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ABSTRACT

Presents the sixth edition of The Environmental Scan published by the Association of Colleges of Applied Arts and Technology of Ontario (ACAATO). The 2000 Environmental Scan is designed to serve as a working document to assist colleges in their strategic planning processes. The 2000 Environmental Scan highlights: the increased profile and valuing of the contributions of colleges in Ontario and elsewhere; the integration of information technology in all areas of work, learning and personal life and the impact of the knowledge-based economy; the momentum of change in the postsecondary education sector in Canada; and the pace and direction of change that confronts colleges, their staff, their learners and other stakeholders. The 2000 Environmental Scan explores the following topics: (1) economy and labor; (2) education and training; (3) funding; (4) information technology; (5) Ontario population; (6) public policy; (7) operating expenses; (8) learners; and (9) human resources. The 2000 Environmental Scan concludes with a list of selected Web sites that provide interesting research information and links to additional resources on the economy and labor force, education and training, information technology, learners, human resources, and general topics of interest. It also includes a feedback form for users to forward their thoughts and comments to the ACAATO. (VWC)

2000
Environmental Scan

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The 2000 Environmental Scan for The Colleges of Applied Arts and Technology of Ontario

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Introduction

The Association of Colleges of Applied Arts and Technology of Ontario (ACAATO) is pleased to present the sixth edition of *The Environmental Scan*.

Advancing technology, changing student needs and expectations, focus on performance and accountability, burgeoning competition and the quickening pace of change compel today's colleges to respond to rapidly changing market forces. Colleges must quickly and effectively acquire, interpret and act on information in order to compete.

The 2000 Environmental Scan is designed to serve as a working document to assist Colleges in their strategic planning processes. The 2000 Environmental Scan highlights:

- the increased profile and valuing of the contributions of colleges in Ontario and elsewhere;
- the integration of information technology in all areas of work, learning and personal life and the impact of the knowledge-based economy;
- the momentum of change in the postsecondary education sector in Canada; and
- the pace and direction of change that confronts colleges, their staff, their learners and other stakeholders.

This scan is intended to facilitate planning, discussion and analysis, and to identify needs for further research. It is not an exhaustive analysis of the environment that colleges operate within.

To facilitate public access to this valuable resource, the 2000 edition of the scan is available on the ACAATO web site at *http://www.acaato.on.ca/research.html*.

The Association of Colleges of Applied Arts and Technology of Ontario (ACAATO) has prepared the 2000 Environmental Scan on your behalf and we welcome your feedback on the usefulness of this document in your advocacy and planning activities. A response sheet is provided on page 143 for your convenience.

Pam Derks
Director, Research and Policy

Section 1

Economy and Labour

- Canada's Economic Growth
- Ontario's Economic Growth
- Emerging Trends in Ontario
- Information and Communications Technology Sector
- Labour Force

Economy and Labour

Increasing public and government awareness of the importance of education and learning in a knowledge-based economy continues to be — and must remain as — a priority.

Canada's Economic Growth

Employment growth nationally was stronger in 1998 than any other year this decade; by the end of the year more than 60% of the population was working.

- The number of unemployed in Canada fell by 3.7%, the second straight year of decline. The unemployment rate at the end of the year was 8%, the lowest since 1990.
- Self-employment continues to be more and more prevalent.
- As commodity prices plummeted due to decreased demand from Asia, oil patch, mining and logging employers had to cut back.
- In the summer of 1998, layoffs in the automotive sector in Ontario had a significant impact on the economy.
- Employment in Canada grew twice as fast as it did in the U.S.
- The fastest growing industry was business services. Between December 1997 and December 1998 the sector grew in size by 12% (3.9% in Ontario). There was significant growth in the number of self-employed who owned their own businesses (one-third).
- For the first time in many years employment increased (by 9.4%) in the construction industry nationally.
- The health and social services sector experienced an increase in employment (up 4.4%) for the first time in several years.
- Employment in the public sector began to stabilize in 1998 after declines over the past five years.
- The federal government ran a budgetary surplus for the first time in 25 years.[1]

Canada's economy is expected to grow at an average annual rate of 3% between 1999-2003, with the pace expected to be slowest in 1999. The sectors facing particularly strong growth during the next five years include communications and electrical/electronic products.

Ontario's Economic Growth

Ontario Annual Average	Actual 1997	Actual 1998	Projected 1999	Projected 2000
Real GDP Growth (%)	4.6	4.2	3.7	2.8
Employment ('000)	5,413	5,613	Up to 5,836	Up to 6,013
Unemployment Rate (%)	8.5	7.2	6.0-6.5	5.5-6.0
CPI Inflation (%)	1.9	0.9	1.3	1.4

Sources: Statistics Canada and Ontario Ministry of Finance. Table extracted from 1999 Ontario Budget Papers.

In 1998, the Ontario economy demonstrated strong economic growth with GDP growth of 4.2%.

- The consumer sector has increased 4.7%.
- Exports have increased 9.1%, the largest trade surplus in three years.
- Wholesale and retail trade has increased 8.7%.
- Manufacturing production has increased 5.4%.
- The high tech sector (computer and electronic manufacturing, telecommunications and computer services) has increased 12.1%; computer manufacturing increased 37.6%; computer services 16.1%.
- Of all Ontario's major industries, only utilities and government services activity declined in 1998.[2]

In 1998, all areas of the province exhibited employment growth except for Northern Ontario. The largest employment growth was seen in Eastern Ontario with the Muskoka and Stratford-Bruce Peninsula areas also doing well.

Emerging Trends in Ontario

Several fundamental changes have occurred in the way business is conducted.

- **Adding value to products and services:**
  - This trend is equally important in both the manufacturing and service sectors e.g. increasing efficiency, reasonable prices.
  - One identifiable change has been towards the development of products and services that are value-added.
  - More investment in computers and high-tech equipment to improve efficiency and boost the quality and quantity of output.
- **Changing skill levels:**
  - Formal education: in Ontario in 1971, 10% of all full-time workers had postsecondary education, compared to 50% in 1991.
  - Computer literacy: computer skills are now essential in most work environments.
  - Academic problem solving skills: increased requirements for abilities in applied mathematics and science.
  - Interpersonal and communication skills: more emphasis on people who can interact effectively through a variety of media.
- **Rise of the service sector**
  - There has been a shift from resources and manufacturing to the service sector. In Ontario, between 1966 and 1994, the service sector increased its share of total employment from just over half to three-quarters.
  - Contracting out for services has become a significant factor in the growth of the business services industry.
- **Self-employment**
  - More than 3/4 of all the job growth in Canada during the past 10 years has been through self-employment (Statscan Labour Force Survey), accounting for 17% of all workers in Canada compared to 12% 20 years ago,

- Ninety per cent of newly self-employed people in the '90s were working alone. In the '80s, two-thirds of the newly self-employed ran businesses and employed others.[3]

Information and Communications Technology

The Information and Communications Technology (ICT) sector has turbocharged the Canadian economy. It is a major contributor to Canada's GDP and is seen as one of the engines for employment growth. In 1997:

- The ICT sector created 42,300 new jobs.
- A 5.4% increase brought ICT revenues to $100.2 billion.
- A 14% increase in ICT's contribution to GDP, ICT accounts for 6.1% of total Canadian GDP in 1997.
- There was a 7.8% increase in ICT research and development.
- There was an 8.2% increase in ICT exports, bringing the total to $26.8 billion and 8.4% of total Canadian exports.[4]

Since 1995, Ontario's computer programming and related services industry has nearly doubled its production. Computer system design industries alone created over 50,000 net jobs during this period. A recent Deloitte & Touche study concluded:

- That the Greater Toronto Area (GTA) has developed into one of North America's premiere centres for ICT. There are more than 3,100 ICT firms in the GTA.
- The Ottawa region is home to more than 800 companies working in a diverse range of advanced technologies. They employ more than 50,000 workers. Ottawa has the highest percentage in Canada of persons with university degrees and scientists/engineers in the workforce.
- The Kitchener-Waterloo, Guelph and Cambridge area is home to more than 300 technology companies, over half of which are involved in computer software.[5]

While all regions of the country are focusing more on the Knowledge-based Economy, high-knowledge activity is still largely concentrated in Ontario, accounting for nearly half of all the high-knowledge output of Canada. (see Exhibit 1.13)

E-commerce is the hot new wave in the entrepreneurial, retail, banking and financial sectors. An Angus Reid survey of 1,157 web users showed:

- Canadians are spending an estimated $1.3 billion using Internet e-commerce per annum;
- 90% of Canadian online shoppers would like to make purchases from a Canadian website, but only 38% actually do because of a lack of Canadian sites;
- there are high levels of satisfaction with online shopping relating to convenience and accessibility;
- security and privacy of online transactions are the major barriers among those who have never shopped or purchased online.[9]

A web entrepreneurship survey of 1,000 small businesses conducted by SES Canada Research, found that:

- 61% of Canadian businesses are currently using the Internet;
- 78% believe the impact of the Internet will be positive;
- 72% believe the Internet opens new business opportunities for them;
- 27% of Canadian small business owners have conducted financial transactions online in the past year;
- 41% are planning to do so in the coming year.[10]

Labour Force

A study found that about three-quarters of Canadian workers enjoyed a reasonable match between literacy skills and job requirements.

- Among workers whose skills did not mesh with their job requirements, greater proportions experienced a skill surplus (underemployment) than a skill deficit (insufficient skills).[6]

Women are gaining ground in the workforce:

- their tenure is longer — up 29% from 1980;
- they have greater presence — up 14% from 1980;

- they are better educated — 7.7% more have university degrees than in 1980;
- they are better paid — wages are up slightly (6%) since 1980, but women have not achieved wage equality with males.[7]

According to an analysis of prospects for Canadian industries during the next five years, sectoral performance will be differentiated by the varying sensitivity of industries to technology, market deregulation and exports.

