without first considering whether further university education is the primary need or whether experiential development is preferred.

Development of administrators also relies on formal learning

While some administrators expressed concern about limited faculty interest in industry attachments, the main developmental activities among administrators are "formal" learning. Professional or industry conferences are by far most commonly reported to be heavily used. Special seminars and workshops on campus and university courses are also fairly often reported to be heavily used. More experiential forms of learning were not often used. Several presidents and college administrators explained that they were used to thinking of learning in a "formal" way, even though they valued more experiential forms of learning (such as a special assignment or industry attachment). Administrators explained that they were in the

"formal education" business and trusted such modes of learning. They often have advanced degrees already and have demonstrated their success in formal education. In effect, the preference for "formal" learning is set at senior levels in colleges/technical institutes.

Program chairs noted the absence of opportunities to learn the management skills needed in their new roles.

Program chairs noted the absence of opportunities to learn the management skills needed in their new roles. Those who had recently moved from instruction to administration were often particularly critical of this gap. Some contended that they were not really clear on the full extent of their role. They pointed to financial planning and budgeting activities as one area for which they did not feel well prepared. They also considered human resource management to be an area requiring more development.

Career development for support staff is limited

"It is very difficult to overcome the stigma of being in the support staff group, regardless of how many degrees you have behind your name." Administrative support employee

Career paths for support staff are generally even more truncated than those of faculty. Support staff in many colleges/technical institutes pointed to a career gulf between the professional and the administrative and technical support functions. There is little room for vertical growth within the college. While there is significant movement from instructor to administrative positions, there appears to be relatively little movement from support staff to instructor or administrative positions. While they acknowledge there is often an educational barrier to career progression, support staff consider the main barrier to their advancement to be attitudinal. Some contend that the only way to get ahead is to leave the college. However, exceptions to this rule do occur. Those we interviewed who had made the transition from a support staff position to faculty or administration typically made the move through a special project, which allowed them both the opportunity to develop their skills and the chance to demonstrate their expertise to senior administration. "Zig-zag" career paths are common for career progression among support staff. They explained that they had to seek out opportunities across the college, rather than advance in their own area. Some colleges have enhanced the administrative support role at the department level, providing an avenue for advancement for clerical staff while also providing a valuable "counterpart" for the department head.

A gap between support and professional occupations is fairly common in other industries. Due to the typical gender segregation by occupation, some companies have established bridging programs. With the relatively low levels of full-time recruitment in colleges/technical institutes, similar programs are uncommon in colleges/technical institutes. The higher turnover rates among support staff suggest there may be employment equity opportunities in combining outreach employment in support positions

with bridging programs. For example, it may be possible to recruit target group members to technical support roles, structuring their work experience and training so that they acquire the skills needed to advance to instructional positions.

Conflicting Cultures and Values

Colleges/technical institutes are not homogenous organizations and the organizational cultures vary across different program areas. In particular, we noted a difference in culture between career-related areas, the more academic programs, and continuing education. Indeed, the very strong sub cultures may prevent the emergence of a strong college-wide culture. College mission statements imply that a set of shared values permeate the college. However, the rhetoric of the mission statement's explicit values often conceal considerable differences within individual colleges/technical institutes. Some stakeholders suggest that these differences in values will jeopardize the institution's capacity to operate as a unified whole. Others content that colleges are inherently a loose-knit group of diverse perspectives.

The very strong sub-cultures may prevent the emergence of a strong college-wide culture.

- There is an explicit value of **focusing on the students.** Even in those colleges/technical institutes we visited that are experiencing change and turmoil, faculty and staff insist that their major concern was the students. However, their actions sometimes contradicted this focus. Despite wide acknowledgement that students required a variety of program formats, relatively few instructors indicated a willingness to change their own approaches.

- **Education** is valued, for its own sake. This is reflected in the value placed on educational credentials and the status conferred on those with the credentials. Instructors and administrators refer to the need to preserve **quality of education** in expressing their concerns about the open admissions and financial constraints.

- **Lifelong learning** is espoused widely, primarily as part of the mission of the college within its community. The value placed on education and lifelong learning often extends, at least rhetorically, to a value on **developing the people within the college**. Faculty, administrators and staff often challenged the degree to which this value is enacted.

- **Accessibility** is widely valued, although many faculty pointed to the high needs for remediation encountered with open admissions. **Fairness and equity** are often espoused in connection with accessibility. However, affirmative action programs still encounter resistance.

- **Service to the community** is widely espoused, although the definition and boundaries of this community vary.

- **Collegiality and teamwork** are often stated as important values. There are mechanisms for (full-time) faculty, staff and student participation in many colleges/technical institutes. However, some faculty, staff and students questioned the extent of their influence.

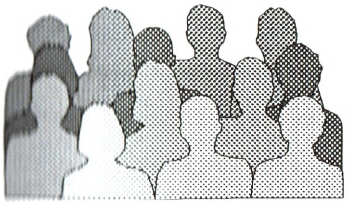
- **Efficiency and productivity** are rarely stated as explicit values. However, we found a significant portion of administrators talking about college programming in terms of improving efficiency. On the other hand, references to efficiency or productivity lead to concerns about sacrificing quality. Colleges/technical institutes share with other service sectors the challenge of increasing productivity and quality simultaneously.

Conclusions

The employment and turnover patterns, coupled with the current demographics point to some concerns about the colleges/technical institutes' capacity to change and adapt in pace with changes in the external environment.

The employment and turnover patterns, coupled with the current demographics point to some concerns about the colleges/technical institutes' capacity to change and adapt in pace with changes in the external environment. The full-time workforce is aging but will not retire in the short to medium term. The main (albeit small) opportunity to change the mix of people in the college workforce lies in the growth in part-time employment. However, what new recruitment there is does not seem to be attracting many people under 30 nor many members of equity target groups. Moreover, while accessibility and equity are espoused values, the college workforce does not reflect the diversity of their clients, particularly in major urban areas. At current rates, the colleges/technical institutes will become less representative of their communities before the situation improves. Clearly, colleges/technical institutes cannot recruit people who are young yet have extensive experience. Experience is preferred to youth. Changing the balance requires a conscious effort to recruit a more diverse mix of people. Part-time work is a stepping stone to full-time yet few colleges/technical institutes consciously shape the diversity of this part-time pool.

4. College Human Resource Strategies



The current mix of people and skills employed in colleges/technical institutes did not just happen. It is the consequence of a myriad of big and small decisions which comprise the colleges/technical institutes human resource strategies. Similarly, continuous renewal of the colleges/technical institutes human resources will not occur without consideration of the degree to which explicit and implicit human resource practices support the renewal directions. Colleges/technical institutes expect to rely heavily on human resource development in their strategic renewal. However, to maximize the renewal effort, other human resource practices should reinforce the renewal goal. Human resource managers reported that human resource issues are already considered in strategic planning in the colleges/technical institutes. This chapter considers how formal and informal human resource policies and practices actually support renewal.

"Many of the problems are systems problems, not people problems." President

Part-time employment in a renewal context

Part-time employment is an expanding feature of college human resource practices. College administrators and instructors offer a number of explanations for the expansion of the part-time, temporary and contract workforce.

- Many attribute it to financial constraints. Salaries and benefits tend to be lower. Thus, on an instructional-hour basis, it is less costly to employ someone part time or on contract.

- Temporary and contractual employment is seen to offer programming flexibility in time and place. There may be a small but significant demand for a relatively specialized course. By employing someone on a short-term contract, the college can deliver a course or program one term, without having to worry about where the individual would be assigned the next year. Part-time employment is also seen as a means of matching the expansion of the part-time enrolment, particularly enrolment outside regular day-time hours. Similarly, employing part-time instructors is a way of delivering programs on more remote campuses, where demand is limited.[21]

Temporary and contractual employment is seen to offer programming flexibility in time and place.

- Availability of qualified individuals for part-time, temporary or contract work is also given as a factor. In some program areas, few instructors are available except on a part-time basis. The part-time instructors who also practice in their fields add to the program through their current perspective.

- Part-time and temporary employment theoretically enables the college to assess an employee in action, offering more permanent employment to the strongest internal candidates. In a few cases, human resource managers explained that this step-wise recruitment was a deliberate strategy.

"We understaff the full-time workforce, and use other than full-time instructors as a contingency until a program is up and running. This allows us more stability with the full-time core." College administrator

From the perspective of college renewal, employing people on a part-time or temporary basis can serve to bring new skills into the program as they are needed. However, part-timers are rarely included in developmental activities. Colleges/technical institutes cannot expect that they can employ a large proportion of their human resources on a contingency basis, and still have those individuals demonstrate a strong attachment and commitment to the goals of the college or the program. Thus, for example, part-time instructors may not be available to students outside of teaching hours. In some cases, they may reschedule their classes to suit their full-time work schedules. This situation makes it difficult for the students to work part-time because their class schedule may change from week to week. Colleges/technical institutes need to take a close look at the benefits and drawbacks of the part-time mode of employment, in the context of the strategic performance goals of the college. Where the part-time mode of employment is the preferred option, then colleges/technical institutes should find ways to integrate the part-time instructors into the human resource strategy.

Colleges/technical institutes need to take a close look at the benefits and drawbacks of the part-time mode of employment, in the context of the strategic performance goals of the college.

Renewal through Recruitment

With limited turnover, recruitment cannot be the principal method of human resource renewal. However, continuing to recruit along old patterns will slow the renewal effort. While human resource managers noted the role of recruitment in the renewal effort, the college survey revealed that other stakeholders were less likely to regard recruitment-related initiatives as highly influential.

Continuing to recruit along old patterns will slow the renewal effort.

Recruitment process targets practitioners

The applied learning context of the colleges/technical institutes is reflected in the deliberate priority given to hiring people with practical

experience in industry. When hiring people for career programs and for trade/vocational programs, colleges/technical institutes are much more likely to set minimum recruitment requirements in terms of relevant work experience rather than in educational terms. Half the colleges/technical institutes require four or more years of related work experience for full-time hires in career programs as well as trade programs. By comparison, university transfer programs rarely have minimum experience requirements.

"We have to hire for tolerance, flexibility and adaptability, not just technical skills." Counsellor

In hiring from industry, colleges/technical institutes are typically not hiring people with teaching experience. A minimum requirement for teaching experience is rarely set, whether for career programs, trade or university transfer. Where there is a minimum requirement for teaching experience, the requirement is not extensive. In interviews, human resource managers also commented that selection criteria emphasize technical capacities. Aptitudes associated with good teaching are recognized but are rarely decisive in selection. This general lack of emphasis on selecting for previous teaching experience means that colleges/technical institutes must invest in instructional skills development. Fortunately, many colleges/technical institutes have made such a commitment.

Colleges/technical institutes must invest in instructional skills development.

Little outreach to employment equity groups

Having an employee population which reflects the diverse demographics of the labour market is widely regarded as an important but difficult challenge for the colleges/technical institutes. A good proportion of colleges/technical institutes we visited have employment equity co-ordinators, often combining employment and educational equity. Many, but not all, colleges/technical institutes visited have an employment equity plan aimed at increasing the participation of women, Aboriginals, visible minorities and persons with disabilities. However, human resource managers pointed out that the day-to-day recruitment practices do not yet reflect the employment equity rhetoric.

"We need to be a whole lot better at recruiting. I never would have applied to an ad for a college. I thought they'd want only PhDs." Equity group member, Instructor

Less than 20% of colleges/technical institutes actively search for employment equity candidates. In some smaller provinces, employment of the local workforce takes precedence over recruiting target group members from outside the province. Human resource managers interviewed noted that there is some resistance to outreach recruitment, but several saw it as inevitable.[22] In the course of the case studies, we found that recruitment for senior administrative positions included an explicit search for candidates who were members of employment equity groups.

About three quarters of colleges/technical institutes considered their internal part-time workforce when staffing relevant full-time positions. However, the informality of part-time recruitment means that the internal pool of candidates rarely reflects the equity goals. About two out of five colleges/technical institutes currently assess candidates from an existing inventory of applicants. This suggests that there may be an opportunity for colleges/technical institutes to collaborate to build inventories of external candidates with equity goals in mind.

Reflect the new diversity in the selection process by carefully considering the mix of people who participate in recruitment and selection.

Several human resource managers pointed to the generally accepted principle that recruiters tend to select people like themselves. They then argued for the need to reflect the new diversity in the selection process by carefully considering the mix of people who participate in recruitment and selection. In some cases, it may be necessary to bring in people from outside the college to complement the selection team.

Recruitment practices differ for full-time and part-time positions

The recruitment process for full-time, permanent college employees is more formalized than that for part-time or temporary staff. Human resource managers take a more active role in the full-time recruitment. Recruitment practices for part-time or contract staff are generally very informal. Moreover, colleges/technical institutes may not have much warning of the need for an additional instructor and recruiting may involve recalling someone who filled a similar position the previous term. While the college benefits by recalling an experienced part-time instructor, the pool is not widened.

Colleges/technical institutes also set less stringent experience requirements for part-time and temporary employment, compared with full-time. When experience requirements were defined, full-time hires in career programs required more experience, on average, than those hired on a part-time basis. The exception is trade/vocational programs, where requirements for part-time hires tend to be similar to those for full-time hires. However, where performance evaluations are done for part-time employees, the approach and criteria used are the same as for full-time employees.