- There is particularly strong growth in communications, electronic/electrical products, business services sector (engineering, accounting, legal, management and computer consulting) reflecting continued outsourcing of non-core business processes. The key will be new products and services driven by new technology,
- The industries identified as growth leaders all face four common features.[8] (See Exhibit 1.2)

While the debate over massive skills shortages in the high technology sector continues, strong growth in the software and hardware areas of this sector is projected to continue. (See Exhibits 1.1, 1.2 & 1.4)

Full-time employment grew faster than part-time. It is also growing at a faster rate for workers between the ages 25 and 44 as well as those aged 45 and older. (See Exhibit 1.7)

Both full- and part-time employment grew at a faster rate for those aged 45 and older than for younger workers.

- This suggests a continued trend in the increasing skills and experience required in the changing economy which emphasizes the importance of supporting the education and training needs of youths and ensuring the availability of support services and preparatory programs. (See Exhibit 1.7)

The trend towards increased skills and experience and the employment opportunities that this 'upskilling' presents can also be demonstrated by looking at labour force participation rates.

- Since 1992, while participation rates initially dropped and then leveled off for youths aged 15 to 24, the decline has been especially large for those members of the total population who did not complete secondary school. (See Exhibit 1.9)

College graduates continue to do well in securing employment. In 1997, 89% of those in the labour force were employed six months after graduation. By program area, the full- and part-time employment status of graduates varied considerably. (See Exhibit 1.11)

Footnotes: Economy and the Labour Force

1. Statistics Canada, *Labour Force Update*, Winter 1999.
2. Ontario Ministry of Finance, *1999 Ontario Budget Papers*, May 1999.
3. Towards 2001-Occupational Trends in GTA, Toronto Labour Market Information Service, 1999
4. Claveau G., et al, *Information and Communication Technologies, Statistical Review* (ICTSR): 1990-1997, Industry Canada and Statistics Canada, 1999.
5. Globe and Mail, April 22, 1999
6. Statistics Canada, Perspectives on Labour and Income, Literacy in the Workplace, Summer 1999, p. 38-44
7. Globe and Mail, *Women are Gaining Ground in the Workforce*, April 19, 1999.
8. Bank of Montreal, Economics Department, *Prospects for Canada's Industries to 2003*, February 1999.
9. Angus Reid Group/Deloitte & Touche, *Web-based Survey on Internet E-commerce*, May 1999.
10. SES Canada Research, *SES Web Entrepreneurship Survey*, May 4, 1999.

Exhibit 1.1

Projected Canadian Employment Growth by Sector: (average annual % change)

Higher Growth Above 2%		Medium Growth 1% to 2%		Lower Growth Below 1%	
Business Services	5.2	Plastics	1.9	Food	0.9
Electrical/Electronic	3.3	Health Services	1.9	Beverages	0.8
Personal Services	3.3	Other Manufacturing	3.0	Oil & Gas	0.8
Hospitality/Recreation	3.0	Aircraft & Parts	1.7	Fabricated Metals	0.7
Construction	2.3	Machinery	1.6	Financial Services	0.6
		Non-Metallic Minerals	1.6	Retail Trade	0.5
		Communications	1.5	Educational Services	0.5
		Wholesale Trade	3.5	Printing/Publishing	0.5
		Furniture	1.5	Mining	0.4
		Textiles	1.5	Paper	0.4
		Motor Vehicle Parts	1.3	Motor Vehicles	0.3
		Rubber	1.3	Agriculture	0.3
		Transportation/Storage	1.1	Primary Metals	0.3
				Government Services	0.2
				Utilities	0.2
				Forestry	0.1
				Clothing	0.0
				Wood	0.0
				Fishing	-0.1
				Other trnsport. Equip	-0.3
				Pipelines	-0.6
				Refined Petrol.&Coal	-1.7
				Leather	-1.9
				Tobacco	-2.5

Source: Bank Of Montreal, Economics Department, *Prospects for Canada's Industries to 2003*, February 1999

Exhibit 1.2

Projected Production Growth by Sector: 1999-2003 (Average annual % change in real GDP)

Higher Growth Above 3.5%		Medium Growth 1% to 2.5%		Lower Growth Below 2.5%	
Electrical/Electronic	6.6	Hospitality/Recreation	3.5	Chemicals	2.4
Business Services	6.3	Wholesale Trade	3.5	Primary Metals	2.4
Aircraft & Parts	5.5	Oil & Gas	3.3	Health Services	2.3
Pipelines	5.4	Other Manufacturing	3.0	Textiles	2.2
Communications	5.2	Non-Metallic Minerals	3.0	Mining	2.1
Motor Vehicle Parts	4.6	Financial Services	3.0	Paper	2.1
Machinery	4.4	Construction	3.0	Fishing	2.1
Fabricated Metals	4.0	Personal Services	3.0	Beverages	2.0
Furniture	3.8	Retail Trade	2.9	Utilities	1.8
Plastics	3.7	Other Transport. Equip.	2.7	Wood	1.6
Rubber	3.6	Transportation/Storage	2.7	Refined Petrol.&Coal	1.5
		Motor Vehicles	2.5	Printing/Publishing	1.5
				Agriculture	1.3
				Clothing	1.1
				Forestry	1.0
				Educational Services	1.0
				Government Services	0.7
				Tobacco	-1.0

Common features in high-production sectors:

- demand is driven by longer-term secular trends and divesting of non-core business and outsourcing;
- demand is sensitive to customer income;
- fast-growth industries have invested heavily in recent years and refocused production in areas where they have the competitive advantage;
- tend to be developing and introducing new products and services at a fast pace.

Source: Bank Of Montreal, Economics Department, *Prospects for Canada's Industries to 2003*, February 1999

Exhibit 1.3

CANADA'S FASTEST GROWING COMPANIES 1999

The 11th annual survey by *Profit* magazine ranks the country's Top 100 companies by their growth over the last five years. Again this year, seven of the top ten companies are in Ontario. With companies outsourcing more than ever before, manufacturing takes a backseat to business services for the first time in *Profit 100* history.

The average growth rate of the *Profit 100* is more than double that of 100 companies in the survey three years ago. Just 52 companies on the list are developers of high-technology or technology related, leaving 48 purveyors of goods and services. The non-tech companies are actually growing faster than the tech firms.

Company	Expertise	Revenue		Employees	
		1993	1998	1993	1998
TLC Laser Centre Inc Mississauga, Ont.	Laser eye surgery	1,164,785	259.6M	11	800
Equisure Financial Network* Inc. North Bay, Ont.	Insurance brokerages	676,958	86.7M	2	1,200
TUCOWS Interactive Ltd.* Toronto, Ont.	Internet Access	188,439	16.6M	5	212
Virtek Vision Corp. Waterloo, Ont.	Laser templating and imaging systems	121,760	10.1M	5	57
SunBlush Technologies Corp. Toronto, Ont.	Fresh produce processor and distributer	824,864	63.7M	20	538
Avant-Garde Engineering Inc. L'Assomption, Que.	Motorized scaffolding manufacturer	237,120	17.9M	7.	110
Platform Computing Corp Markham, Ont.	Workload-management software	273,000	19.2M	4	115
Custom House Currency Exchange Ltd.,Victoria, B.C.	Corporate and retail foreign exchange	137,179	8.9M	3	220
Discreet Logic Inc.* Montreal, Que.	Special-effects software	2.6M	151.5M	38	424
MDSI Mobile Data Solutions Inc., Richmond, B.C.	Mobile-workforce dispatching software	1.7M	83.3M	14	466

*Companies were in the top ten in 1998.

Source: PROFIT: The Magazine for Canadian Entrepreneurs, June 1999.

Exhibit 1.4

Projected Growth Occupations in High Technology to 2001[1]

Although the following projections have been taken primarily from a report that targets the Greater Toronto Area, the integration and impact of new technologies is presenting challenges for business, industry and educational institutions on a much broader geographic scale.

1) Computer Industry

This industry is undergoing rapid change. It is difficult to plan ahead for a career in this field.

- The Canadian Advanced Technology Association estimates that in Ontario alone there will be openings for 56,000 new technology workers over the next five years.
- Current programs will produce only 14,000 graduates.
- Eighty-eight per cent of advanced technology companies in Canada believe they face a serious skills shortage.
- Over half (54%) of these companies report high-tech vacancies that have been open for at least three months.

The computer industry includes manufacturers of computer equipment, software companies and information services.

Occupations that will be growing in demand are:

Software Programmers and Designers: *strong* growth in demand for skilled, experienced workers over the next few years. There are currently about 15,000-20,000 vacancies for various software occupations in Canada.

There are critical shortages for:

- Embedded Systems Software Designers
  - Languages in demand include: C, C + +, Ada, Pascal, SmallTalk, Java, Visual BASIC, Assembler

- Operating Systems in demand include: UNIX, VxWorks, pSOS, DOS, Win95, Windows NT, Windows 3.x, OS/2

MIS Software Designers

- Languages in demand include: Cobol, Cobol 2, JCL, CICS, IMS/DB/DC, Telon, Tal, REXX, Focus, PEM, Hogan
- Operating systems/platforms in demand include: MVS, IBM Mainframe, TSO/ISPF, AS400, Tandem and knowledge of the following data structures: VSAM, IMS, DB2

Telecommunications Software Designers

- Languages in demand include: C, C++, Pascal, SmallTalk, Rational Rose, Java, Visual BASIC
- Operating Systems in demand include: UNIX, VxWorks, pSOS, DOS, Win95, Windows NT, Windows 3.x, OS/2

Very strong growth is anticipated for systems analysts and strong growth for computer engineers and database administrators and analysts.