Having a somewhat less stringent and informal approach to hiring part-time staff is not uncommon in any sector. The stakes simply are not as high. Moreover, the employer often has less choice in hiring for part-time, contract or temporary positions. In many cases, particularly in continuing education, part-time instructors are active practitioners who

being considerable hands-on experience to their roles. However, it raises some concern, given the relatively high proportion of part-time employees and the fact that part-timers form a pool for subsequent full-time recruitment. Human resource managers and senior administrators concurred that if part-time and contractual staff are going to remain an important part of the workforce, then their recruitment must be seen as a stage in the overall recruitment process. Some colleges which employ permanent part-time employees or people on longer-term contracts find that this approach generates more commitment to the goals of the college.

If part-time and contractual staff are going to remain an important part of the workforce, then their recruitment must be seen as a stage in the overall recruitment process.

Renewal through Development

In the course of our case studies, numerous references were made to the "cobbler's children" situation. Colleges/technical institutes are actively involved in training other people's workers. How active are they in their own human resource development?

Investment in human resource development varies

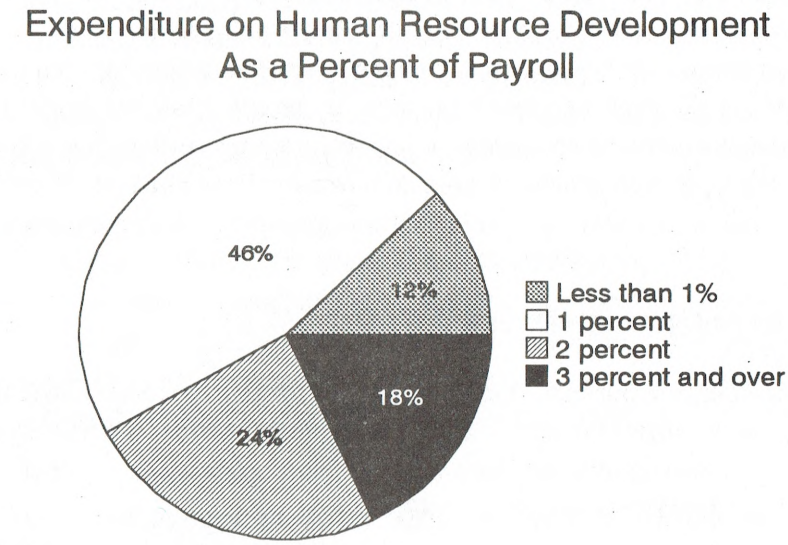
In the current financial context, discussions of human resource development practices in colleges/technical institutes, as in other industries, often centre on the level of investment in training. The problem with this approach is that an organization's total investment in training is rarely reflected as separate line items in a budget. This is the case with colleges, where a major component of colleges/technical institutes investment in human resource development is that of the time allocated to faculty for their professional development. In many colleges/technical institutes, the months of May and June are intended as program and professional development time. In such circumstances, colleges/technical institutes invest about 17% of human resource related budgets in human resource development.

In many colleges/technical institutes, the months of May and June are intended as program and professional development time.

Tracking actual out-of-pocket expenditures on training is more difficult. The survey asked human resource managers to estimate the expenditures for human resource development, as a percent of payroll. The pie graph shows the results. The variation in the size of the training budget relative to payroll is noticeable. In effect, some colleges/technical institutes are investing very little in their human resource development, while others are investing much more significant amounts.

"The most effective PD tool now is time during May/June, not just to do curriculum development, but to try new things." Faculty union executive

In spite of the variations in funding levels, colleges/technical institutes are fairly consistent in what they cover under the human resource develop-



Source: Price Waterhouse National Survey, 1992.

ment budget. About 80% of the colleges/technical institutes cover purchased training delivered on campus, tuition reimbursement or faculty conference travel in the HRD budget. In half the colleges/technical institutes, training budgets fund at least some of the salary costs for time employees devote to training. This is unusual in other sectors. Most colleges/technical institutes do not cover the salary of an internal training co-ordinator under the human resource development budget. This stands in contrast with the general practice in industry. Whether this means there is no one to play this role is not clear. However, we found sharp contrast in the motivation for human resource development between those colleges/technical institutes where someone animated or facilitated the process and others where development was simply expected to happen.

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Even when a college has a relatively good training budget, funding for out-of-pocket expenditures is often constrained. Some training activities are fairly costly and not covered with the average per capita amounts. Funding is seen as a particularly serious problem in areas where learning/updating opportunities are not available in the local community. This suggests that there may be benefits of colleges/technical institutes col-

laborating to use distance learning techniques for human resource development of college employees. Such an approach would have the dual impact of extending the reach of learning opportunities and exposing more instructors to distance learning technologies.

Human resource development requires better planning

"We do a fair amount of training, but its not strategic; most of our training focuses on our strengths not our weaknesses". Senior administrator

Funding levels are only one of the components of effective, results-oriented human resource development. Decisions on what human resource development to pursue can make the difference between high and modest returns on the funds invested in human resource development. The survey found that relatively few colleges/technical institutes make an explicit link between human resource development plans and program plans. This casts some doubt on how the college can operationalize strategic program changes through human resource development.

"If you're going to put money into PD, it should be targeted specifically." Instructor

The link between planning and expenditure is most often made at a fairly decentralized level. Only a third of colleges/technical institutes reported college-wide committees. In the absence of such structures, there is a risk of inconsistencies in decisions to fund development. A number of administrators, instructors and staff emphasized the need to integrate all college human resource development in a framework which reflects the strategic directions of the college. A relatively small but vocal set of respondents suggested that professional development will only be effective as an instrument of renewal, if it is part of a college-wide strategic plan. They contend that colleges/technical institutes should make human resource development a visible part of any program development or adjustment initiative.

Professional development will only be effective as an instrument of renewal, if it is part of a college-wide strategic plan.

Industry attachments must be encouraged

"Our greatest problems with teachers are in programs with no co-op or placements. We've never had a question of competence among teaching staff in programs with tight links to their industries. Co-op and other workplacements are a natural, self-regulating form of PD." President

Interviews, focus groups and the survey all pointed to the value of industrial attachments as a mode of human resource development. However, we found a relatively low level of utilization of assignments or secondments to other employers. There are several explanations for this gap between values and action:

- Some suggested it was difficult to identify pertinent opportunities in the community or province. Others reported no difficulty finding appropriate placements ranging from one month to a year.
- Some indicated that it was difficult for individuals with family or personal obligations to accept work outside the local community. They

"There is a huge PD benefit in these projects with industry. It boosts our egos. Its great to be working with learners who are so receptive." Instructor

explained that the local industry is not "on the cutting edge" and they thus would have to go to another area to see new technologies in action.

- Differences in earnings potential between the position in the college and that in industry can be a factor, although some colleges have provisions for "topping-up" salaries.

- Others simply pointed to the administrative difficulty in arranging the logistics of such assignments, including difficulty in arranging for a replacement.

Some senior administrators disagreed with the view that secondments and exchanges are administratively complex. They contended that if there was motivation for an assignment of secondment, it could be arranged. We asked human resource managers about the ease of implementing industry attachments. While over half agreed that arranging and implementing an attachment could be complicated, the most commonly cited complication was that of staff reluctance.

Rewarding education over experience

How an organization rewards achievement and what achievements it rewards sends a strong signal to employees. Many instructors pointed out that their salary grids reward formal educational credentials, but that they do not receive "credit" for industry experience. The survey of human resource managers showed that faculty are almost always compensated on the basis of a combination of work experience and formal education. In the vast majority of the cases people with more formal education were paid more than those with identical levels of experience in identical positions. This compensation structure is fairly common in education but rare in industry. However, the survey found only moderate support for changing the reward structures.

Human resource managers and faculty association representatives emphasized that the existing employment and development structures are woven into collective agreements. Thus, for example, the issue of rewarding experience gained through industry attachments will have to be addressed through collective bargaining. Similarly, policies for redeployment of faculty and staff have been defined in collective agreements. From the perspective of employees, the contractual delineation of rights and obligations represents an important aspect of control over their employment destiny. Some administrators, in contrast, complain that the collective agreements are rigid and reduce the capacity of the college to

respond quickly and efficiently to labour market demands. In some cases, administrators spoke of "going around" the collective agreements to achieve the flexibility they desired. However, experience from other sectors suggests this approach will not work in the long run. New employment and development practices will have to be negotiated, just as the current ones were. Moreover, both parties will want and expect equitable outcomes. Faculty and staff express a need for co-determination in shaping employment practices for college renewal.

Faculty and staff express a need for co-determination in shaping employment practices for college renewal.

Revitalizing Performance Appraisals

At present, performance reviews or evaluations are rarely a key step in human resource development planning. Only a third of human resource managers surveyed indicated that performance reviews were currently well established in their college. Annual performance evaluations are conducted for faculty at fewer than half the colleges/technical institutes. About a quarter of human resource managers responding to the survey reported that full-time faculty are never evaluated by their supervisors. Another third reported that formative evaluations occur less than once a year.

"We have had a reluctance to evaluate, even when we are talking formative evaluation." Program chair

Some human resource managers and other administrators attributed the limited use of evaluations to the reluctance of faculty to be appraised, even in a formative manner. However, when we asked faculty, they focused on the way the appraisal is handled. They commented that performance evaluations are perfunctory at best. A smaller portion of faculty we consulted would like a process that was less "formal" but more "formative" or constructive. As educators, they recognized the value of feedback in a development process and commented on the lack of effective feedback. Newly appointed instructors were particularly interested in constructive feedback.

The need for effective formative evaluation in a renewal context extends to staff and administrators in the colleges and technical institutes. Many administrators, particularly those who were new to their administrative roles, commented that they had had little guidance about performance expectations or feedback on their achievements. A few colleges have experimented with upward feedback techniques which are becoming more common in industry.

A very high proportion of presidents and human resource managers valued appraisals as an important aid to human resource renewal. In contrast, only half the faculty and staff association representatives considered that revitalizing the appraisals would aid college development and

renewal. A number of colleges/technical institutes are in the process of revitalizing their appraisal processes, positioning formative evaluations within the human resource development and program renewal context.[24]

Retraining for Redeployment

With relatively low rates of turnover, colleges/technical institutes have less scope to reshape the human resource mix through attrition than through development. Colleges/technical institutes seek to redeploy those employees whose jobs are affected by the planned program changes. The survey confirmed that reassigning or redeploying faculty or staff are more likely to be valued highly as a means of human resource renewal than are layoffs. Typically, faculty or staff affected by a program cut or rationalization are considered for other positions. One of the practical difficulties for faculty is that their specialized technical skills may not be appropriate to another program area.

Redeployment may require more extensive retraining. This argues for considerable advance planning.

Colleges/technical institutes tend to provide a certain amount of retraining support. However, the length of retraining available to employees affected by program cuts varies across the country. It is limited in some colleges/technical institutes. If there are positions open in closely related fields, this time limit does not pose a problem. If, on the other hand, the individual is fairly specialized, then redeployment may require more extensive retraining. This argues for considerable advance planning.

Recognizing the challenges posed in redeploying a fairly specialized workforce, faculty and staff association representatives interviewed in case studies as well as some human resource managers suggested the need for early retirement programs. A few colleges/technical institutes have or are developing early retirement policies. Inducing higher turnover is expected to allow program renewal through recruitment. However, even in situations where early retirement incentives have been considered, there are relatively few people who would currently be eligible. The survey found mixed support for early retirement as a means of influencing college human resource renewal. A few colleges/technical institutes with early retirement programs found limited uptake. Thus, human resource development initiatives will have to encompass older faculty members. Moreover, older faculty argued that they should not be "written off." The shorter lifecycle of programs means that colleges/technical institutes will get a good return on their investment in the development of experienced employees.

Conclusions

There is wide agreement that human resource development will be critical to the future strategic success of the colleges/technical institutes. Administrators, instructors and staff emphasized the need to integrate all college human resource development in a framework which reflects the strategic directions of the college. At current funding levels, the colleges/technical institutes' investment in human resource development is substantial. However, professional development will only be effective as an instrument of renewal, if it is part of a college-wide strategic plan which makes human resource development part and parcel of any program development or adjustment initiative. Moreover, human resource development cannot be effective if other human resource practices send conflicting signals. For example, despite the recognition of the benefit of industry attachments as a mode of professional development, development through work experience is not rewarded.

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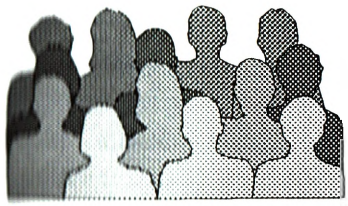
There is a need for an integrated approach to human resource renewal. The policies for development of new employees must acknowledge the recruitment practices, such as the priority on recruiting practitioners. Because few new recruits have prior teaching experience, development of the instructional skills of new recruits is essential. The lack of outreach for part-time and full-time recruitment limits progress in employment equity. Moreover, part-time staff represent a growing portion of college delivery capacity, but, unfortunately, are not fully integrated in development initiatives.

Many of the existing employment practices are defined in collective agreements. Faculty and staff express a need for co-determination in reshaping employment practices for college renewal.

Comparative data are not available for in-depth analysis of the relative impact on renewal of various human resource practices and initiatives. Colleges/technical institutes would benefit by collecting and sharing information on how human resource practices contribute to the desired renewal.

5. Economic Restructuring and Employment Opportunities



The Canadian industrial landscape has changed significantly since the period of the formation and expansion of the colleges/technical institutes. These changes affect the employment opportunities of college graduates and of the workforce at large. This chapter looks at how colleges/technical institutes have and will respond to these changes.

Labour Market Restructuring

Many Canadian industries, faced with a range of economic, social, competitive and technological challenges have been forced to restructure. These restructured industries often employ fewer workers but require more advanced technical skills. Retraining is becoming a common requirement of Canadian industry. The net effect on colleges/technical institutes is an expansion of the demand for retraining, a demand which is expected to continue with on-going restructuring.