Stable to moderate growth for local area network administrators, technical support specialists, software trainers, technical sales personnel, equipment maintenance workers, Internet specialists and network security experts.

2) Communications/Telecommunications/Film and Video

Many forces are combining to transform this industry. Some of these key influences are: a shift to digitization from analogue, the emergence of wireless services, the opening of global markets, and increased domestic consumption and deregulation. Occupational trends indicate a continued movement towards a more highly-skilled workforce which has to keep up with the rapid pace of technological change. The basic components of this industry group are telecommunications services, manufacturers, radio, TV (satellite and cable), film and video.

Occupations for which there continues to be strong demand include: computer animators, telecommunication installers and repairers, wireless communication engineers and multimedia specialists. There is also continued demand for technical writers and sales and marketing personnel.

The Software Human Resource Council, working with industry, has identified three occupations in this area for which there are severe shortages of workers.

Animation Effects Editors

- Software programs in demand include: Avid, Flint, Flame, Inferno, Illusion, Harry/Henry/Hal, Edit Box, Premier, D-Vision, Composer
- Operating Systems in demand include: Indigo, Max, Octane, Infinite Reality, Onyx

Multimedia Software Designers

- Must have experience with one product or technology in each of three categories: 2D animation software, 3D animation software and digitizing video

Telecommunications Software Designers

- Should have product knowledge of: PBX, CENTREX, digital switching, OSI client server, cellular service, CTI, etc.
- Operating Systems in demand include: UNIX, VxWorks, PSOS, DOS, Win95, Windows 3.X, OS/2, SOLARIS, HP-UX, Windows NT

[1]Source: Human Resources Development Canada, *Towards 2001: Occupational Trends in the Greater Toronto Area*, December 1998

Exhibit 1.5

Employment in Ontario, by Industry [1]
selected years

Industry	Employment (Thousands)				Proportion of Employment			
	1992	1995	1997	1998	1992	1995	1997	1998
Agriculture and Other Primary Industries	156	152	144	147	3.1%	2.9%	2.7%	2.6%
Manufacturing	843	919	966	1,017	16.9%	17.6%	17.8%	18.1%
Construction	268	263	285	289	5.4%	5.0%	5.3%	5.1%
Utilities	59	49	48	49	1.2%	0.9%	0.9%	0.9%
Trade	786	789	832	834	15.7%	15.1%	15.4%	14.9%
Transportation and Warehousing	222	244	259	263	4.4%	4.7%	4.8%	4.7%
Finance, Insurance, Real Estate, Leasing	372	379	373	384	7.4%	7.2%	6.9%	6.8%
Service	1,978	2,145	2,223	2,338	39.6%	41.0%	41.1%	41.7%
Public Administration	317	291	285	291	6.3%	5.6%	5.3%	5.2%
TOTAL*	5,001	5,231	5,413	5,613	100.0%	100.0%	100.0%	100.0%

* Totals may not add due to rounding.

The classification system for providing industry estimates has changed. Starting January 1999, the North American Industrial Classification System (NAICS) is being used and is very different from the previous system. The data in this table has been adjusted and is comparable from year to year, but is not comparable to ACAATO environmental scans of previous years.

[1] Source: Statistics Canada, *Labour Force Annual Averages*, Catalogue No. 71-529

Exhibit 1.6

Employment in Ontario, by Occupation [1]
selected years

Occupation	Employment (Thousands)				Proportion of Employment			
	1992	1995	1997	1998	1992	1995	1997	1998
Management	555	568	612	614	11.1%	11.0%	11.3%	10.9%
Business, Finance and Administrative	1,012	989	965	1,010	20.2%	19.2%	17.8%	18.0%
Natural and Applied Science	254	260	303	336	5.1%	5.0%	5.6%	6.0%
Sales and Service	1,206	1,237	1,328	1,369	24.1%	24.0%	24.5%	24.4%
Primary Occupations	144	146	146	143	2.9%	2.8%	2.7%	2.5%
Health	246	261	263	267	4.9%	5.1%	4.9%	4.8%
Art, Culture, Recreation and Sport	133	156	149	161	2.7%	3.0%	2.8%	2.9%
Social Science, Education, Gov't. Service	344	381	347	364	6.9%	7.4%	6.4%	6.5%
Trades, Transport & Equipment Operators	688	710	776	793	13.8%	13.8%	14.3%	14.1%
Processing, Manufacturing and Utilities	419	453	525	556	8.4%	8.8%	9.7%	9.9%
TOTAL*	5,001	5,160	5,413	5,613	100.0%	100.0%	100.0%	100.0%

*Totals may not add due to rounding

The classification for providing occupation estimates has changed. As of January 1999, the Standard Occupational Classification of 1991 (SOC91) is very different from the previous system. The data in this table has been adjusted and is comparable from year to year, but not comparable to data in previous ACAATO environmental scans.

[1] Source: Statistics Canada, *Labour Force Annual Averages*, Catalogue No. 71-529

Exhibit 1.7

Employment in Ontario by Employment Status and Age Group

selected years [1]

('000)

	1992	1995	1997	1998
Full-time:	4,075	4,264	4,381	4,574
15 - 24	445	389	382	408
25 - 44	2,424	2,545	2,596	2,692
45 +	1,206	1,320	1,403	1,474
Part-time:	926	968	1,032	1,039
15 - 24	376	392	390	392
25 - 44	330	352	374	369
45 +	220	234	268	278
TOTAL *	5,001	5,161	5,413	5,613

* Totals may not add to 100 due to rounding

Notes:

For those aged 45 and older, both part- and full-time employment rates grew faster than those for younger workers. This signals a continued trend towards the economy's growing need for workers with skills and experience.

Youth employment grew (6.8%) in 1998 for the first time since 1992, but did not return to 1992 levels.

[1] Source: Statistics Canada, *Labour Force Annual Averages*, Catalogue No. 71-529

Exhibit 1.8

Employment in Ontario by Class of Worker

selected years [1]

('000)

	1992	1995	1997	1998
Private Sector Employees	3,300	3,538	3,587	3,779
Government	1,021	958	912	922
Self-employed	663	732	889	891
• *incorporated*	229	230	290	272
• *unincorporated*	435	490	599	619
Unpaid Family workers	17	15	25	21
TOTAL *	5,001	5,231	5,413	5,613

* Totals may not add to 100 due to rounding

Notes:

The private sector had the highest employment growth in 1998 at 5.4% with the self-employment rate continuing its growth at 2.5%.

[1] Source: Statistics Canada, *Labour Force Annual Averages*, Catalogue No. 71-529

Exhibit 1.9

Ontario Labour Force Participation Rates

selected years [1]

By Age:

	1992	1995	1997	1998
15 - 19	55.4%	49.6%	49.6%	50.3%
20 - 24	78.7%	74.9%	76.1%	76.0%
25 - 44	86.1%	85.5%	85.8%	86.6%
45 - 64	69.6%	59.6%	69.1%	60.4%
65 +	7.4%	7.0%	6.9%	7.0%
All Ages	67.7%	65.7%	65.9%	66.3%

By Educational Attainment:

	1992	1995	1997	1998
0 to 8 years	34.8%	28.0%	26.7%	26.0%
Some Secondary Education	57.2%	52.4%	51.4%	51.3%
Graduated from High School	71.4%	68.9%	70.0%	69.9%
Some post-secondary	73.1%	71.3%	71.2%	71.6%
Post-secondary certificate/diploma	79.1%	77.2%	76.8%	77.4%
University Degree	84.1%	83.8%	82.3%	83.3%

[1] Source: Statistics Canada, *Labour Force Annual Averages*, Catalogue No. 71-529

Exhibit 1.10

Unemployment Rates in Ontario by Economic Region, selected years [1]

Economic Region	1992	1995	1997	1998
Ottawa	8.4	8.7	9.2	6.5
Kingston-Pembroke	10.7	9.9	11.5	9.0
Muskoka - Kawarthas	12.0	10.8	10.0	7.3
Greater Toronto Area	11.4	9.6	8.1	7.1
Kitchener - Waterloo - Barrie	10.1	8.6	7.6	6.5
Hamilton - Niagara Peninsula	11.5	8.3	8.3	6.5
London	8.9	7.9	7.9	6.4
Windsor - Sarnia	11.1	8.8	8.8	8.2
Stratford - Bruce Peninsula	8.4	6.5	6.5	4.9
Northeast	13.9	10.6	10.8	11.8
Northwest	9.9	8.6	9.7	9.6
Province wide	10.9	9.7	8.5	7.2

Notes:

I. Ottawa: includes the counties of Stormont, Dundas, Glengarry, Prescott, Russell, Leeds, Grenville, Lanark, as well as the Ottawa-Carleton Regional Municipality.
2. Kingston - Pembroke: includes the counties of Frontenac, Lennox, Addington, Hastings, Prince Edward and Renfrew.
II. Muskoka - Kawarthas: includes the counties of Northumberland, Peterborough, Victoria, Haliburton, as well as the Muskoka District Municipality.
4. Greater Toronto Area: includes the municipalities of Durham Region, York Region, Metropolitan Toronto, Peel Region, and Halton Region (excluding the city of Burlington).
III. Kitchener - Waterloo: includes the counties of Dufferin, Wellington, Simcoe as well as the Waterloo Regional Municipality.
IV. Hamilton - Niagara Peninsula: includes the city of Burlington, Brant County and the municipalities of Hamilton-Wentworth, Niagara Region, Haldimand-Norfolk Region.
V. London: includes the counties of Elgin, Oxford, Middlesex.
VI. Windsor - Sarnia: includes the counties of Kent, Essex, Lambton.
VII. Stratford - Bruce Peninsula: includes the counties of Perth, Huron, Bruce, Grey.
VIII. Northeast: includes the districts of Nipissing, Parry Sound, Manitoulin, Sudbury, Timiskaming, Cochrane, Algoma, as well as Regional Municipality of Sudbury.
IX. Northwest: includes the districts of Thunder Bay, Rainy River, and Kenora.

[1] Source: Statistics Canada, *Labour Force Annual Averages*, Catalogue No. 71-529

Exhibit 1.11

Labour Force Profile of College Graduates, 1997 [1]

	Social Services	Visual & Creative Arts	Hospitality	Office & Business Administration	Health Technology	Nursing & Related	Technology
In the Labour Force:							
...Employed Full-time	59.4	71.0	73.7	69.8	60.0	50.1	78.1
...Employed Part-time	29.1	18.3	14.6	14.6	28.4	36.9	7.1
...Looking for Work	11.5	10.7	11.7	15.6	11.6	13.0	14.8
Not in the Labour Force:	21.4	20.9	20.1	21.2	12.0	13.5	22.3

Notes:

- Percentages are expressed in proportion to the total number of graduates in the survey
- "Full-time" includes full-time related, partially related and unrelated.
- "Part-time" includes part-time related, partially related and unrelated.

[1] Source: Ministry of Education and Training, *Employment Profile: 1996-97 Graduates of Ontario Colleges of Applied Arts and Technology*

Exhibit 1.12

Average Starting Salaries for Employed College Graduates, selected years [1]

Program Area	1990	1993	1996	1997
Social Services	$22,258	$21,975	$21,785	$22,942
Visual & Creative Arts	19,696	20,730	23,246	24,976
Hospitality	17,853	17,871	18,088	19,482
Office & Business Administration	21,422	22,041	23,752	25,210
Health Technology	27,394	26,942	26,631	26,617
Nursing & Related	31,047	28,222	28,558	30,180
Technology	24,845	25,269	27,828	28,037
TOTAL	$23,875	$23,220	$24,489	$25,489

Notes:

Average starting salaries for college graduates six months after graduation have remained relatively constant since 1990. Modest gains in the average starting salaries were recorded in 1996 and continued in 1997 which is most likely reflective of a recovering provincial economy that is continuing to grow in strength.

[1] Source: Ministry of Education and Training, *Employment Profile: Graduates of Colleges of Applied Arts and Technology*. For the years 1989-90, 1992-93 and 1995-96.

Exhibit 1.13

Canada's Regions and the Knowledge-Based Economy

Ontario and the Knowledge-Based Economy (KBE) — highlights:

- Ontario accounts for nearly half of all high-knowledge output in Canada. This sector has been growing particularly fast in recent years.
- All regions in Canada are showing growth in high-knowledge education. The prairies, Ontario and Quebec have a higher relative share of enrolment in engineering and science. Other provinces are picking-up sharply.
- The importance of the KBE sector to the provincial economy is highest in central Canada.
- High-knowledge activity is largely concentrated in urban areas (87.6%).
- Human capital has a crucial role in the knowledge economy. Skilled and educated workers are needed to maximize the benefits of the new technologies. In 1997, high-knowledge workers accounted for 49.7% of the labour force in Ontario.
- Ontario leads the country in research & development business expenditures, in technology adoption (64.1% of manufacturing firms use multiple — 5 or more — advanced technologies) and in inventiveness as measured by patents granted.
- Business use of computers and the Internet is highest in Ontario and the Western provinces.
- Ontario is leading the country in readiness for the KBE in the areas of innovation, human capital, globalization, infrastructure in information and communication technologies and business climate.
- The top knowledge industries are quite similar across regions. In the services sector they are the same across regions, with the "Other Business Sector" accounting for more than 30% of all knowledge employment (see table on following page).
- Strong economic fundamentals, a skilled workforce and an appropriately large technological infrastructure are key to the success in the new economy.
- Federal and provincial budgets include a number of initiatives which focus on innovation, information technologies and human capital e.g. Canada Foundation for Innovation, SchoolNet, Scholarship Millennium Fund, ATOP, OLT, etc.

Top Knowledge* Industries, 1997

	BC	Prairies	Ontario	Quebec	Atlantic
Goods:					
Pharmaceuticals	●	●	●	●	●
Electrical Power	●	●	●	●	●
Machinery	●	●	●		●
Communications	●	●	●	●	
Products					
Aircrafts and Parts				●	●
Services:					
Other Business Services**	●	●	●	●	●
Engineering Services	●	●	●	●	●
Computer Services	●	●	●	●	●
Management Services	●	●	●	●	●

*Knowledge employment is defined as employment in high-knowledge industries; top four industries are in the Goods and Services sectors.

**Other business services include: Employment Agencies and Personal suppliers, Accounting and Bookkeeping Services, Office of Lawyers and Notaries and Other Business Services.

Source: Industry Canada calculations based on Statistics Canada data.

High-Knowledge Industries

Scientific and Professional Equipment
Business Machines
Computer and Related Services
Pharmaceutical, Medicine & Other Chemical Products
Refined Petroleum & Coal Products
Pipeline Transportation
Communication and other Electronics
Aircraft and Parts
Engineering & Scientific Services
Electrical Power
Machinery
Management & Consulting Services
Other Business Services

Exhibit 1.14

Economic Impact of Ontario's Community Colleges

The colleges' primary economic contribution is the provision of education and training to citizens, and community and workforce development. The secondary economic contribution is as consumers and employers. The role in economic development is regional, provincial and national in nature.

- Ontario's 25 colleges of applied arts and technology serve more than 200 communities across the province with several campuses in many communities.
- More than 141,000 full-time postsecondary and 450,000 part-time students were enrolled in the colleges in 1998.
- In 1998, approximately 155,900 employees from more than 1,500 organizations took part in college-based training programs
- Colleges have approximately 13,500 full-time and 12,900 part-time staff.
- Colleges offer more than 400 career and vocationally-specific programs.

Colleges contribute to economic development both directly and indirectly and play a significant role in the quality of life in the communities in which they are located. Colleges play many roles in the community: landlords, consumers, builders, investors, tax payers, innovators and leaders. Their contributions are made both from individual and community perspectives and are summarized in Table 1 on the following page.

Table 1

Colleges contribute to:	Public	Individual
Economic	• increased tax revenues • greater productivity • increased consumption • increased workforce flexibility • decreased reliance on government • attracting and keeping new business, industry and professionals • more effective transition to the new knowledge based economy	• employment • higher salaries and benefits • higher savings levels • improved working conditions • personal/professional mobility
Social	• leaders/catalysts for change • increased charitable giving/ community service • appreciation of cultural diversity • improving the ability to adapt to and use technology • reduced crime rates	• improved health/life expectancies • improved quality of life for offspring • better consumer decision making • increased personal status • leisure activities • lifelong learning opportunities

Section 2

Education and Training

- College Profile
- Workplace Training
- The Ontario Scene
- The Changing Landscape in Postsecondary Education
- Distributed Learning

Education and Training

College Profile

The profile of colleges and the recognition of their importance in economic development was reflected in many key publications in the past year:

- *Maclean's* published the first *Maclean's Guide to Canadian Colleges 1999*. This 160-page guidebook celebrates the rich diversity of Canadian colleges, profiling 137 institutions across Canada. In addition, it includes hundreds of success stories, lists of popular programs, co-op opportunities, university transfer agreements and several key articles for background information.
- *Why College Grads Get Jobs* and *Where the Jobs Are* are two articles, published in the October 1998 edition of *Maclean's*, that describe the diversity of education and training provided by Canadian colleges to meet the needs of students and business and industry.
- The Ontario Jobs Investment Board's report, *A Road Map to Prosperity,* recognizes the contribution that college education and training makes to the economy, economic development and prosperity of Ontario. *(Also refer to Public Policy Section.)*
- The Ontario throne speech, April 1999 and the Ontario budget, May 1999, both recognize the need to invest in colleges to ensure they can continue to contribute effectively to economic development.

Attention was also focused on postsecondary education from a national perspective. The Council of Ministers of Education are considering national trends and public expectations of postsecondary education. (see Exhibit 2.4)

A May 1999 opinion poll provides evidence of growing and continuing public recognition of the value of a technical education. Currently, education shares third spot on Canadians' list of the most important issues facing the country:

- 47% of Ontarians would advise young people to learn a skilled trade;
- 60% of Ontarians would like to see more funding for postsecondary education;
- 82% of Ontarians are opposed to raising tuition fees;
- about 60% of Canadians believe there is too much emphasis in today's classrooms

on learning how to use computers rather than "the basics." [1]

Workplace Training

Employer investment in workplace education and training is critical to maintaining a competitive edge in today's economy. Without adequate investment in workforce training and education, employers will be unable to develop the full potential of that investment. A learning environment is seen as key to innovation, productivity and competitiveness.

- In a recent Canadian study, it was shown that the top five benefits to employers who invest in training and education include:

  1. Increased ability to handle training on the job
  2. Better team performance
  3. Improved labour-management relations
  4. Increased quality
  5. Improved results in job-specific training/quicker training results. [2]

- An American study further demonstrated that companies that invested more heavily in workplace learning had higher net sales and gross profits per employee. It also found that leading edge companies were more likely to:

  - train a larger proportion of their employees;
  - outsource training; and
  - incorporate more of the latest learning technologies into that training. (See Exhibit 2.2)

- A Canadian study identified the major barriers to employer-sponsored training. These barriers are:

  - training cost to the organization is too high;
  - lost production while workers were training;
  - insufficient government assistance;

- fear of losing trained workers to other organizations; and
- lack of suitable training courses and trainers.[3]

Research conducted in 1997 by the Conference Board of Canada shows that ***literacy and basic skills*** training pays.