"It's a bigger playing field and a different game. We can't just take our marbles and go home. We have to play." Employer

It is an oversimplification to refer to economic restructuring in terms of the emergence of the service economy. This pattern is more aptly described as a blurring of the distinction between goods and services. Growth in the service sector includes an expanding array of high tech services for traditional primary and secondary industries. Thus, for example, producers in the resource sectors have remained competitive on the international scene by increasing productivity and investing in new technologies. Direct employment in resource-based sectors such as mining, wood products and pulp and paper has declined as operations have become more capital intensive. However, jobs in or serving the resource sector are increasingly "high tech." Colleges/technical institutes serving these sectors offer technician and technologist programs in areas such as metallurgy, geology, agrology, chemistry and biotechnology.

Previous sector studies have highlighted specific sectoral patterns of restructuring. For example:

- Dramatic changes in computer graphics technologies have changed how printing firms relate to advertising agencies and other customers. There is more of an emphasis on marketing a customized solution. Sales representatives thus require both technical and mar-

keting skills. While automation has decreased the level of production employment, graduates of college graphics programs are moving into sales positions.

- Technologies and cost pressures are driving restructuring of the health care sector. On the one hand, health care is becoming more high tech. On the other hand, there is a movement away from a hospital and illness-driven approach to a community health model.

- Changing consumer demand coupled with cost pressures are expected to lead to vertical integration in the broadcasting sector. Jobs will shift from local operations to specialized national and international services. In a more market-driven context, employers will require combination of technical and creative skills.

- As automobiles became more technically complex, the automotive repair sector became much more high tech and specialized. Service centres had to invest in new diagnostic equipment. Many smaller garages scaled down their operations. While many independent operations remain, dealers and service chains account for increased volume.

- Integration between parts suppliers and manufacturers in the automotive industry has affected the product development area. Major parts companies need product design and development capabilities. Companies hooked up through CAD systems require more engineering and technical skills.

"For many in the fishery, the challenge of finding alternative employment will be exacerbated by their level of education. We need a strategy to respond to their needs." College instructor

Broad patterns of sectoral restructuring are often exaggerated at the regional level. In some cases, alternative employment opportunities are very limited. Sector studies in mining and pulp and paper, as well as interviews conducted for this study, revealed many challenges in restructuring regional economies. Delivering retraining to those in rural or remote communities is particularly challenging, but cannot be ignored. Respondents suggested better partnering between colleges/technical institutes and secondary schools. Others pointed to potential three-way partnerships among industry, colleges/technical institutes and secondary schools, creating practical and motivating programming for adult learners.

The specific sector studies delineate the above patterns much more fully.[25] The conclusions have pointed to required adjustments in the direction and scope of various college programs, both basic post-secondary programs and programs for updating the existing workforce. While there is considerable variation in the specifics of this rationalization and redirection, it is pervasive. In turn, this means that re-

deployment and development will be increasingly important from the colleges/technical institutes' strategic perspective.

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Sector studies have also strongly emphasized the on-going technical renewal and development of instructors. Increasingly, keeping up with market and technological trends requires more than contacts with local industry. Changes in the local and regional economies reduce the opportunities for graduates in the immediate area. Instead, they require skills which give them mobility both geographically and sectorally.

Senior college administrators pointed to a further implication of the ongoing development, redevelopment and rationalization of courses and programs. Colleges and technical institutes need to change the approaches they take in needs analysis and instructional design. In particular, it will be increasingly important to have ongoing information on the perspectives of leading edge employers, often employers beyond the local or regional community.

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Responsiveness in retraining services

Employers and unions generally expect continued economic restructuring. Many colleges/technical institutes forecast, indeed are actively seeking, expansion of contract and custom training and retraining services. The survey found that a very high proportion of presidents, board representatives and human resource managers considered it important that the colleges/technical institutes be proactive in the contract and custom training market. However, it is not always easy to be proactive in the retraining market. Lack of advance warning of pending closures means that meeting such demand often requires very fast turnaround. Colleges/technical institutes will have to be opportunistic in providing these services. This may necessitate changes in how colleges/technical institutes organize for delivery of retraining and skills updating services.

"Colleges need to offer more than a fixed menu. We need a smorgasbord style." Senior administrator

Providing effective retraining services is not simply a question of designing a program following standard formats. While custom program/course designs are important, the more significant distinctions from the regular course offerings are in the timing and the location of the training. Frequently, the need is for short but intensive courses, given at the workplace. Educational technologies, including distance education technologies, enable more flexible formats.

"If we don't change formats, we'll be out of business!" Administrator

"Time and season are artificial divisions." Instructor

Unpredictability of Changes

Moreover, the restructuring of the economy is unpredictable except in very sweeping patterns. Downsizing and closures of traditional employers and industries and the subsequent layoffs beg the question of "retraining for what?" [26] The reality is that there are no simple answers. The sector studies point to areas of growth or decline in relatively broad terms. No one, not students, not employers and not workers, can be sure that employment in a particular occupation or sector will continue to expand, just because it expanded in the recent past. It is increasingly important that colleges/technical institutes themselves are adaptable to a changing economy, and that college students learn how to learn continuously, so that they to can adapt as the employment picture changes. In effect, equipping students for long-term employment means preparing them to learn new skills. In addition, it will be increasingly important that colleges/technical institutes are prepared to offer students programs which adapt to and build on their existing skills, whether acquired formally or through work experience. Finally, students and college representatives noted that the increasingly changeable economy required new approaches to career counselling for students at all levels.

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While some faculty, administrators and students saw the aim of the college in terms of "job-readiness", many more considered that workers need a broader foundation, rather than skills which are narrowly-defined. However, this foundation must also be practical, anchored to skills which are really used in the workplace. Employer interviews, instructor and student focus groups and the delphi panel all identified the need to prepare people for the world of work, bridging the transition from institution-based learning to workplace-based learning. There will be fewer entry level jobs in which people can pick up skills in the workplace. Instead, many jobs will integrate a wider range of tasks and tasks requiring different levels and types of skills. Emerging combinations were those of marketing and communications skills with technical skills.

"There is more worker involvement in what used to be considered management functions. The distinctions between frontline managers and workers is blurring. Workers make more decisions themselves." Union leader

The Conference Board of Canada recently coined the phrase "employability skills" to describe the set of characteristics that make a person employable. The phrase struck a chord with employers, college and student representatives we consulted, as they focused on the sets of skills people need for on-going employment security and career development. While there is wide agreement on the value of the employability skills, we did not find similar consensus on how to develop these skills. A variety of approaches were identified. Many noted that specific attention must be paid to developing instructional skills related to the "employability" elements in a curriculum. It may be done through more interdisciplinary

"We love the graduates. They are focused, used to a heavy workload and working in teams. They are productive the first morning. However, if they are going to progress any further, they need communication skills." Employer

teamwork in program design and delivery or through cross training of faculty. However, some caution was expressed about the costs of team approaches. Others saw the value of a broader curriculum, including both technical and general arts courses, but with delivery by people specialized in those areas. It is likely that many feasible solutions are available. Colleges/technical institutes would benefit from more sharing of assessments of the effectiveness of various approaches to generic skills development under various circumstances.

"The generic skill instruction must be based on vocational relevance and re-enforced in the vocational subjects." Employer

Creation of Occupational Standards

Buyers of goods and services expect domestic and international suppliers to meet increasingly high standards, standards set in terms of quality, customization and timeliness, as well as unit cost. In turn, these customer expectations influence employers' expectations for the workforce of the future. Many employers and students commented on the need for a workforce which meets international standards for quality and service. Students recognized the employability benefit of training to high standards. Students noted that they wanted skills which were transferable, both occupationally and geographically. Regulatory changes also shape performance requirements for people in many of the occupations and industries served by colleges/technical institutes. Examples ranged from the aviation sector to the health care sector to criminal justice.

Colleges/technical institutes would benefit from more sharing of assessments of the effectiveness of various approaches to generic skills development under various circumstances.

Many employers, both individually and as part of joint employer-union sectoral councils, are responding to their perceived need to upgrade the skills of their workforces by defining occupational standards. Indeed, many of the sectoral councils formed to follow up on the findings and recommendations of sector studies have initiated occupational standards. Their aims are to improve performance and productivity in the workplace, and to support labour force mobility and equity.

Operationalizing these standards often involves the colleges/technical institutes. In some cases, the sectoral councils are developing college program accreditation mechanisms. Even without formal accreditation mechanisms, occupational standards will affect the colleges/technical institutes by making employers' expectations more visible. However, the college survey found that only half the stakeholders regarded the implementation of national standards as an important challenge. The relatively modest challenge associated with implementing national standards could mean the college stakeholders are confident that their programs are already very close to those requirements. On the other hand, it may reflect their unfamiliarity with the emerging standards.

Extending Industry-Education Links

"We need to get out of the classroom and think about learning on the shop floor, in the community." Senior administrator

Achieving high quality program design with relatively fast turnaround will require closer collaboration between colleges/technical institutes and the many workplace populated by their graduates. The focus should be on-going program and curricula renewal. In some cases, mechanisms for those links are strong and well-established.[27] In other sectors, links are currently more tenuous and specific to particular employers and their local college. Boards of governors can and do play a key role in spanning the boundary between the college and the employers. While it is not possible for boards to include representatives from all sectors populated by graduates, representation from key sectors is important. Board members can also help open the door to other sectors, relying on their own networks of contacts locally, regionally, nationally and internationally.

Some colleges/technical institutes have business or institutional development functions which take the lead in liaison with industry. The difficulty sometimes encountered with this model is that the very success of the special unit can distance other areas from their contacts. The marketing group may, inadvertently, become more of a filter than a conduit. These units often work best in a facilitative role. Direct employee involvement both in the links beyond the college and in the intracollege decision-making is considered a critical element. It creates the commitment and motivation for the human resource development which is necessary for the implementation of any change.

"Faculty will need greater...association with business to appreciate our needs." Employer

According to the survey, college stakeholders have mixed views on the relative value of current linkage vehicles in terms of their influence on on-going faculty development. A large portion of all stakeholders rated student work placements as highly influential.[28] The influence on program and faculty development occurs through the interaction between faculty and employers. Many people noted that the additional costs of such programs must be considered. Faculty were more likely to rate their membership in professional or industry associations and other community affiliations as highly influential. Apprenticeship boards were least likely to be rated as influential.

These linkages work both ways. Industry has a role and a responsibility to clearly explain its needs and expectations. Industry leaders cannot simply sit on the sidelines and complain. Advisory committees, sector councils and local training boards are among the mechanisms available to make expectations known. Industry must ensure that their messages about strategic imperatives are clearly articulated by people who are in a

good position to understand the dynamics of current and future requirements.

In exploring the issue of creating viable links and collaborative mechanisms, we asked faculty, administrators, employers and social action groups to describe what distinguished the more effective links from those which did not work as well. They pointed to the following characteristics of well functioning links:

- clear sense of shared interest in the success of the collaboration;
- mutual respect for differences;
- listening and probing;
- recognizing that parties to the collaboration have different backgrounds and may use words differently. Both sides avoid jargon that excludes the other;
- taking time to build the relationship; and
- willingness of all parties to adapt.

"As good teachers, we should be good communicators. However, sometimes we have been too eager to tell and not ready to listen." Administrator

Creating such collaborative committees is more than nominating a few good people, however important that is. Faculty and industry representatives who have participated in such groups urged that explicit attention be devoted to a conscious development of a collaborative group process. The facilitative skills of a good adult educator provide a foundation. However, the required consultative skill sets also include further knowledge of relevant industry operations and conditions, group problem solving and decision making, and skills in reconciling differences.[10]

"The problem with linkages is that they take an enormous amount of time in the care and feeding of the relationships. Interacting with the community eats up time. Instructor

Assuming colleges/technical institutes will develop and enhance their links to their client and stakeholder groups, a new challenge emerges. Somehow the expectations and requirements of the multiple sets of clients have to be assimilated across the college as a whole. It is essential that there be a balance in the linkages. If any one linkage mechanism becomes too strong, it can distort the college's overall view of its environment and lead to dysfunctional changes. The range of influences begs the question of integrating these influences. Senior administrators commented that planning mechanisms are part of the integration but not the whole story. The survey supports this view. There is a need for leadership in reconciling demands and defining directions for the college.

It is essential that there be a balance in the linkages.

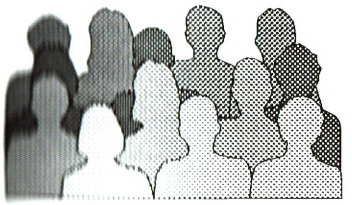
The boards of governors have a critical role to play in making the hard choices which will inevitably confront colleges.

Conclusion

The pace and unpredictability of current and future economic restructuring makes specific forecasting of program requirements difficult. However, the alternative is not inertia. Rather, colleges must be able to respond more quickly to change. Colleges/technical institutes have an obligation to prepare students for the workplace of the future, and for the fact that workplace will not be stable. Students who graduate in 1993 will inevitably change jobs and probably careers numerous times before they retire. They must be continuous learners. Moreover, the college must support their continuous learning. Versatility in programming and program formats will be critical. Achieving such versatility requires stronger on-going links between the people working in the college and the industries which employ their graduates. Ultimately, the college/technical institute employees require continuous learning to keep pace with changes in the economic environment.

The college must support their continuous learning.