- Employers offer literacy training to their employees because enhanced reading, writing and numeracy skills contribute to a stronger bottom line.
- Workers with high literacy skills earn more income, are less likely to be unemployed, experience shorter periods of unemployment, are less likely to be absent from the workplace and more likely to receive further training.
- Females with higher literacy skills make an extra $683,000 over their lifetimes; for males the amount is $585,000.[2]

Opportunities and challenges exist for colleges in meeting the education and training needs of the workforce. Becoming market driven will make it necessary for colleges to rethink how, when and where training is provided in order to respond to individual and employer needs. The trend to outsourcing of training provides the colleges with an ideal opportunity to make inroads in the corporate training field.

The trend towards non-standard employment currently has a negative impact on employer sponsored training support and could result in a growing polarization in skills and education between core employees and short-term/contractual workers. [4]

- As job tenure, as well as the level of education, increases so does the level of employer-sponsored training.
- Individual responsibility for job-related skills training is projected to increase and take on greater importance in a knowledge-based economy.
- Colleges will continue to be challenged to provide flexible delivery methods. In MTCU's Job Connect and Summer Jobs Services programs, colleges will be challenged to implement new customer-service approaches, including the capacity to offer individualized services that match people and employers more effectively and efficiently.

Both the number of corporate universities and the amount of money that corporations spend on them is increasing dramatically.

- The number of corporate universities in North America has grown from around 400 in 1988 to more than 1,600.
- The budget of the Bank of Montreal's corporate university has grown from $40 million in 1992 to $63 million in 1999. Currently, about 80 per cent of the training is distributed via computers.

The Ontario Scene

The results of a study by Angus Reid for the Council of Ontario Universities included a survey of the public, focus groups and opinion leaders. It was released in March 1999. The results included the following key findings:

- Education is seen as a key priority for government attention and investment.
- The main motivation for pursuing postsecondary education is the increased opportunity that postsecondary education offers in terms of improving employment prospects.
- The main factors discouraging postsecondary education revolve around the high cost of attending postsecondary institutions.
- A well-educated workforce is seen as crucial to economic prospects and international competitiveness.
- Universities are seen as offering their graduates more career growth and earning potential than colleges and trades schools.
- Generally, colleges and trade schools are seen as being better at developing specific skills which, in the short term, help graduates find a good job. Universities are seen as better at developing a broader skills set among their graduates. This more well-rounded education is seen as offering university students upward mobility and better employment prospects in the long run. (See Exhibit 2.5)

The government is changing the **apprenticeship** system to make it more flexible and responsive to industry's evolving needs while making it more accessible and appealing to youth. The new *Apprenticeship and Certification Act* will help expand apprenticeship and encourage greater ownership by stakeholders. Expanding the system will increase in-

school training requirements for apprentices.

- Work is currently under way on the regulations, in consultation with industry and colleges. Staff from colleges and MTCU have formed the Apprenticeship Reform Steering Committee to review issues and share information related to apprenticeship reform.

Supporting literacy and lifelong learning are becoming especially important, particularly as the population, and in turn the workforce, becomes proportionately older. The provision of adult education and upgrading programs are key tools in supporting these objectives.

- MTCU's Literacy and Basic Skills Program has been reformed to achieve literacy services that are results-based, cost-effective, accountable, flexible, learner-centred and linked to the broader education and training system. Colleges will be challenged to participate more fully in local planning and coordination activities.

Career colleges, or **private vocational schools**, continue to be competitive training providers despite tuition fees and related costs that are substantially higher than those at community colleges. Shorter program lengths and flexible delivery methods are attracting a growing number of adult learners.

- The number and diversity of the private colleges continue to grow.
- Two established private colleges declared bankruptcy in the first half of 1999, Ontario Business College and Shaw College. (See Exhibit 2.3)

As the knowledge economy becomes a global economy and boundaries between countries become increasingly open, the *degree* credential will continue to grow in profile as an internationally recognized credential.

A **Degree Completion Accord** was developed by the College-University Consortium Council and signed by the Council of Ontario Universities and the Association of Colleges of Applied Arts and Technology of Ontario on May 6, 1999. The accord is intended to greatly enhance the opportunities of college graduates to earn degrees from Ontario Universities. Colleges and universities will work together within the framework of the accord with each agreement requiring approval by the relevant governing bodies of the institutions.

The Ontario College-University Transfer Guide website, http://www.cou.on.ca/cucchome.htm, was launched on Dec. 1, 1998. It provides comprehensive information about the diverse post-secondary learning avenues available to Ontario students.

An articulation agreement between the University of Western Sydney, Australia, and ACAATO was signed in February 1999.

The Ontario Institute of Studies in Education instituted a part-time Doctor of Education in Higher Education for community college leaders in March 1998. The first group of 25 students began the program in September 1998.

The reform of the secondary system in Ontario has the potential for significant impact on the postsecondary sector.

- The new destination streaming model will prepare students for their chosen post-secondary destination: workplace, college or university.
- The move from a five-year secondary system to a four-year secondary system will result in two secondary graduating classes in 2003. This could have significant enrolment impact for the two postsecondary destinations.
- The university and college sectors have made submissions to the Ministry of Training, Colleges and Universities that detail the impacts of the two systems.

The changing landscape in postsecondary education:

Changes in postsecondary education are occurring at a dramatic pace. New alliances are being forged, new markets are being targeted and new mandates explored. The following are some examples of educational institutions that are positioning themselves for the knowledge-based economy of the 21st century.

Sheridan College and York University are offering a joint bachelor of design degree. The four-year honors degree aims to prepare students for the growing graphic design market.[5]

McMaster University's new Educational Training Centre aims to prepare students for the high-pressure world of securities training. The centre is partly funded by CIBC World Markets with Reuters News Agency, TSE and the Chicago Board of Trade waiving fees for the use of real-time data.[6]

Brock University plans a make-over with greater emphasis on career development programs that prepare students for work and a broader range of graduate and professional programs with more co-op and internship opportunities.[5]

Alternate Routes to Computing (ARC) is a pilot program sponsored by the University of British Columbia, Simon Fraser University and several information technology companies. The program was created to address the need for more highly qualified IT personnel and redress the gender imbalance in the field. Two eight-month semesters in the classroom sandwich an eight-month internship.[7]

Despite hefty tuition fees ($21,600), ITI, a private high-tech school, pulls in students for intensive training in such subjects as network computing, visual Basics Java and Oracle 8. They have a 94% placement rate for their graduates.[8]

Dalhousie University has launched a fast-track Master of Information Technology Education Degree, through Henson College, partnering with ITI (Information Technology Institute). The intent is to have learners leverage their degree into a lucrative information technology career in 12 months.[9]

A new focus for programming across the U.S and Canada in postsecondary institutions relates to the business trend of e-commerce.

- Centennial College has established an E-Commerce Institute with five corporate partners.
- The University of New Brunswick in Saint John is offering an Electronic Commerce MBA in a concentrated 12-month format and a 12-week workplace internship.[10]

Many Canadian colleges and universities have piloted laptop programs or imposed computer requirements on students enrolling in specific programs. Only Acadia University (Nova Scotia) and Collège Boréal (Ontario) have opted to phase-in the implementation of a campus-wide laptop requirement. Business or computing programs at eight community colleges and seven universities have some form of laptop requirement. It is still too early to determine the impact of these kinds of requirements on enrolment.[11]

Distributed Learning

The fastest growing educational sector in the world is distributed learning. Private and

public sector education and training organizations are pursuing a variety of innovative technologies and strategies to meet the demands of learners. The following represent a small sample of some of these initiatives.

Contact South is a consortium of 19 Ontario colleges offering online distance education courses. One consortium member develops a specific course which can be selected by all other member colleges for credit at their own institutions, which eliminates the need for several colleges to spend time and money developing the same product. In 1995, a single course was offered via e-mail. Today, the 19-member association offers 150 courses (with 200 under development) to thousands of online college students spanning the world.

Contact North/Contact Nord has launched two innovative Learning and Training Technology Labs. The labs are equipped with an array of cutting-edge information technology from the public and private sectors. They will provide opportunities for educators and trainers in Northern Ontario to keep up-to-date, explore and learn to apply new technology for education and training. Contact North/Contact Nord had over 9,700 registrants in over 525 courses in 1998.

New Brunswick offers the highest number of online courses in North America (22 courses per 100,000 inhabitants). Ontario offers 6 courses per 100,000 inhabitants.[12]

Athabasca University reported a major increase in its enrolment this spring (1999). The university offers more than 450 courses and 40 programs over distance. The MBA and MEd programs are among the most popular.

CANARIE has announced *Advanced Network Application Services and Technologies*, a new $8 million cost-shared research and development program to support the development of networking applications, services and technologies.

REFAD (the Canadian francophone distance education network) completed a year-long study of francophone distance education in Canada.

- Nearly all respondents use Internet in course delivery, followed by print, other technologies were found less frequently.[13]

York University signed a partnership with the Learning Corporation, a leading developer of educational software. Planned activities include the development of an in-service technol-

ogy training program, a technology summit next year and a pilot project for integrating software training into faculty curricula.[13]

CHUM Television has introduced a new specialty channel, Canadian Learning Television (CLT). It is Canada's first 24-hour national education station and is targeted at adult learners. CLT has built a base of partnerships with universities, community colleges and associations.[12]

Corporate University eXchange completed its annual survey of *Corporate University Future Directions*, a study of 120 best practice corporate universities:

- One of the top findings is that technology is an integral part of the learning process.
- Ninety-three per cent of universities are using some form of technology-based medium to deliver training with 82% using some form of web-based technology.
- It is estimated that by 2003 up to 75% of their education will be delivered by one of five technologies: Internet, satellite, intranet, videoconferencing and CDROM.[14]

A major study that will assess the effectiveness and policy implications of virtual schooling in Canada was launched by the Society for the Advancement of Excellence in Education with assistance from Max Bell Foundation. The study is expected to be published in 2000.