6. Technological Change

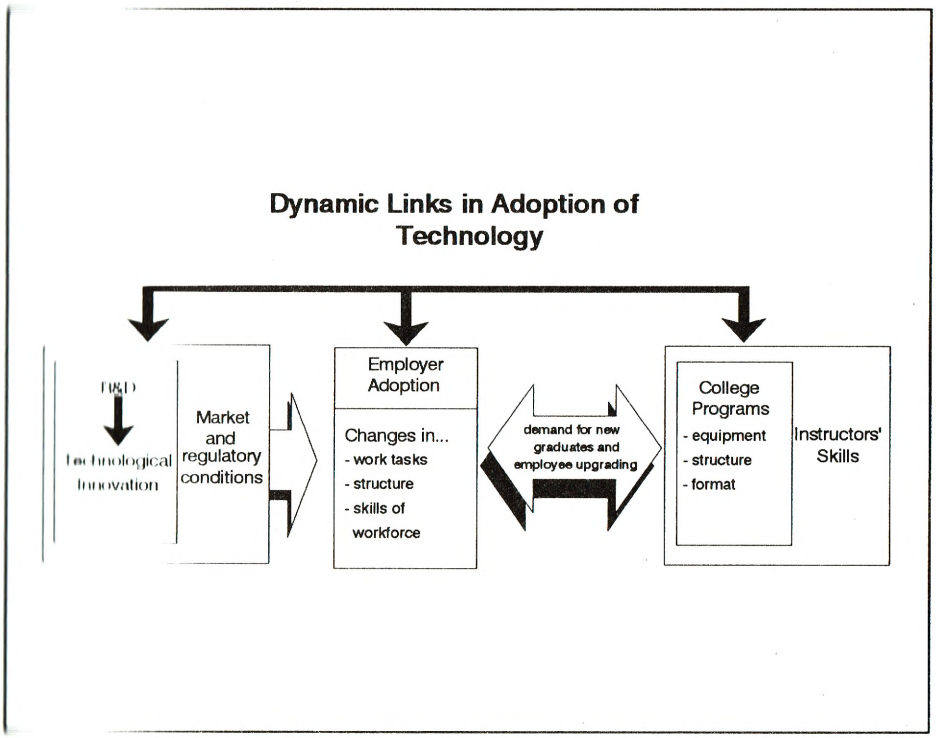


The technological changes in workplaces across Canada affect the skills which are the subjects of college instruction.[30] In addition, technologies used in education affect how colleges/technical institutes deliver that instruction. Simply put, technologies are both the content and process of instruction. Moreover, the pervasive impact of information and communication technologies means that the lines are blurring between workplace and educational technologies. This chapter begins by examining changes in workplaces populated by college graduates. It then looks at how technologies can change how colleges/technical institutes deliver programs.

"Those that are reluctant to adopt new technology will soon disappear." Employer

Colleges/technical Institutes Support Technological Innovation

While high technology industries account for about one quarter of Canada's employment,[31] technological change is not the exclusive domain of the high tech sector. Resource sectors, manufacturing and service industries all use new technologies. Indeed, effective adoption of appropriate technologies is critical to the future success of Canadian industries and in



the employment security of the workforce. Encouraging and supporting research and development is necessary but not sufficient to ensure the adoption of "best-practice technologies" across the range of Canadian industries. Colleges/technical institutes are uniquely situated to support technological innovation and diffusion.[32] The dynamic relationship between vibrant college technology programs and industry adoption of new technologies is shown in the preceding diagram.

"Perpetual change and ongoing introduction of new technologies and new applications are the daily environment in industry/business." Major technology employer

The adoption and widespread diffusion of new technologies is largely a function of market and regulatory factors. However, a well-educated workforce, aware of possible new technologies, is much better able to bring new ideas into a firm and ensure that they are put into practice. It is a dynamic relationship. From a labour perspective, the single best employment guarantee is access to training for more highly-skilled jobs that emerge from technological change. Colleges/technical institutes support industrial innovation both through the initial post-secondary education of trades, technicians and technologists and through the retraining and upgrading of workers affected by technological change. Thus, it is essential that college programs keep pace with the changes in the technologies in their employment sectors.

It is essential that college programs keep pace with the changes in the technologies in their employment sectors.

Fundamental Changes in Workplace Technologies

Six major areas of technological change were identified.[33]

"College faculty or staff can't help others if they are not moving and learning themselves. [We need] well-designed short-term, just-in-time training." Instructor

- **New materials technologies** - New materials affect the skill requirements of workers in manufacturing, processing, fabricating and construction sectors. The new materials often require very different techniques for design and processing. Workers must have more understanding of the chemical and physical properties of the materials they are using. They will have to know how to adapt their procedures for different materials. The main impacts are on engineering, applied science and trades programs.

- **Micro-electronics, electrical and optical technologies** - Electronics components are found in a wide range of equipment and instruments. Basic or advanced electronics skills are critical requirements in the telecommunications sector, and in certain occupations in processing, manufacturing, fabrication and maintenance trades and health care. There is a need for upgrading and renewal of a range of technology programs. From the workers' perspective, there is concern about the risk of being associated with "one machine" and becoming redundant when that machine is replaced by a more advanced model, based on a different technology. This will put

continuing pressure on colleges/technical institutes for continuing education in trades and technologies.

- **Biotechnology** - Biotechnology (alone or in tandem with chemistry) supports a wide range of processing sectors, from pharmaceuticals to pulp and paper. As biotechnologies are more widely adopted, technicians and technologists will require both increased knowledge of biochemistry and molecular biology and technical and instrumentation skills to support biotechnology operations. Chemistry, laboratory and medical technology programs will all be affected.

"We are not looking for a super-specialist in the environment. We want people who know our basic technologies and can solve problems related to environmental issues we face." Employer

- **Environmental technologies** cut across sectors but have a major effect on resource and manufacturing sectors. Employers expect regulatory pressures for more sustainable operations. However, few employers translated this need into a requirement for environmental specialists. Rather, they emphasized that the environmental skills must be associated with sector or occupation-specific technical skills. This suggests that colleges/technical institutes will have to integrate coverage of environmental factors and issues of sustainable development in many programs.

- **Information technologies** - As the cost of memory and processing capacity continue to fall, information technology applications will be more and more common in all economic sectors. Computer technologies have wide application across engineering, applied science and business programs. They range from CAD applications to GIS. Employers expect entry-level personnel to be familiar with at least some standard software applications. The demand for specialized computer technology skills will change as new programming techniques and languages are developed. Packaged software is expected to be increasingly used in a wide range of applications. The role of information technology staff in most organizations will be to support users with packaged software, rather than custom development.

  Second-order impacts of computerization also affect college programs. As more routine aspects of work are automated, workers will focus more on exceptions and on problem-solving. Retraining of the existing workforce is expected to fill most of these jobs in the short to medium term. However, in the longer term, new entrants will be required to bring a stronger theoretical understanding of the work processes.

- **Quality improvement technologies** - The focus on total quality moves the concern for quality from inspectors and quality control staff to front line workers. More front-line workers will use the tools

and techniques of quality assurance. While there are many firm-specific applications of these techniques, employers expect that college students have been exposed to the concepts and techniques, including analysis and trouble-shooting. Moreover, employers expect that all college programs will infuse a value on excellence and continuous improvement.

Technical workforce will need more marketing and communications skills.

In addition, market-driven yet technology-intensive firms are expected to require "scientifically literate" employees for marketing-oriented jobs. Similarly, the health care will increasingly seek employees with both technical and interpersonal skills. Overall, many employers consider that their technical workforce will need more marketing and communications skills. There is some debate over how these technical and communication skills can best be combined. While some employers argue for post-diploma or post-degree programs in marketing and communications for those with technology education and experience, others point out that the lack of such skills integration at the diploma level limits the graduates.

Technological Updating Strategies

Updating is critical

Colleges/technical institutes and technical institutes require technical updating strategies which integrate program renewal and the renewal of individual faculty. Many of the trades and technology instructors developed their skills under older technologies. In comparison to other development needs, technical updating was the most frequently cited as important by presidents, board representatives and faculty association representatives. Renewal strategies need to distinguish between the on-going development to keep pace with evolving technological applications in the workplace and strategies required to adapt to more radical change.

Updating must be continuous

Faculty, administrators and employers all agreed that it is very difficult to forecast employment demands for specific technology programs. The consequence seems to be that colleges/technical institutes will have to be "faster on their feet" in determining new needs and developing/adapting programs. The "shelf-life" of technical skills has shortened. Programs need to be under constant review and revision. A more modular approach will facilitate on-going updating of people and programs. To keep pace with technology change in Canadian industry, colleges/technical institutes will have to evaluate, adapt and redesign their curricula on an on-going basis. The aim is to achieve "real-time" human resource devel-

equipment, so that instructors are always current with technological innovations in their areas.

The very act of program revision and renewal can engage instructors in professional development. However, it requires much more active integration of industry and education. Indeed, there is wide agreement that direct contact between faculty and the workplaces employing graduates is a major method for ensuring they remain current. Many instructors "keep a hand in" active practice. However, a few expressed fear or reluctance to re-enter active practice in their trade or profession.

Direct contact between faculty and the workplaces employing graduates is a major method for ensuring they remain current.

Updating should be experiential

The experience base of the instructors has been a strong asset of the colleges/technical institutes career and vocational programs. However, this asset depreciates when instructors are out of direct contact with their occupation or profession. A re-emphasis on technical experience in faculty professional development is needed. Workshops and seminars are currently common modes of technical updating. However, they are better at conveying straight information and knowledge. They generally lack the hands on element. Many interviewees contend that development will occur inevitably as long as faculty/staff have access to the advanced technology Industry attachments are widely regarded as the prime vehicle for such development. Improving links with industry would give college instructors (and students) better access to the technologies.

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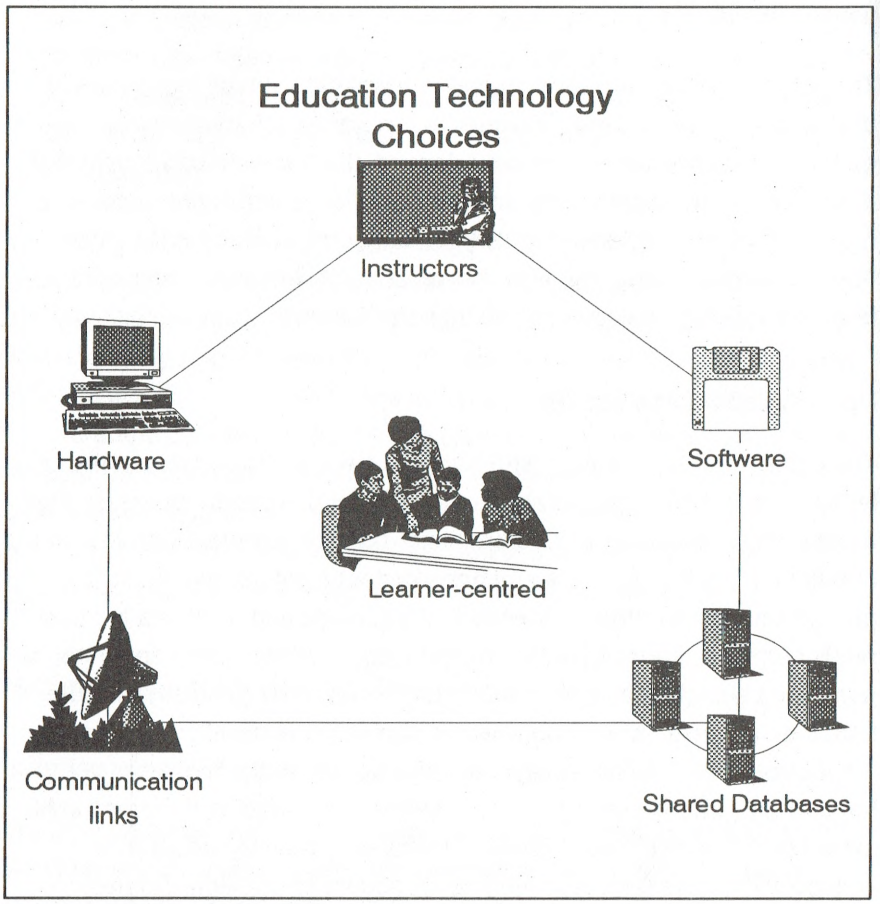
Emerging Education Technologies

Colleges/technical institutes use a range of education technologies

Education technologies include a range of technologies used to support teaching and learning on campus and through distance education. Information and communication technologies underlie the emerging technologies in education. However, these technologies need to be seen on a continuum. In selecting the appropriate technology, the instructional designer considers a number of educationally-relevant factors such as time, place, numbers and levels of learners, availability of hardware, interactivity needed, and cost. The best option will vary. The use of emerging technologies is increasing but still fragmented

To a greater or lesser extent, all the colleges/technical institutes we contacted use information technologies to support on-campus teaching and learning. College libraries are rapidly becoming centres for a wide variety of resources, including audio, video tapes, CD-ROM, etc. A number of



colleges/technical institutes have set up learning centres which feature various information and communication technologies to support independent learning and remediation. Distance education is also increasingly supported with emerging information and communication technologies. Successful examples of applications of technologies, such as videos, computers and audioconferencing can be found in almost any skills area. There are excellent examples of emerging technologies used in innovative ways in many colleges/technical institutes, but new information and communication technologies are not yet a pervasive feature in the delivery of college programs. Indeed, not everyone in the colleges agrees that emerging technologies of program delivery should be more widely adopted.

"The nintendo generation want technology in education. They are ready for it." Senior Administrator

The productivity impacts of emerging educational technologies are not yet evident. The relatively fragmented experiences with the new technologies do not yet provide a clear pattern. The potential for productivity gains depend on the extent to which the new technologies spread the design costs over a larger number of students. Emerging technologies also provide significant benefits in terms of the timing and location of de-

"But chalk is cheap." Instructor

every. Where the costs per learner make it feasible, applications of advanced technologies are likely to grow, as they allow greater flexibility in instructional design and delivery.