The major challenges in the integration of technology in the classroom continue to be lack of ongoing professional development for faculty and technical support. In many "connected" schools, the technology is significantly underused for these reasons.[15]

Footnotes: Education and Training

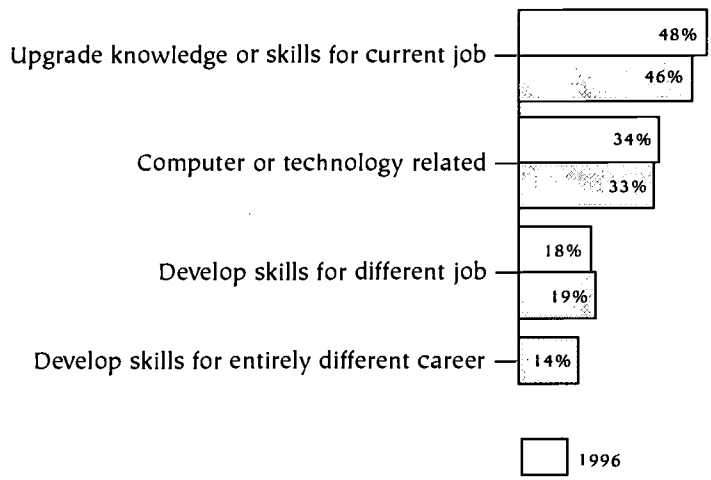
1. Angus Reid Group, *Canadians' Assessment and Views of the Education System*, Globe and Mail Report, May 1999.
2. Conference Board of Canada, *The Economic Benefits of Improving Literacy Skills in the Workplace*, August 1997.
3. Canadian Policy Research Network Inc., *Barriers to Employer-Sponsored Training in Canada*, G. Betcherman, K. McMullen, N. Leckie, July 1998.
4. Canadian Policy Research Networks Inc., *Training for the New Economy: A Synthesis Report*, G. Betcherman, K. McMullen, K. Davidman, June 1998.
5. Globe and Mail, March 19, 1999.
6. Globe and Mail, June 18, 1999.
7. Globe and Mail, August 12, 1999.
8. Financial Post, May 3, 1999.
9. Globe and Mail, July 1999
10. Globe and Mail, July 1999
11. Globe and Mail, June 21, 1999
12. LT Highlights-Electronic Newsletter: In the News, No. 2, May 1999.
13. LT Highlights-Electronic Newsletter: In the News, No. 3, July 1999.
14. Goodings, Joey, *Canadian HR Reporter,* August 9, 1999.
15. Globe and Mail, June 21, 1999.

Exhibit 2.1

Workplace Training and Education[1]

Commissioned by the Royal Bank of Canada, the Angus Reid Group undertook a national workplace survey in 1996 with a sample size of 850 individuals to explore job satisfaction and security, training issues, the company and the spirit of entrepreneurship in Canada. The most recent survey was conducted in 1997, with a sample size of 1,000 individuals, and a summary report with comparative results was released in January 1998. In summary:

Employees said that the primary motivation for taking training courses was to keep skills and knowledge up-to-date for their current jobs.



Over the next year, 49% of survey respondents planned to take courses to upgrade their knowledge or skills for their current job, and a further 46% planned to take computer or technology-related courses.

Forty-three per cent cited "keeping up-to-date" as a challenge for the workplace, but only 18% ranked it as a personal strength:

	Challenge	Strength
Flexibility	23%	41%
Innovation	27%	33%
Initiative	23%	26%
Leadership	28%	25%
Teamwork	12%	23%
Responsibility	8%	21%
Keeping up-to-date/learning	43%	18%

1 Source: The Angus Reid Group, Workplace 2000, *Working Toward the Millennium: A portrait of working Canadians,* Fall 1997

Exhibit 2.2

Corporate Benefits of Workplace Learning

A national American study of corporate training practices reveals that companies that invest more heavily in workplace learning are more successful and profitable.

The study involved 750 organizations. It then identified a group of 55 companies with leading-edge workplace learning practices and analyzed company performance against a set of indicators. The study found that leading edge companies:

- spend more — up to 3.5% of payroll on workplace learning;
- train a larger percentage of their employees (83.4% on average) and maintain a lower employee-to-trainer ratio;
- deliver more of their training via learning technologies and predict more use of the newest learning technologies — CBT, interactive video, multimedia, intranets, and electronic performance support systems;
- outsource more — 6% higher than the industry average in the use of training companies and educational institutions to deliver learning; and
- are more likely to use innovative training practices — such as 360-degree reviews, individual development plans, and mentoring or coaching — and high performance and compensation practices simultaneously.

The study also found:

- in absolute numbers, outsourcing of training activities continues to increase, but not at the same rate as overall increases in training expenditures;
- the use of learning technologies is on the rise; and
- there is a high correlation between those companies that invest in training and their use of coherent and integrated sets of human performance practices and policies.

Source: American Society for Training & Development, The 1999 ASTD State of the Industry Report, January 1999.

In 1998, internal research was undertaken by MTCU on the value of training in two Ontario communities, Kingston and London. The research demonstrated the long-term value of society's investment in apprenticeship and other on-the-job training. Key findings of the study:

Apprenticeship:

- society gets back $1.23 over five years for every dollar it invests;
- employers recoup their initial investment within 3-4 years;
- government gets back $1.22 over five years for every dollar it invests (the government's investment covers in-school training costs, EI benefits to apprentices and reduced taxes paid over the training period).

On-the-Job Training:

- society gets back $2.90 over five years for each dollar invested;
- employers recoup their costs within one year after training;
- government gets back slightly more than $2 for every dollar it invests.

Exhibit 2.3

Career Colleges in Ontario

Growth in the number of delivery sites of major competitors:

	1987-88	1991-92	1998-99	1999-2000
Academy of Learning	0	16	62	63
Toronto School of Business	6	14	30	38
Ontario Business College	6	8	13	0
CDI Career Development Institutes	0	4	12	12
triOS	-	-	-	8
Information Technology Institute (ITI)	-	-	-	4

Notes:

There are currently about 440 career or private colleges/schools in Ontario with an enrolment of approximately 60,000 (full- and part-time) students.

Shaw College and Ontario Business College (OBC), with 13 sites, declared bankruptcy in 1999. Toronto School of Business bought eight of the OBC locations.

At the same time, there continues to be growth in the areas of Business and Applied Arts with the current trend being in the field of computers and technology as evidenced by the growth of triOS and ITI delivery sites.

In this sector there is a growing trend to develop partnerships with business and industry and other educational institutions. Some of the private colleges such as the Academy of Learning have signed articulation agreements with other educational institutions, in this case Athabasca University. Many have agreements as certified trainers with soft/hardware companies.

Exhibit 2.4

Postsecondary Education in Canada

There are national and international trends in the postsecondary sector that are reflected in two documents produced by the Council of Ministers of Education. The following excerpts from these documents provide a concise overview of the key elements in the issues and trends in postsecondary education.

Key Trends in Education in Canada

System-wide, the trend is toward:

- on-going reform and review at all levels;
- more information on how well the education system is working;
- continued collaboration at the regional and national levels;
- partnerships in education;
- increased funding to education; and
- continued focus on Information technologies.

In postsecondary education the trend is toward:

- revitalization of college and university sectors;
- improved student financial assistance;
- additional sources of funding; and
- restructuring of institutions.

In skills development and training the trend is toward:

- apprenticeship reform;
- new labour market development agreements; and
- increased work opportunities for youth.[1]

Public Expectations of Postsecondary Education in Canada

There are six overarching themes: quality, accountability, accessibility, mobility and portability, relevance/responsiveness and research and scholarship. Teaching and learning are considered to be part of all themes.

Quality

Governments and institutions work in partnership as appropriate, to ensure high quality educational outcomes and intellectual environments in teaching and learning, research and scholarship, community service and management of intellectual and physical resources. Institutions, and the sector as a whole, emphasize creativity and innovation. The PSE sector provides a suitable range of challenging learning experiences, various forms of service to local and broader communities and internationally-respected research and scholarship that enrich the learning environment, while preparing the learner for satisfying employment and active citizenship.

Accessibility
Postsecondary education is accessible throughout life. Quality learning opportunities are provided to those accepted into PSE programs. There are opportunities for those individuals who do not meet admission requirements and require further preparation. International students are received by institutions in recognition of the fact that the integration of international students serves both individual learners and the broader community.

Mobility and Portability
Students obtain credit for prior learning as they transfer between programs, institutions and the labour market. Governments ensure that there are no barriers to interprovincial mobility that unreasonably inhibit access.

Relevance and Responsiveness
Postsecondary education gives the learner the opportunity to acquire relevant and diverse knowledge, competencies, and skills for a complex social environment and labour market. It promotes the productive connection of learning, work and civil society. PSE challenges, informs and guides the direction of society and is critically responsive to the changing needs of the learner and society.

Research and Scholarship
Research and Scholarship contribute to the cultural, social, and economic development and health of communities, regions, Canada as a whole, and the global community; to the development of a highly educated and effective work force, a new generation of researchers, and people who can access the research of others; and to the broad education of citizens.