The general consensus is that use of information and communication technologies to support teaching and administration in colleges/technical institutes will continue to grow at a fast pace. Indeed, although interest in and support for education technologies varies considerably across and within colleges/technical institutes, most respondents expect the whole area of learning resources to undergo rapid change. Electronic and digital techniques to collect, store and access learning materials will change the learning resources. Faculty and students will access these materials from on and off campus. The demand for independent and off-campus learning will encourage the adoption of new technologies. Technology-based simulations will ease the transition between formal and workplace-based learning. Continued advances in communication technology will also result in a greater number of non-traditional workplaces, such as satellite offices, linked through technology and offices in the home. Employers and workers with telework experience pointed out that distance learning is a natural accompaniment.

The demand for independent and off-campus learning will encourage the adoption of new technologies.

The relative scarcity of appropriate courseware reduces the opportunities for college instructors to use emerging educational technologies. A few colleges/technical institutes are developing courses where technology-based materials and instructor activities are fully integrated. The relative cost of such developmental initiatives argues for inter-college co-operation as well as college-industry collaboration. In fact, some collaborative initiatives are under way. Communication technology enables more geographically dispersed groups to work together on such ventures.

"We will increasingly need instructors who can develop interactive courses delivered in unconventional ways." Instructor

A number of provinces are establishing computer communications systems which link colleges/technical institutes, and connect them to industry, government and universities. In a number of cases, these services are still in a pilot stage. It appears that the service will initially provide computer communication for administrative uses. It is expected that the service will become an increasingly important link among instructors and tutors and ultimately with learners. Champions of the new technologies in the colleges/technical institutes contrasted their access to networks with those of the universities. Those in university transfer programs were particularly critical of the lack of access to the emerging common communication infrastructure of the academic world.

"We need access to electronic highways." Instructor

Managing Technological Change

Change in the pattern of education technology applications will occur. Many faculty and administrators eagerly pursue the latest technologies. The new technologies will diffuse through the colleges/technical institutes. The question is at what pace and with what degree of integration to overall mission of the college.

With learners and employers pushing for technological applications and with champions within the college pulling them, a number of colleges/technical institutes identified a need to investigate and evaluate the emerging technologies. Several have set up task forces to explore issues related to education technologies and develop strategic technology plans. However, college faculty and administrators pointed to the absence of strategic frameworks in the application of technology across colleges/technical institutes. Such plans should include areas such as: professional development, ongoing assessment of the effectiveness of the technologies, and follow-up assessment of actual workplace performance of the "new learners". A plan alone will not suffice to bring about change. Envisioning the future and then managing the transition in teaching and learning processes will require institution-wide leadership.

Fragmentation of the experiences with education technologies is widely seen as slowing adoption.

Education technologies are distinctive among the factors driving change in the colleges/technical institutes. Ultimately, their effectiveness greatly on systemic solutions, college-wide and inter-college, yet there is a lack of suitable large-scale models. Fragmentation of the experiences with education technologies is widely seen as slowing adoption. Relatively few colleges/technical institutes have a critical mass of emerging education technology applications. Many of the faculty who are most involved with emerging educational technology applications see themselves as somewhat apart from the mainstream. In 1990, British Columbia's colleges/technical institutes formed a Standing Committee on Education Technology (SCOET). SCOET pulls together participants from across the colleges/technical institutes in British Columbia. Its mandate is "to monitor and assess changes in education technology, and to propose policy directions for the system as a whole." The overall aim is to "foster an internationally competitive education system ... in light of the rapidly expanding role of education technology within education systems worldwide."

Instructional skills development for emerging technologies

Everyone we consulted was careful to emphasize that the emerging educational technologies are not a substitute for instructors. The instructor/tutor will continue to have significant responsibilities for the learning process, even where the most completely pre-packaged modules are used. Techniques such as learning conversations, tutorials and lectures will remain important. Interpersonal support and guidance will continue to be required. Rather, the issue is one of identifying the best mix of people and technologies in the learning-teaching process. Moreover, there is strong agreement that the best mix will vary for different learners and different learning situations. This puts added emphasis on the need for sound instructional design.

"We have to move our teaching style from the "sage on the stage" to a more collaborative relationship with the learner, facilitating the learning process." Administrator

The effective adoption of emerging training technologies requires that instructors need access to the technologies and to opportunities to experiment and develop their skills in applying the technologies. Further adoption of emerging technologies to support education delivery is expected to result is increased demand for skills in areas such as:

- teamwork and co-operation in program design;
- instructional design using new technologies;
- development, field testing or adaptation of technology-based materials;
- design of technology-based testing and evaluation tools;
- tutoring and guiding learners through increasingly complex choices of individualised learning; and
- supporting and using electronic and digital learning resources.

The application of emerging educational technologies in the delivery of in-service instructional skills workshops would serve to extend the reach of existing "best practice" workshops and also provide a showcase for new techniques.

The application of emerging educational technologies in the delivery of in-service instructional skills workshops would serve to extend the reach of existing "best practice" workshops and also provide a showcase for new techniques. In addition to developing the instructional skills of those already employed in the colleges/technical institutes, recruiting strategies should require computer literacy. Up-to-date knowledge of the subject matter will remain essential for instructors/tutors.

"The way people work is changing with the spread of microcomputers. We need to change what we teach and the skills of the teachers. We need to focus on teacher training, instructional design and new methods in teaching." Senior Administrator

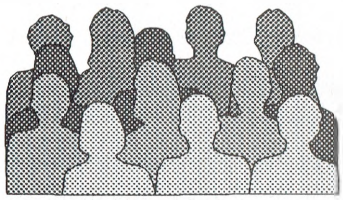
Conclusions

Colleges/technical institutes are important players in the facilitation of technological innovation across Canadian industry. However, to play this role fully and effectively, colleges/technical institutes must ensure that faculty and programs keep pace with emerging technologies. The most pervasive of these emerging technologies are information and communication technologies. Almost all students need computer skills yet the specific requirements vary considerably across occupations.

The absence of a strategy will not stop the diffusion of new technologies.

Information and communication technologies also underlie the emerging educational technologies: multimedia and interactive distance learning. Colleges/technical institutes are adopting the new educational technologies. However, experiences to date are fragmented, with little evaluation of the overall impact on educational outcomes. The cost of the new technologies is a concern. While some college employees are reluctant to adopt the new technologies, others eagerly demand the latest technologies. The challenge for colleges/technical institutes is primarily one of managing this technological change in a coherent and integrated fashion. The absence of a strategy will not stop the diffusion of new technologies. However, without overall strategies, adoption of new educational technologies will continue to be localized and fragmented, and the potential benefits in educational outcomes and productivity may never be realized.

7. Changing Student Enrolments and Expectations



After levelling off and even declining in the mid-eighties, college enrolment climbed noticeably in recent years. Colleges/technical institutes also report relatively high levels of applications for many programs and, in some cases, have capped enrolments. The overall enrolment patterns point to sustained student demand. Colleges/technical institutes report a strain on their resources, staff, facilities and services. Indeed, many colleges/technical institutes we visited have multi-year waiting lists for programs.

"Less than 30% of our students resemble what we used to consider our traditional post-secondary students." Senior Administrator

The overall enrolment figures mask important changes in the student population. There is growing diversity among Canada's college students. However, the exact patterns of that diversity vary considerably across colleges/technical institutes and even within individual colleges/technical institutes. Overall, the range of students in a given classroom is a challenge to instructors who must accommodate the diversity with a new facilitative role.

More under-prepared learners

Faculty and administrators in several colleges/technical institutes pointed to the paradox of open admissions in a world where graduates must meet very high standards. In the majority of colleges/technical institutes we visited, faculty commented on the under-preparedness of students. They expressed concern with the inadequate level of academic skills of high school graduates. They also voiced frustration with the lack of understanding by students of the effort required to learn and succeed.

There was widespread agreement that the need for remedial development of basic skills will remain. However, there was considerable debate over how such training would be delivered and whether colleges/technical institutes should be the main source of remediation. Some colleges/technical institutes are exploring alternative means of developing the under-prepared learners. Some educators argued for tougher entry standards for college programs, leaving remedial skill development as a preparatory activity. Technology-assisted learning modes are available for remediation. However, the respondents had mixed views of the feasibility of technology-assisted approaches, especially when used on

"Even if dramatic changes occur at the elementary and secondary levels, it will be several years before the effects are felt at the college level." Instructor

their own. They emphasized the need for effective instructional designs to support any remedial approach.

More mature students

Despite overall enrolment growth, about a third of the colleges surveyed reported a decline in enrolments directly from high school. The enrolment growth is dominated by more mature students, many of whom have already been in the workforce. This reflects broad demographic patterns in Canada. The majority of people who will be in the workforce in the year 2000 are already there. Fewer young people are entering the workforce, but those in the workforce are seeking retraining and skills upgrading. Over 80 percent of colleges/technical institutes report an increase in enrolment of laid-off and unemployed workers.

"I don't know what a sequential student is any more...they step out of school between high school and college." Administrator

It is important to acknowledge that mature students are not homogeneous. They vary not only in age, but in academic achievement. While some mature students may not have acquired a high school education, others have some university education. Indeed, faculty across Canada commented on the enrolment growth among students who have already attended or completed university. These students see the value of college in career terms. However, some administrators wonder whether colleges can afford to become the finishing schools for people with undergraduate degrees. Instructors are challenged to find methods which serve those who have less prior education, while still challenging those with more education.

"We should have mature students on all the committees and boards. We need to express our needs. We can influence the college." Mature student

Instructors generally view the increased enrolment of mature students as positive, suggesting that mature students add a breadth of experience to the classroom. Instructors commonly observed that mature students were more demanding and less likely to accept being "lectured to", challenging the instructors' traditional delivery methods. They are more likely to expect instructors to be able to provide up-to-date and practical examples of concepts. The needs of adult learners are often recognized to differ from the needs of younger students. However, faculty and administrators expressed concern over how well they had adjusted to the difference.

Mature students also demand that their prior learning, both formal and experiential, be assessed.

Mature students also demand that their prior learning, both formal and experiential, be assessed. Counsellors often guide or facilitate the potential entrant in the process. In some cases, special offices for prior learning assessment have been established.

More students combine work and college

Many students work at least on a part-time basis while attending college. Such a combination is often an economic necessity. It can also have career benefits. Studies show that students who work while going to school more easily find employment after leaving school. On the other hand, working students may find it difficult to complete assignments and thus be less likely to complete their academic program.[34] Colleges/technical institutes may have to adapt programs, formats or materials to facilitate student success under such circumstances.

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Pressures for education equity are increasing

The push for employment equity across Canadian industry places demands on colleges/technical institutes for graduates from target groups. Most colleges/technical institutes are struggling with how to achieve education equity. The college survey found considerable variation in the likelihood of different stakeholders to consider it important that the college improve accessibility to students with diverse backgrounds. More than three quarters of faculty association representatives considered it important, but just over half the student association representatives shared that view.

"We need to see the response to diversity as an essential part of total quality of educational services. " Senior administrator

- **Women**: More than half the college students are women. However, women have continued to enrol in traditional female programs such as health and social sciences.[35] In an effort to combat this trend, many of the colleges/technical institutes visited in the case studies have developed programs to inform potential female students about opportunities in non-traditional programs. In some cases, there are strong formal and informal supports for the women entering non-traditional programs. In other cases, women find themselves alone in what feels like a hostile environment, with limited peer support and few role models. Without further initiatives in the colleges/technical institutes to encourage and support women in non-traditional occupations, employers will continue to rely on the old excuse that "there are no women available," and employment equity will suffer.

"People have to accept special measures, affirmative actions. It's fundamental to our progress." President

- **Persons with disabilities:** Persons with disabilities have traditionally had a low rate of participation in the workforce. Access to education, particularly mainstream education, has been a major barrier to employment equity for persons with disabilities. Many of the colleges/technical institutes we visited had been retrofit to improve physical accessibility. Nevertheless, physical access remains an important element in enabling persons with disabilities to succeed in

certain college programs. Colleges/technical institutes also make available various aids to assist learners with disabilities. Helping instructors develop techniques to accommodate the needs of the students with disabilities is the next major challenge.

"We work with a population that has a critical need for up-front preparatory programs, that is academic skills, life skills and study skills." Senior Administrator, Aboriginal program

- **Aboriginals:** Unemployment rates among Aboriginal peoples are already double the Canadian average, and a large proportion of new entrants to the workforce will be Aboriginals. This demographic fact is particularly apparent across Manitoba, Saskatchewan and northern Canada. Education and skills development are strong imperatives for Aboriginals. However, a relatively limited proportion of Aboriginals are ready to enter post-secondary educational programs. Instead, Aboriginal students often need special remediation and often special counselling. However, some colleges/technical institutes have encountered a backlash to what is seen as "preferential treatment" for Aboriginal students (as opposed to "differential treatment").

"The instructors here are our friends, but tough on us, encouraging but demanding. They don't let us quit." Aboriginal student

- **Visible Minorities:** Just as some colleges/technical institutes have set up special programs for Aboriginal students, we found that several colleges/technical institutes in major metropolitan areas have targeted the immigrant or visible minority community. Again, some reported that other students resented the affirmative action. They suggested that the problem is one of access to a rationed service. Beyond access itself, cross-cultural sensitivity must be proactive.

The survey found moderate but mixed support for development initiatives aimed at supporting education equity. College presidents and faculty association representatives were most likely to rate it highly. Many of the proponents of these types of development initiatives argued that they be integrated into the regular instructional skills development. While such integration is valuable, it does not address the wider range of the college population.

Need to renew instructional skills

"Teachers should be good communicators, like a good coach." Student (and former Olympic athlete)

The range of students in the colleges/technical institutes requires instructors who can accommodate diversity, adjusting their instruction to meet the needs of different learners, ranging from the under-prepared to those with extensive prior learning. There is an increasing requirement for instructors to act as facilitators of the learning process. While some instructors have adapted easily to this change, others are struggling. Colleges/technical institutes need to continue developing instructional skills that support this model.

Students have high expectations for their colleges/technical institutes, particularly in the area of quality of instruction. When asked about weaknesses in college instruction, students tended to point to the teaching style of their instructors. While enhanced instructional skills development was not rated as consistently high as technical updating, more than four out of five presidents, faculty and board representatives still considered it important. They focused both on instructional design and delivery skills.

Students have high expectations for their colleges/technical institutes, particularly in the area of quality of instruction.

"I don't want a patronizing pat on the back for my efforts. I want to learn. I want the best." Student

Need for career counselling

The increase of mature students and the diversity of academic backgrounds, culture and experience students bring to colleges/technical institutes makes the need for career counselling critical. Open admissions policies and efforts to increase accessibility increase attrition. Students were very critical of high levels of attrition, particularly in programs with long waiting lists. Many of the colleges/technical institutes we visited cited reducing the attrition rate as a major challenge. However, few have developed specific strategies to deal with this issue. Indeed, for many faculty, increasing enrolment plus reducing attrition can only equal "lowering standards."

Students were very critical of high levels of attrition, particularly in programs with long waiting lists.

The learners' success in the college is widely seen as dependent on more than the instructional activities of the college. Helping potential entrants select the appropriate program can impact on the attrition from that program. Current information on career options and opportunities is critical in this regard. Employers in many sectors commented on the poor understanding many students and graduates have of the work situation. Students favoured career counselling which would "force" them to explore the career opportunities, either in advance of entry or within the first few months. The consultants encountered different examples of initiatives like this, ranging from Women in Trade and Technology programs to requirements that students do a "career investigation" as part of the admissions process in heavily subscribed programs. Students also linked career counselling with financial counselling, including explicit advice on student loans, as well as information on admission requirements and options.

Helping potential entrants select the appropriate program can impact on the attrition from that program.

"I didn't know what I wanted when I enroled. I should have. I wasted a lot of time." Student

Counsellors themselves note that they cannot be experts on every field. They see themselves in a facilitative role, helping students to gather and assess their own options. The extent of the demand for counselling services for students facing particularly severe learning and personal problems means that counselling centres may not have resources for the career counselling aspect of their mandates. Increased team work between counsellors and instructors is seen as one means of ensuring

career counselling does not slip away. Counsellors at several colleges/technical institutes have developed and delivered workshops for their instructors. Students helping each other explore career options is another way of extending the reach of the counselling staff, while also building students' career planning skills.

Other student support services

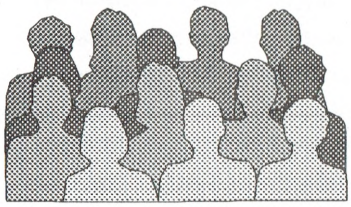
"We need to recognize that students are our customers" President

Students found the compartmentalizing of student services can be particularly frustrating. Some colleges/technical institutes have analyzed their student services from this perspective and restructured them. At a minimum, colleges have encouraged a wider awareness of student needs among those in the front-line of student services. In other cases, registration, program and financial advice and information are clustered, allowing for "one-stop shopping." The aim is to get a more cohesive set of services available in one (or more) sites. To some extent, the delivery of the "one-stop" services is facilitated by new information systems. However, it also takes more teamwork on the part of functional leaders and a certain degree of cross-training of support staff.

Conclusions

The outlook is for sustained demand for college services. However, this does not mean colleges should simply offer "more of the same." The faces in the student population have changed and will continue to change. There is more diversity in age, colour, gender, prior experience and education preparedness. Colleges/technical institutes have to consider new ways of supporting student learning, with the goal of facilitating student success. Instructional and counselling skills development are needed to enable college employees to decrease attrition and enhance achievements of all students. The pressure for colleges/technical institutes to achieve education equity also means that there is a continued need to ensure accessibility through outreach programs, and to adapt programs and services to the target groups. Admittedly, such initiatives can be costly. In the current economic reality, colleges will have to be very creative to find efficient yet effective means of responding to evolving student needs.

8. Innovation and Renewal: Areas for Action



Colleges/technical institutes are already evolving in response to pressures of student diversity, technological change, and economic restructuring. They cannot resist the inexorable pressures. The alternative to managing change is not stability and a continuation of the status quo. The real question is whether change will be haphazard or by design. The former suggests possibilities of scattered improvements, much dispersion of energy and potential for conflict among college stakeholders. The alternative is not easy. It will require considerable energy from all stakeholders. However, the reward will be colleges/technical institutes which can lead the way in technical and vocational training and education in the next century.

"We need to start with a new vision of the college in the community, a world community." President

Through the case studies and other interviews we found a wide range of innovations in college practices, innovations which were instrumental in supporting the renewal of programs and of colleges as a whole. These innovations fall into broad categories.

"We need to bring in all the players -- government, industry, labour, colleges, to see if we can get far superior teamwork going." Instructor

- **Multiple and close external links** - Colleges and/or programs which have succeeded in renewal have strong links with industries employing their graduates. Inter-college collaboration is another feature of renewal initiatives. These links are often strongest at the regional level, but also extend to national and international perspectives. While face-to-face contacts are important, innovative colleges communicate with their external environment using the emerging communication and information technologies, accessing a wide range of shared databases and electronic documents, commonly used in industry and in other educational contexts.

- **Integration of college strategy and mission with human resource policies and planning** - College leaders cannot simply exhort people in the colleges to renew themselves, while continuing to run the college using existing human resource policies and practices. Rather, the way in which people are managed needs to be explicitly designed to support the renewal initiatives. There are examples of innovative approaches in performance appraisal, recruitment, employment equity and human resource planning.

- **Collaborative climate and structures within the college** - Colleges which have been more adept at renewal beyond the program level have strong cross-functional, inter-departmental and inter-campus

teams, working collaboratively to address issues of relevance to all. There is a wide understanding that the optimal solution for one area may not be optimal for the college as a whole. However, the converse assumption, that each program requires unique solutions, is not accepted.

- **Development activities** - Colleges which are more actively renewing themselves offer a wide range of developmental activities. Instructional skills (both initial and on-going development) are given high emphasis. More importantly, the development activities are promoted and facilitated, often with one person playing an animating role. Finally, employees are encouraged to share their learning through a variety of formal and informal mechanisms.

This chapter highlights the areas identified by the steering committee as priorities for action in improving the human resource situation in colleges and technical institutes. Many, but not all, of these actions must occur in the individual colleges. The diversity of the community colleges and technical institutes means that each college should first consider the applicability of the actions within its own context. Not all actions apply to all institutions. In addition to actions at the institutional level, certain areas lend themselves to sector-wide (inter-college) cooperation both within provinces or across. Collectively, colleges would benefit from increased co-operation in developing and testing innovative approaches. This inter-college collaboration would be valuable in assessing educational issues and opportunities affecting many colleges/programs, in developing strategic frameworks for these issues, and in specific development of programs, materials and applications. In some cases, the ACCC may play a facilitative role across Canada.

Designing Strategic Change

Focus on continuous learning

People must learn new competencies throughout their careers.

Learning can no longer be treated as an activity reserved for youth. People must learn new competencies throughout their careers. More programs must be available in modular formats, to be taken on a full-time, part-time or short-course continuing education basis. Designs should be versatile to be modified for alternative formats. Students and their employers need choices in the duration and scheduling of courses. The "service hours" of the college must be extended to suit learners' schedules, with more weekend and spring or summer programs.

Colleges will have to recognize and build on students' prior learning, both formal and experiential. As a society, we cannot afford the luxury of requiring people who already know something to study it, simply to conform to a rigid program design. Credits must be readily transferable. Programs should be available in a variety of delivery modes, including lectures, seminars, distance education, hands-on laboratory work, new and old technologies. Learners' needs should guide the choice of the best mode for a particular training situation, considering dimensions such as the time, location and lifecycle costs.

Programs should be available in a variety of delivery modes, including lectures, seminars, distance education, hands-on laboratory work, new and old technologies.

Making Choices

Colleges face demands from all sides: government, labour, equity groups, students and employers. In many cases, these demands conflict. Colleges will have to work with stakeholders who make these demands and clarify their requirements. In many cases, reconciliation will be impossible. Saying yes to some options means saying no to others. Colleges will have to choose. Colleges can no longer attempt to satisfy everyone. The risk is that no one is truly satisfied, that students continue to enrol in (and drop out of) programs which do not quite provide the skills they need for employment security in a changing workplace.

Colleges can no longer attempt to satisfy everyone.

There is wide agreement that individual colleges must differentiate themselves in terms of their expertise and excellence in distinctive program areas. The costs of keeping current in emerging technologies (both from an equipment and human resource perspective) require careful priorities. Everyone acknowledged the high costs associated with technology programs. At the same time, industry stakeholders argued vehemently for the need for re-investment in technical programs. A more focused programming strategy will enable colleges to concentrate resources in technical updating, so that programs and college employees can keep pace with industry standards. Moreover, program design, evaluation, updating and rationalization will be an on-going process.

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Stakeholders require a clear and compelling vision to guide decision making on the program level and on policy level. This vision must be set in light of current financial realities. There is no new money. The challenge is to create a vision which can be successful and viable despite constrained resources. This will take a focus on student success and accountability for outcomes.

"With continuously reviewed design, programs need to be trimmed down, as well as have material added to them." Employer

Specific initiatives at the college level should begin with all stakeholders engaging in a review and critical reassessment of the mission of the col-

lege, and the relevance of major programs/areas to this mission. Repeating such reviews on a periodic basis is critical. Program planning should focus on the full life cycle of the program, acknowledging that a program which is relevant and viable today may be superfluous tomorrow. Rather than automatically creating new programs specific to one institution, colleges/technical institutes should consider brokering or establishing consortia. Sharing of strategies and program frameworks among colleges could facilitate the formation of such consortia.

Leadership Development

Boards should guide the debate about strategic choices, ask questions about program relevance and renewal and make the hard decisions.

College leaders must forge new directions for their colleges/technical institutes, departments or programs. Leadership from the board is critical. Boards should guide the debate about strategic choices, ask questions about program relevance and renewal and make the hard decisions. However, this leadership is not confined to the senior levels of the college. Leadership development must focus not only the CEO and his/her likely successors. It must also encompass everyone who serves the students: the program heads, managers, instructors, counsellors, librarians, technical and support staff.

Initiatives for individual colleges/technical institutes could include:

- examining the pros and cons of term-certain and combined teaching/administrative program chair positions, considering their positive and negative implications for leadership development and on-going leadership. It is likely that there is no "one size fits all" approach. Rather, different circumstances support different approaches. However, these choices should be taken consciously.

- providing leadership development more extensively and more intensively. Such programs should encompass the broad range of competencies required of program heads, deans and other administrators. Assignments, secondments or work exchanges to other work environments are an important aspect of such development and should be encouraged in order to widen people's horizons.

- appraising senior administrators on their achievements in developing the leadership talent pool in their areas. This should encompass the development of equity target group members.

- instituting upward evaluation processes for those in program chair, dean, vice president and president positions. All employees who work in a particular program or division should contribute to the upward feedback.

Inter-college activities to facilitate leadership development could include:

- collaborating in the expansion of existing leadership development programs or creation of new ones so that a much wider range of individuals may participate; and
- sponsoring equity target group members to participate in leadership development activities. Sessions aimed specifically at developing leadership skills among the target group members are also a possibility.

Continuous Improvement of Education Quality

Despite the caution with which many people in the colleges/technical institutes regard the business community's embrace of total quality management, there is strong agreement on the value of improving educational quality. An essential first step in quality improvement lies in agreeing on the definition of quality. "Student success" can mean a lot of different things to different people. Agreement must encompass all stakeholders, but must, in particular, reflect the expectations of the students and their probable employers. We acknowledge that gaining such agreement is not an easy task.

Once these expectations are clear, attention can turn to consideration of how various delivery modes might better achieve the expectations. There is a need and opportunity to transform the operations of many colleges. This transformation must focus on administrative systems and procedures as well as the design and delivery of programs. The overall goal should be one of improving the delivery of education services. All activities should be assessed in term of the value-added to education quality.

There was widespread agreement that there are "good ideas" in the system. Too often these are the "best-kept-secret" variety, known only to those in the immediate vicinity. There are opportunities for sharing innovations both within and across program areas and colleges/technical institutes. Indeed, these opportunities need not limit themselves to the college sector. Corporate trainers and private sector training suppliers may have similar operations, particularly in some career-specific fields. Looking for innovation beyond the college sector would assist in the development of other alliances. The overall aim is to enable the people in the colleges/technical institutes to learn from one another.

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The overall aim is to enable the people in the colleges/technical institutes to learn from one another.

Proposed initiatives for individual colleges/technical institutes include:

- training program heads, deans, managers and ultimately, all employees in quality improvement initiatives. For the short to medium term, it will be useful to dedicate staff to the quality improvement function, not as an owner of the function but as a guide and "conscience" for others.

- examining and streamlining administrative and operational processes. Similarly, evaluating organizational structures could lead to improved decision-making and accountability.