Accountability
PSE institutions and governments are openly accountable to the public in relation to mandates and outcomes and for reassuring citizens, and students in particular, that resources are allocated to achieve maximum value and sustainability of postsecondary education.

Responsibilities of Governments
Canada and its communities need a vibrant and continuously evolving PSE sector. Delivery of that function is a shared responsibility. Governments play an important role in postsecondary education, one that respects the distinctive and often autonomous management of postsecondary institutions and academic standards, as well as the broad public interest.[2]

Two very strong themes that emerge across the postsecondary sectors in North America and beyond, but are not as apparent in these documents are partnerships, not only between educational sectors but also with the private sector and the pervasiveness of technology and technologically related initiatives in the postsecondary sector.[2]

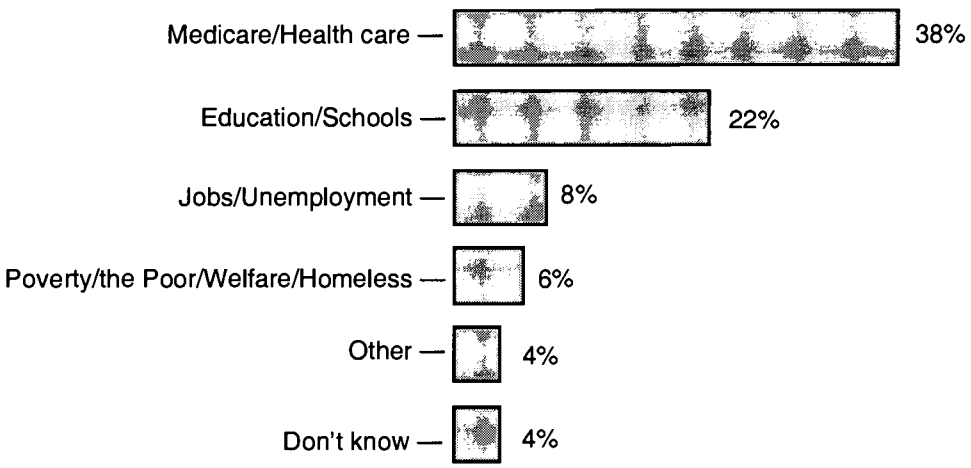
1. Council of Ministers of Education, Canada (CMEC), *Education Initiatives in Canada, 1998: A Report from the Provinces and Territories*, Document prepared for the Third National Forum on Education, St.John's Newfoundland, May 28-30, 1998.
2.Council of Ministers of Education, Canada, *A Report on Public Expectations of Postsecondary Education in Canada*, February 1999.
Website: http://www.cmec.ca

Exhibit 2.5

Expectations of Higher Education

Most Important Issues

Which one issue do you feel should receive the greatest attention from government?



Motivation for Higher Education

Thinking about your own experience or that of your family and friends, why do you think someone might want to continue their education beyond high school?

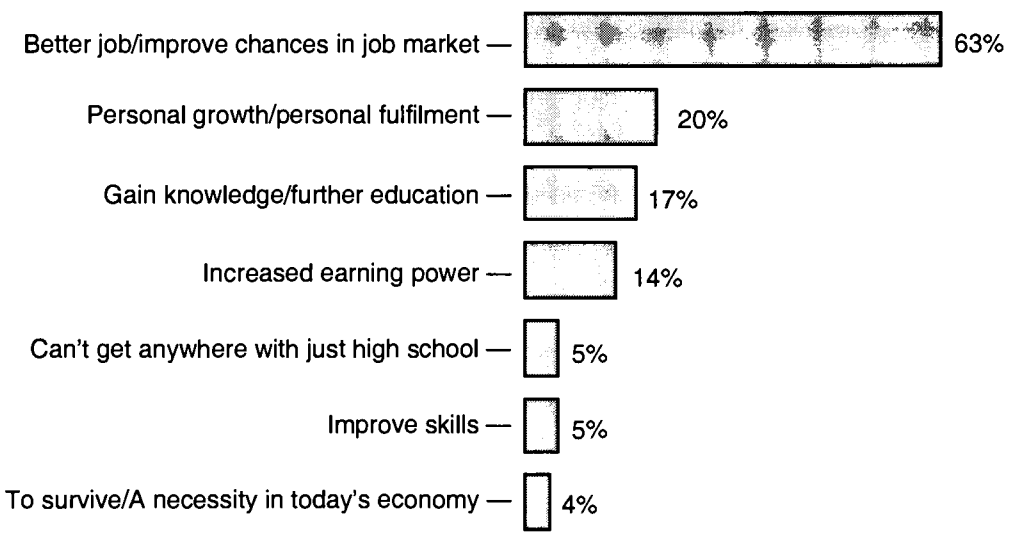
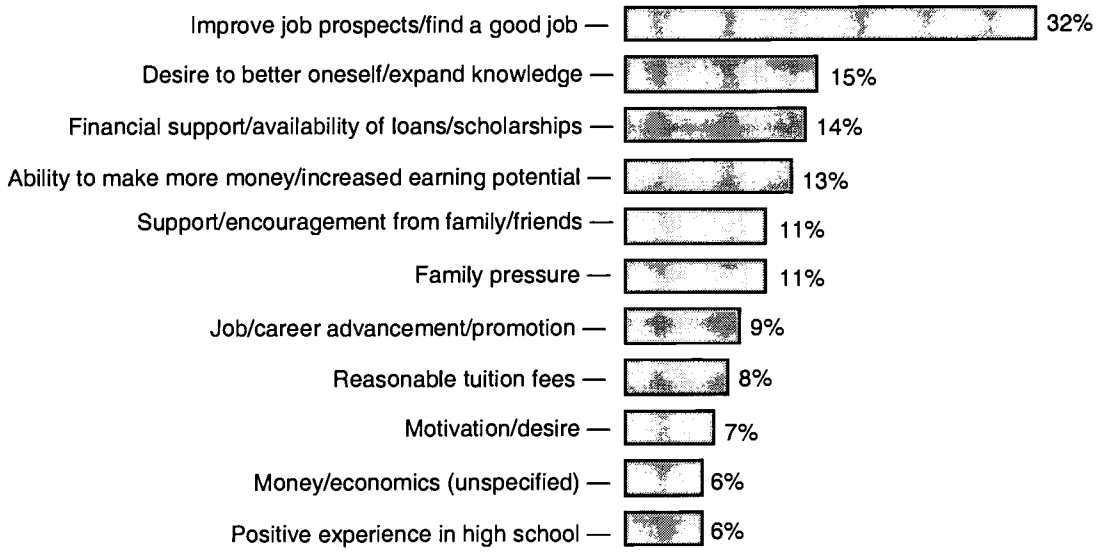


Exhibit 2.5 (continued)

Expectations of Higher Education

Factors Encouraging Higher Education

Thinking about your own experience or that of your family and friends, please tell me what factors are most likely to encourage someone to continue their education beyond high school?



Factors Discouraging Further Education

Thinking about your own experience or that of your family or friends, please tell me what factors are most likely to keep someone from continuing their education beyond high school?

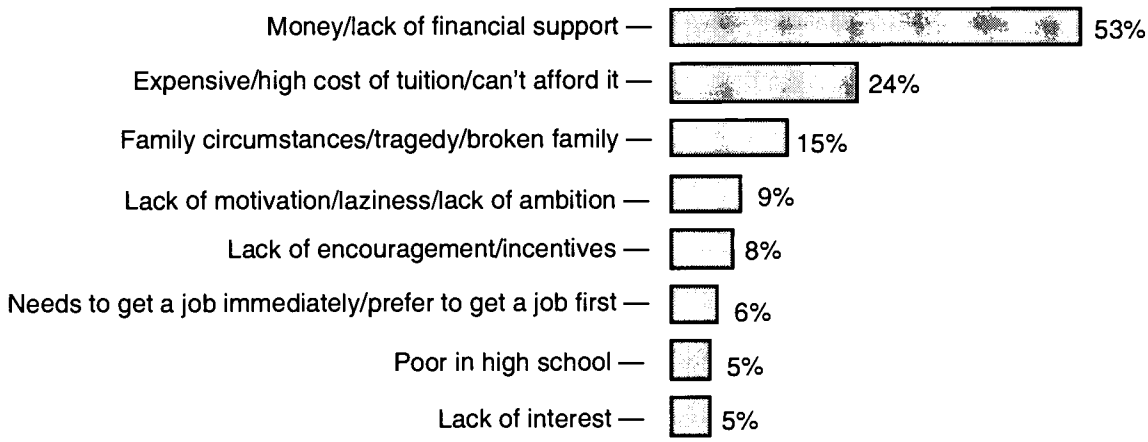
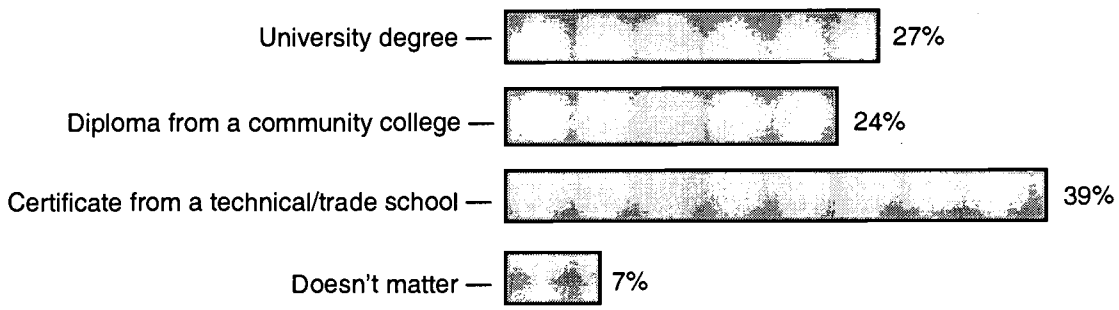


Exhibit 2.5 (continued)

Expectations of Higher Education

PSE Offering Best Possible Employment

What type of postsecondary education do you think gives graduates the best chance of finding employment (i.e., less likely to be unemployed)?