- expanding the implementation of formative program evaluation processes, involving all faculty, staff and students in a program area in the analysis of possible improvements. The contribution of revitalized program advisory committees is also essential in this regard. Boards of governors have a role to play in ensuring the vitality of the program advisory committees. In addition to formal program advisory committees, it is beneficial to invite graduates and other industry representatives to visit campus, meet with faculty and sit in on classes, and offer comments on the relevance of materials covered.

- ensuring that faculty, program heads and deans actively participate in trade or professional associations relevant to their areas. This will build their network with the target employers and also enrich their understanding of emerging issues.

Proposed inter-college or college-government initiatives include:

- pooling information on performance indicators and achievements across colleges/technical institutes. This would help colleges/technical institutes identify where they might search for ideas and innovations.

- documenting and communicating "best practices" to show specifics of the process, thereby enabling others to borrow or adapt them. Focusing on areas where colleges agree that there is greatest need for improvement will ensure significant gains from the best practices. While descriptions of these best practices are valuable, they cannot supplant the power of hands-on exposure. Thus, inter-college sponsorship of multi-college tours for industry-education teams, with a focus on particular training issues, such as the application of a new technology, is also recommended.

- developing and communicating criteria and models for effective industry-education partnerships, in conjunction with industry (perhaps through sector councils). Similarly, it will be essential to promote col-

lege-industry partnerships nationally, working in conjunction with sector councils and chambers of commerce.

Industry could support these initiatives through:

- sponsoring awards for "best practices" across colleges/technical institutes;
- sponsoring exchanges among colleges/technical institutes in Canada and abroad and generally promoting model partnerships; and
- sponsoring exchanges of specific "best practices" information between industry and colleges/technical institutes. It is important to note that best practices do not have to come from within the sector. Colleges may find significant opportunities to adapt processes which other sectors have polished.

Achieving Renewal of College Human Resources

Colleges have, over the years, gathered together an impressive array of skills. However, the value of these skills will wear out if not renewed on an on-going basis. Changes in the student mix, in the skills needed for employment and career development for graduates and in the methods and approaches used in college teaching all contribute to the need to renew and rejuvenate the skills of the people working in the colleges.

"If we are going to produce graduates who are continuous learners, we have to be continuously learning ourselves, individually and, more importantly, as an organization." President

Lifelong learning is as critical to the success of people working in the colleges as it is to those they serve. Indeed, the people working in the colleges must lead the way in ongoing skills renewal and development. Renewal initiatives should encompass technical, instructional, counselling and administrative skills and should encompass all the people working in the colleges.

Energizing and focusing development

Active involvement of faculty and staff in development and evolution of programming is a very strong motivator for renewal. Faculty and staff in the colleges/technical institutes consistently emphasized the value of their involvement in program renewal as a key factor in inspiring their quest for their own development. While many colleges/technical institutes have distinct units with specialized expertise in program evaluation and design, it is important that these units work collaboratively with the programs. Funding for human resource development must be allocated in a manner which supports the strategic renewal efforts. This may mean

"We have a strategic learning agenda, for ourselves and for our clients." Senior administrator

allocating a disproportionate amount of funds to one programming area. However, simply rationing funds across all programs may never allow the momentum for real renewal to build.

Proposed initiatives at the individual college level include:

- clearly delineating responsibilities for animating and facilitating the human resource renewal initiative. This could include providing in-house seminars on emerging technical developments which cut across program or discipline areas (examples could include computer applications used in industry or environmental issues which cut across several programs);

- strengthening the performance appraisal process and linking it to the human resource development planning process so that individual development plans will address specific skills requirements and skills deficits.

- creating a dedicated "dissemination" function, diffusing good ideas and innovations across campus. This could include conducting regular college-wide "show and tell" events which feature in-house as well as external experts;

- challenging the "not-invented-here" syndrome which prevents cross-fertilization of ideas among "regular" programs, continuing education, apprenticeship and contract training. Colleges should encourage all employees to explore whether new ideas and instructional techniques can be adopted from other areas.

- providing flexibility in work arrangements to support staff. This would enable staff to take appropriate college courses, even when these are offered during normal working hours.

Proposed initiatives at the inter-college level:

- working in conjunction with government and industry groups, sponsor workshops to sensitize college administrators, faculty and staff to critical economic, market, social and technological changes and issues affecting particular occupational groups;

- establishing inter-college committees to work with industry/professional groups to clarify and address educational concerns; and

- leading an occupational analysis to develop competency profiles of college-specific occupations, in the context of college renewal.

Industry can facilitate and support these initiatives by:

- sponsoring awards for student excellence, based on industry-specific or occupation-specific standards; and
- inviting groups of college faculty on site visits and tours designed to cover a variety of leading edge operations.

On-going technical/subject skills renewal

Colleges/technical institutes play a critical role in development of Canada's workforce. It is, thus, essential that the technical/subject skills of those in the colleges/technical institutes reflect the advances incorporated into the workplaces employing their students and graduates. In effect, the colleges/technical institutes must foster the same learning culture which is developing in other sectors, a sense that being a professional carries an obligation to remain current. Like student work placements, industry placements for faculty are valuable in technical updating. Renewal is greatly eased where faculty, administrators and staff from the college spend a significant portion of time off campus working and consulting with industry and other organizations program.

Suggested initiatives for individual institutions include:

- making continuous learning a key priority for faculty, staff and administrators. College presidents and boards of governors should insist on continuous learning targets and mechanisms in all program plans. This could involve setting priorities for technical renewal based on the pace of change in the underlying program areas and in their target industries. Colleges could also set internal, program-specific guidelines on technical renewal. To ensure there is follow-through on such goals, colleges should allocate a portion of the human resource development budget for specific renewal initiatives, tied to strategic renewal of programs.
- establishing program renewal committees of instructors, technical staff, students, recent graduates and local and more distant employers to review the directions of the program, the need for renewal, set goals for technical renewal and determine optimal activities for such renewal. These committees would encompass existing program advisory committees. Colleges should encourage active involvement of leading edge employers, workers or professionals in these renewal committees as well as regular program advisory committees.

- establishing strategic partnerships or consortia with relevant professional, industry or sector associations. Similarly, it is important to encourage individual faculty members to participate in professional and industry committees to help ensure their on-going comprehension of changing requirements.

- using internal assignments and secondments to enable faculty and staff to widen their technical horizons. This approach could potentially set the foundation for redeployment.

- actively communicating the need for and interest in exchanges or secondments with industry in order to overcome attitudinal barriers to such attachments.

Inter-college initiatives which could support individual institutions in technical skills renewal include:

- working with professional associations and sectoral councils to set national standards for technical renewal of instructors and technical support staff. These would be based on and linked to the standards for the occupations covered in college programs.

- in conjunction with industry, promoting secondments and industrial attachments as a critical mode of human resource renewal. This could include establishing a "placement office" to facilitate short and longer term assignments of faculty to industry, assessing barriers to such placements and identifying means of overcoming those barriers.

- establishing inter-college fora in particular discipline or program areas and sponsoring joint seminars or workshops. These fora could also lead to sharing of technically-relevant courseware or shared access to technologies.

Industry can support the technical renewal of college employees through:

- providing secondment opportunities for faculty and technical staff and creating industrial fellowships, particularly in rapidly evolving areas of science and technology;

- providing access to scarce technical resources by inviting college faculty into the workplace;

- inviting college employees to participate in industry-sponsored technical training as space permits; and

- providing experienced technical and professional staff, with a strong perspective on the technological and strategic trends in the industry, to participate in college program renewal and advisory committees.

Renewal of instructional and counselling skills

Technical expertise is necessary but not sufficient for effective delivery. The diversity of students and the emerging emphasis on learner-centred development require strengthening and renewal of instructional and counselling skills across the colleges and technical institutes. Instructors must be resources, guides and facilitators, designing custom training programs for industry and helping students combine modules into challenging but learner-paced programs. The main emphasis on instructional skills development has been among entry level faculty. Building the instructional skills of those who are selected on the basis of their technical expertise is expected to continue and strengthen. However, faculty and administrators emphasized that even good instructors need to evolve and develop, in response to emerging needs of students and changes in program design and delivery. Requirements for instructional skills development cut across colleges and programs.

Requirements for instructional skills development cut across colleges and programs.

Mapping a career in a rapidly changing economy poses a challenge for the majority of workers. Students want to make the best choice of programs up front, rather than take part of a program and realize it is not suited to their needs. Counselling services must provide relevant and current information about employment prospects, program requirements and career options.

Counselling services must provide relevant and current information about employment prospects,

Proposed initiatives for the individual college level include:

- expansion/establishment of instructional development programs for new and experienced instructors. Specific coverage of such programs should be linked to assessments of current performance and new expectations. The programs should provide mandatory instructional skills development to all instructors, including part-time instructors, who have never taught before. Facilitating mentoring relationships between new and experienced, effective instructors can help ensure the development of instructional skills. In addition, colleges should enable and encourage all instructors, including part-time instructors, to participate in instructional skills development workshops. These advanced instructional techniques workshops should cover such issues as instructional design.

- encouraging the exchange of ideas on "what's new and what works" with respect to instructional techniques keyed to specific situations.

This could include providing frequent small workshops on specific instructional techniques, particularly techniques designed to deal with challenging instructional situations.

- providing workshops to support staff focusing on their supportive role in the instructional process. This should include introductory "student as customer" workshops for all employees who interact with students during their decision-making (that is, staff in the registrar's office, financial assistance offices, continuing education office as well as instructors). The aim is not to turn these individuals into career counsellors but rather to sensitize them to the influence they can have on the students' decisions, provide them with access to appropriate information and basic techniques for supporting effective student decision-making.

Proposed inter-college or college-industry initiatives include:

- development of a best practices inventory, keyed to specific instructional situations and technologies. This inventory should be widely communicated. A variety of media could be used in disseminating best practices information. For example, electronic bulletin boards on a computer network across colleges could focus on innovative instructional and/or counselling techniques. Similarly, newsletters could be devoted to instructional techniques, with submissions from instructional effectiveness advisors, courseware developers as well as practitioners.

- shared resources for instructional techniques workshops on special topics. By applying distance education technologies, it would be possible to extend the reach of such shared workshops so that instructors in more remote areas of the country can have full access.

Provincial government departments can support the inter-college initiatives through instructional resource centres. Industry can also support these initiatives through:

- supporting acquisition of relevant technologies in colleges;

- providing clear information on career paths and prospects through industry/ professional associations;

- actively participating in various sectoral councils, program advisory committees or other industry/profession-education fora to communicate requirements clearly.

Human Resource Practices

Training and development is but one of the employment practices which influence the human resource mix in colleges. College renewal must also encompass human resource planning activities, recruitment, employment equity practices.

Strategic nature of human resource management

Human resource management must be positioned as a key component of the strategic management of the colleges/technical institutes. In some colleges/technical institutes, human resource issues have long been topics of boardroom discussions. In others, "personnel" is simply regarded as an administrative function, relatively unconnected to the strategic goals of the institution. Indeed, some personnel practices actually conflict with strategic objectives.

Human resource management must be positioned as a key component.

Specific initiatives at the college level should begin with a review of current human resource policies and practices for their fit with the overall strategies of the college. In particular, colleges/technical institutes should explore how their rewards and incentives support or conflict with strategic renewal goals. Similarly, the wide-spread reliance on part-time employees bears examination, considering both costs and educational quality. Initiatives at the inter-college level could include encouraging the expansion of various fora of college human resource managers to compare and contrast the suitability of various human resource practices used in different situations across colleges/technical institutes. Such fora exist on a regional basis and have existed more widely in the past. They need to be reinvigorated. All college employees, full and part-time, should be explicitly covered in the human resource plans and initiatives.

All college employees, full and part-time, should be explicitly covered in the human resource plans and initiatives.

Human Resource Planning

Human resource planning requires an understanding of the current human resource configurations in the organization, including the ages, years of service, mode of employment, skills and experience, retirement entitlements, employment equity characteristics of the human resource base. Human resource databases at the college level are rarely this complete. Indeed, the lack of consistent and current data was a problem in conducting this study. The colleges/technical institutes surveyed indicated a trend toward installing new human resource information systems. Such systems will facilitate the human resource planning initiatives. However, the colleges/technical institutes collectively would benefit from

The colleges/technical institutes collectively would benefit from greater standardization in data definitions and from the timely sharing of human resource data through Statistics Canada.

greater standardization in data definitions and from the timely sharing of human resource data through Statistics Canada.

Specific initiatives at the college level could include:

- upgrading the college HRIS to provide access to HR data and analysis capabilities to all those involved in program decisions;
- requiring that the human resource implications of any college or program strategies be made visible in the planning and budgeting documents.

The steering committee strongly recommends that inter-college and college-government initiatives begin with co-operation in improving standard data definitions so that comparable data are collected and reported. Other inter-college initiatives could include:

- co-operation in the development or adaptation of off-the-shelf HRIS, thereby saving system development costs;
- more timely reporting of human resource data to Statistics Canada as well as more timely reporting by Statistics Canada;
- continuing to sponsor special projects to examine human resource data across colleges/technical institutes, with a focus on current human resource planning or employment equity issues. The Industry Science and Technology Canada analyses of women in technology programs are an example of such projects.

Human resource planning information has been an issue in many other sector studies. Collaboration with sector councils in improving the overall quality and availability of information is advised.

Improve Recruitment Practices

It is essential that the recruitment practices aim for and achieve the kind of human resource mix the college seeks with its renewal.

The people who currently work in the colleges/technical institutes are the ones who will be delivering programs for the medium term. Nevertheless, some recruitment continues. Moreover, it is not too soon to begin planning for large scale retirements expected to begin by the end of the decade. It is essential that the recruitment practices aim for and achieve the kind of human resource mix the college seeks with its renewal. The contribution of recruitment practices to employment equity is particularly important since employment equity is a critical underpinning for education equity.

Initiatives at the college level include:

- targeted recruitment of employment equity candidates for part-time positions, in order to enhance the diversity of the pool of internal candidates for full-time positions;
- careful consideration that any minimum requirements for recruitment are bona fide requirements for the particular position being staffed and do not unduly restrict employment equity target group participation;
- redressing some of the age imbalances in the current employment base by deliberately seeking candidates with less extensive (but still sufficient) work experience;
- special programs aimed at Aboriginal and visible minority communities could include a partnership arrangement with various community groups whereby individuals from the partnering organization would team up with college employees for the program design and delivery. This would benefit the existing college employees by building their capacity to work with diverse groups. It would also enhance the skills of the target groups and perhaps open a career path into the college.
- setting standards for part-time recruitment which are more comparable to those set for full time recruitment. This will reduce the possibility that the step-wise pattern of recruiting might lead to less qualified individuals coming "in the backdoor."
- setting up bridging programs for women (in particular) within the college support staff cadre to help them advance into other non-traditional roles;
- providing training for all existing employees in dealing with and valuing diversity.

Suggested initiatives at the inter-college level could include:

- supporting expanded outreach recruitment to target members of employment equity groups;
- development of shared databases of potential candidates, particularly those from employment equity target groups.

The development of the skills of college administrators, including their skills in human resource management, is an important pre-condition to the successful implementation of new human resource practices.

Renewal Imperative

Colleges/technical institutes can be the preferred suppliers of those services, if they demonstrate that they provide superior results, cost effectively.

Those colleges which launch and expand renewal initiatives will flourish in a labour market characterized by continuous learning.

Colleges/technical institutes face both immense opportunities and severe threats. On-going economic restructuring and technological change coupled with the emergence of the continuous learning culture in the Canadian workforce promise a strong demand for education and training services. However, colleges/technical institutes can be the preferred suppliers of those services, if they demonstrate that they provide superior results, cost effectively. The definition of "superior results, cost effectively" will continue to evolve, raising the hurdle for the potential suppliers of educational services. Colleges/technical institutes which choose to ignore these opportunities, sticking with their existing programming and existing methods, run the risk of watching their overall share of the educational resources erode faster and faster. Those colleges which launch and expand renewal initiatives will flourish in a labour market characterized by continuous learning.

Endnotes

1. Examples include the recent examination of the cégeps in Quebec, the British Columbia Human Resource Development Project, New Brunswick's Commission on Excellence in Education.

2. In this context, the term community college includes a wide range of publicly-funded educational institutions, whether formally entitled community college or not. It includes the colleges/technical institutes of applied arts and technology in Ontario, institutes of technology in several provinces, collèges d'enseignement général et professionnel (cégeps) in Quebec, regional colleges/technical institutes, vocational centres.

3. Throughout this report the term "college/technical institute" refers to community colleges/technical institutes, and cégeps included in the study.

4. Appendix A provides the names of the steering committee members.

5. A copy of the Terms of Reference is included in volume II of this report.

6. Details of the method used within the study are presented in Appendix B.

7. A detailed breakdown of response rates is presented in Appendix B.

8. A more detailed breakdown by geography and stakeholder group is presented in a seperately published Appendix volume.

9. The Association of Canadian Community Colleges is the source for the first 7 items. The remainder are drawn from Statistics Canada's Higher Education in Canada.

10. ISTC, Women in Science and Engineering, Volume II: Colleges/technical institutes, 1992.

11. A recent report from the Canadian Labour Market Productivity Centre found that 70% of organizations provided structured training for their workforces, while 76% provided unstructured training. Just under one in five organizations provide no workforce training. See the Canadian Labour Market Productivity Centre, National Training Survey, 1991.

12. Statistics Canada. Commercial Education and Training: Profile of Canadian Suppliers, ISTC, 1992.

13. Industry Science and Technology Canada. Commercial Education and Training, 1991.

14. For more information on the anticipated roles of local boards, see the Canadian Labour Force Development Board, Proposal to Establish Local Labour Force Development Boards.

15. Statistics Canada. Commercial Education and Training: Profile of Canadian Suppliers, ISTC, 1992.

16. The formation of sectoral councils typically follows the completion of a sector human resource study. Employment and Immigration anticipates that there will be a total of 50 to 60 sector councils within 5 years.

17. Only about 50% of survey respondents reported their colleges/technical institutes have an automated HRIS, and of those that do, about 50% predate 1989. Many colleges/technical institutes are embarking on a new HRIS or an upgrade to the existing one.

18. EIC/LMOSA COPS Information Manger, 1988.

19. The creation of Aboriginal-controlled colleges is a relatively recent phenomenon. In most cases, these colleges have links to other community colleges and technical institutes, or to universities.

20. Most faculty collective agreements provide for a salary increase on completion of further formal education.

21. The reliance on other than full-time, indeterminate workforce is, of course, not unique to colleges/technical institutes. Employers in many industries have found that they could save money by more closely matching their staffing levels to the demanded production levels. Some researchers have termed this shift in the mode of employment as "the labour equivalent of just-in-time inventory. See, for example, "Kumin, R. and J. Knauf, "Fewer Full Time Jobs," Canadian Business Review, Summer 1988.

22. Outreach recruitment activities can include liaison with equity groups in the community to identify potential candidates and advertising in media likely to reach the equity groups.

23. Colleges and technical institutes, unlike most employers, distinguish between fomative evaluations which are conducted periodically for all employees, and summative evaluations which occur on a less frequent basis.

24. Volume II contains a summary comparison of the implications for colleges and technical institutes from other sector studies.

25. For example, see Nancy Jackson, Training for What? Labour Perspectives on Job Training. Our Schools/Ourselves, 1992.

26. This is especially true in the health care occupations, where the Canadian Medical Association (CMA) conjoint committee accredits programs. A similar pattern exists in the dental sector.

27. The term "work placements" includes a variety of internship and co-op education programs, all of which have the common element of some period of practial learning in a relevant work context.

28. While the focus of this section has been on education-industry collaboration for career-oriented programs, university transfer (general) programs also benefit from collaboration with the relevant university programs. Faculty involved in such programs noted that the elements of effective collaboration are very similar.

29. This report defines the term "technology" to mean the set of physical processes, methods, techniques, tools and equipment used in the workplace, or, in the case of education technologies, in the education context. Technology by this definition includes both hard technologies (such as robotics and computer-assisted manufacturing) and soft technologies (such as just-in-time deliveries and continuous quality improvements). In this context, technological change encompasses the introduction of new equipment and materials as well as new work methods or reporting structures.

30. Science and Technology Policy Outlook, 1988, ACCEDE.

31. The need for and human resource challenges in technological innovation are described by the Canadian Labour Market and Productivity Centre in Canada: Meeting the Challenge of Change (1993). See also Ruth Wright's Strategic Connections: Technology, Innovation and Labour Relations. The Conference Board of Canada with Labour Canada, 1991.

32. Change to refer to seperately published Appendix volume for more detail.

33. Statistics Canada, Perspectives on Labour and Income, Spring 1992. pp.17-20.

34. Women in Science and Engineering. Volume II: Colleges/technical Institutes. Industry, Science and Technology Canada, 1992.

APPENDIX

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Methodology

The methodology used during this study includes:

- a mail survey;
- delphi surveys; and
- case studies.

Each of these is described in greater detail below.

Mail Survey

Based on consultations with the Steering Committee, we drafted a survey instrument, conducted initial pre-tests with human resource managers in a variety of colleges and institutes, and circulated it to the steering committee. After further testing of the survey instrument and the incorporation of feedback from the steering committee, a final version of the survey instruments was prepared, translated and the french versions reviewed. Since terminology varies considerably across the country, we included a glossary of terms to ensure the utmost consistency in the data collected.

The surveys were sent to all the colleges and technical institutes listed in the initial terms of reference of this study, plus any additional institutions which fell into the definition of community college/technical institute in the terms of reference. The Association of Canadian Community Colleges provided Price Waterhouse with a mailing list, including both ACCC members and non-members.

The survey instrument consists of five parts (see the table below). The complete survey package was sent to the College/Technical Institute presidents for further distribution to other respondents. Following the experience of the ACCC in conducting similar surveys, we colour coded the survey instruments, to facilitate this distribution. We enclosed sufficient numbers of return envelopes so that individual respondents may return their responses directly to Price Waterhouse National Survey Centre.

Survey Instrument

Survey Section		Directed to
I.	Quantitative information: College/Technical Institute Characteristics	Registrar/bursar
II.	Quantitative information: Employment Profile	Human Resources Manager
III.	Opinion information: Human Resource Development Needs/Industry-Education Linkages	College President
		Faculty Association President
		Staff Association President
		Human Resources Manager
IV.	Opinion information: Future Challenges	Member of Board of Governors
V.	Opinion information: Future Challenges	President of Student Council

The survey was mailed out in late September, 1992. Reminder letters were mailed out in mid-October. The cut-off date for data entry was set at mid-December, 1992 and the total survey response rate was 55%. Response rates for each section of the survey are shown on the following page.

Survey Response Rate

Survey Section	Directed to	Response Rate
I. Quantitative information	Registrar/bursar	51%
II. Quantitative information	Human Resources Manager	53%
III. Opinion information	College President	70%
	Faculty Association President	62%
	Staff Association President	40%
III. Opinion information	Human Resources Manager	61%
IV. Opinion information	Member of Board of Governors	44%
V. Opinion information	President of Student Council	54%
Total Survey		55%

Delphi Surveys

We conducted two parallel Delphi surveys. One focused on educational technologies and the other on the changes in the workplaces which are the destinations of college/institute graduates. We took a strategic focus in both the delphi panels, examining how workplaces and colleges/institutes will adopt new ways of doing things and, in turn, the implications for the human resources in the colleges.

Major questions for the educational technology delphi survey were:

- To what extent are educational technologies used in the teaching process?
- Which technologies are most promising?
- How will external trends promote an increased use of educational technologies?
- How will colleges, their staff and learners benefit from increased use of educational technologies?

- What is required to make effective use of technologies in teaching?
- What are this risks to the college system if it is not prepared for the use of technologies?

Major questions for the workplace change Delphi survey were:

- To what extent are workplaces changing? How are changes in the workplace driven by market pull and technology push?
- What are the prevalent or emerging business and production strategies?
- To what extent, and in which way, are work requirements changing as a result of these emerging strategies and the way in which business is being conducted?
- What are the implications of the changing work requirements on career paths and HRD?
- How will colleges be affected by these changes and what are some probable courses of action?

The following steps were taken in each of the Delphi surveys:

1. development of initial point form discussion guide;
2. identification, recruitment and interviewing of potential panellists;
3. development of initial Delphi survey instrument;
4. distribution of survey to panellists, allowing 3 to 4 weeks for responses;
5. compilation of responses and development of follow-up instrument;
6. distribution to panellists, again allowing 3 to 4 weeks for their responses;
7. compilation of responses.

Case Studies

The choice of the case study approach was based on the following:

- the holistic nature of the case method ensured that the multiplicity of factors which impinge on human resource development needs and

approaches we encompassed;

- the qualitative and open-ended nature of the cases studies allowed for the discovery of new relationships rather than simply verifying existing hypotheses;

- there was a strong interest in identifying concrete examples of HRD practices which would help guide other colleges/institutes in developing and improving their own approaches to human resource development;

We conducted a total of 20 case studies. Colleges were chosen with a view to ensuring broad geographic representation, representation from different sizes and types of colleges.

The specific steps taken for each case study is as follows:

1. contact the college president to request the college's participation and schedule the visit;

2. obtain and review background documents on the college (for example, annual report, strategic plan, enrolment/graduation data, organization chart, college calendar, collective agreement, HRD plan, etc.);

3. develop a detailed schedule of activities in conjunction with a liaison person from the college;

4. conduct site visits;

5. conduct follow-up interviews; and

6. complete analysis and develop point form case report, following a standard format.

A combination of interviews and focus groups was used for the various case study participants based on the technique which was expected to generate the most complete information. An overview of participants and the data gathering techniques used are presented on the following page.

Participant Group	Data Gathering Technique
President	interview
Senior administrators	focus groups and interviews
Human resource manager/development manager	interview
Faculty association president	interview
Staff association president	interview
Faculty members	focus groups
Staff members	focus groups
Students	focus groups
Board members and Community representatives	focus group and interviews

The following broad questions guided the case research:

> *How have the strategy, programs and instructional practices changed in the last five years? How have these changes been driven by local , regional, national and international pressures, including those needs of employers and students?*

To answer these questions senior administrators were interviewed first. The purpose of these interviews was to check their perceptions of institutional change and how it is influenced. These responses were validated against those given by other college participants: faculty, staff, students, employers and unions. Other kinds of information was also used to answer these questions. For example, we gathered data on operational budgets, enrolments, placements etc. collective agreements, or major policies such as hiring and evaluation of personnel from college reports and publications.

> *How has human resource development supported and facilitated the development or adaptation of the college, and how has such development been conducted? What worked best? What improvements are needed?*

Interviews with faculty and staff, students and graduates and those directly involved in human resource development were used to provide this information.

Each case study presented somewhat different issues and required some adjustments in the general approach. In the initial contacts with the President and our liaison person, we attempted to identify critical HRD issues affecting that college and geared the case study to ensure those issues were well covered.

Breakdown of Interviews and Meetings as of January 1, 1993

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