Note: There was no definition or differentiation between community colleges and technical/trade school.

1. Angus Reid Group, *Meeting Expectations Project*, Final Report to Council of Ontario Universities, March 1999

Section 3

Funding

- Transfer Payment/Operating Grant
- Training
- Other Funding Initiatives

Funding

Transfer Payment/Operating Grant

The Ontario government increased the *general purpose operating grant* by 5.3% in 1998-99 and 7.4% in 1999-2000 over its 1997-98 allocation. This increase is largely based on some reallocation from special purpose grants over the next two years. The increases in the *total transfer payment* from 1997-98 allocations are:

	1997-98	1998-99	%*	1999-00	%*
Total Transfer Payment (TTP)	$686,641,500	$692,586,500	1.0	$700,049,500	2.0
TTP plus ATOP**	n/a	$715,161,500	4.6	$735,849,500	7.1

*percentage increase compared to the 1997-98 Total Operating Grant

**Access to Opportunities Program

The government provided additional funding in 1998-99 for one time initiatives that are not part of the general operating grant:

- Pay Equity Pressures (Non-bargaining unit) 1998-99, $10.4 million
- Year 2000 Support, 1998-99, $2.6 million and 1999-2000, $6.9 million

The revenue generated outside of the Total Transfer Payment continues to increase:

- In 1997-98, 38% of college system revenue came from tuition fees, ancillary income and other income (e.g., investments, donations), up from 23% in 1990-91.
- Over the same time period, the *proportion* of system revenue from tuition fees alone has more than doubled, from 10.4% in 1990-91 to 22.6% in 1997-98, while the *proportion* of MTCU-based revenue has dropped to 47% of college system total revenue. (See Exhibit 3.1)

While colleges continue to support demonstrating their accountability through the use of key performance indicators, efforts continue to achieve change in a separate but interrelated area, the distribution mechanism of the general purpose operating grant.

- Based on constant 1996-97 dollars, since 1989-90, funding support from MTCU

per full-time college student has shown the lowest increase compared to three other public sectors: colleges 3.3% increase, universities 25% increase, schools 42% increase and hospitals 11.2% increase. (See Exhibit 3.10)

- The current formula, which is based on each college's share of system activity over three years, with one slip year, has created a tendency to 'grow for growth's sake' in order to maintain one's share of the operating grant.

While continuing to benefit the increasing number of Ontario residents seeking access to retraining and further education in order to be successful in an increasingly 'knowledge based society', this growth, combined with government funding reductions, has had a negative impact on per student funding levels. Since 1990-91, it has decreased 42%, from $5,125 to approximately $2,953 in 1997-98. (See Exhibit 3.4)

- Per student funding is, however, projected to increase moderately over 2000-01 with the reduction of 'off the top' targeted funds and government reinvestment in postsecondary education.

The Key Performance Indicator Project was implemented in 1998-99. Data for employer satisfaction, student satisfaction, graduate employment and graduate satisfaction were collected. Beginning 2000-01, 2% of the operating grant will be tied to the results. The precise criteria and mechanism for the distribution of this funding has not yet been determined.

Training

A growing consideration for colleges is how to respond to the growing demand for training with fewer resources: between 1994-95 and 1997-98, skills training revenue to colleges from all sources (e.g., federal, provincial, and other contracts) declined 43%, or approximately $175 million. (See Exhibit 3.1)

Colleges continue to serve as the main provider of apprenticeship training, although the number of training days purchased from non-college trainers continues to increase. After a decrease of 5.65% in 1997-98 in college training activity and an increase of 47% in non-CAAT trainer activity, colleges had a small (1.3%) increase in 1998-99, while non-CAAT trainers had an increase of 30%. The same trend continues in 1999-2000. The trend is the reverse in part-time activity, with college activity increasing substantially in 1998-99 and 1999-2000. (See Exhibit 3.3)

Successful negotiation of a *Canada-Ontario Labour Market Development Agreement* (LMDA) would allow Ontario to redress serious skills shortages and service gaps in Ontario's labour market. With an agreement, Ontario would be able to focus on key competitiveness and economic growth issues. Working closely with employers and individuals to help people find and keep employment, Ontario could:

- confirm the funds needed to expand the apprenticeship system;
- double the number of unemployed Ontarians getting skills training;
- serve more clients through a single set of deliverers, under a single set of rules; and,
- improve the overall administration and accountability of the training system.

The Ontario government has negotiated a Contribution Agreement to ensure that the federal government continues to pay for training for Employment Insurance (EI) clients. As of June 30, 1999, the federal government no longer directly purchases training for EI clients from institutions such as colleges. Under the agreement, the federal government will transfer up to $47.2 million to Ontario for a nine month period (July 1999 to March 2000) to cover the cost of training EI recipients in colleges. In the absence of a Labour Market Development Agreement, the Contribution Agreement will be negotiated annually with HRDC.

- Annual negotiations create problems for the colleges in planning to respond to needs and changing requirements.

Other Funding Initiatives

In response to strong concerns by industry of a 'high tech' skills shortage, the government has established the 'Access to Opportunities' (ATOP) program which is intended to increase enrolment in computer science and high demand engineering and related technology programs colleges and universities. The program commits $150 million over three years, including support for one-time start-up costs but not including required industry funding support.

- There was overwhelming response to the initial call for proposals and many projects could not be funded in the original allocation. In the 1999 Budget Speech an additional $78 million dollars was allocated to ATOP to fund the remaining qualified projects.

In the 1998 Ontario budget, the government announced funding for a Strategic Skills In-

vestment (SSI) program ($30 million) designed to help in the economic development of the province. The funding is for projects, in partnership with industry, that will increase the skills required to keep the Ontario economy prosperous. The colleges submitted about 30% of the project proposals and received almost 77% of the available funding. The colleges were well-positioned and ready, with their on-going links to the business community, to respond quickly to develop joint proposals with their partners. The 1999 budget extended this initiative by committing $100 million to the SSI program over the next several years.

With increased tuition fee setting flexibility, the availability of financial assistance and the OSAP maximum allowable limit will be increasingly important considerations for colleges, especially given the increased proportion of married and sole support students in the colleges.

- Funds made available through the additional fee revenue and the money raised through the Ontario Student Opportunity Trust Fund will address some of this need, however, this issue is anticipated to remain a significant consideration for students in pursuing further education.
- Tuition fees have increased 50% since 1993-94. An additional $38.3 million was generated in tuition fees from 1996-97 to 1997-98. (See Exhibit 3.1)

Exhibit 3.1

College System Revenue [1]

REVENUE SOURCE	1993-94 (millions)	1994-95 (millions)	1995-96 (millions)	1996-97 (millions)	1997-98 (millions)
General Purpose Operating Grant	708.3	696.9	691.7	597.6	591.7
Skills Training: Federal Purchases	95.1	95.5	79.3	57.0	57.7
Skills Training: MET (MTCU)	167.9	185.7	169.3	108.8	70.6
Skills Training: Other Contracts	117	122.6	114.0	96.5	101.0
Specific Purpose Operating Grant	112.7	101	110.5	87.1	81.0
Capital Grants	59	29.8	84.1	29.0	46.2
Tuition Fees	231.3	245	275.2	309.3	347.6
Ancillary Income	126.4	129	132.6	124.1	133.4
Other Income	68.5	78.9	76.5	80.0	105.9
TOTAL*:	**1,686.2**	**1,684.4**	**1,733.2**	**1,489.4**	**1,535.3**

Notes: Due to differing accounting and reporting methodologies used, CFIS revenues ascribed to an identified funding agency or source may not reconcile precisely with the accounts of the agency and source for a given year.

* Total Revenue is taken directly from CFIS reports. Revenue Sources may not add up due to rounding.

[1] Ontario Ministry of Education and Training, College Financial Information System, Summary Report, June 1998

Exhibit 3.2

Activity Base Funded by the General Purpose Operating Grant[1]

YEAR	Activity Base (converted to Funding Units)							
	Full-Time Postsecondary	Index of Activity (1986-87 = 100)	Full-Time Tuition Short	Index of Activity (1986-87 = 100)	Part-Time Postsecondary	Index of Activity (1986-87 = 100)	Part-Time Non-Post-secondary	Index of Activity (1986-87 = 100)
1987-88	100,704.9	99.9%	5,472.4	103.3%	8,971.3	100.4%	6,575.5	111.5%
1988-89	100,030.4	99.3%	5,879.8	111.0%	9,336.2	104.5%	6,681.1	113.3%
1989-90	102,215.8	101.4%	5,638.5	106.5%	8,827.7	98.8%	6,703.2	113.7%
1990-91	109,554.0	108.7%	6,922.2	130.7%	9,827.8	110.0%	7,369.1	125.0%
1991-92	141,657.5	140.5%	8,087.9	152.7%	10,969.5	122.8%	7,642.4	129.6%
1992-93	151,589.1	150.3%	8,528.6	161.1%	15,100.3	169.0%	9,790.6	166.0%
1993-94	156,745.3	155.5%	8,322.9	157.2%	14,632.5	163.8%	9,231.5	156.5%
1994-95	161,087.1	159.8%	7,920.3	149.6%	13,761.3	154.0%	8,435.7	143.1%
1995-96	169,269.6	167.9%	7,344.5	138.7%	13,455.1	150.6%	8,618.0	146.1%
1996-97	167,722.3	166.3%	6,020.8	113.7%	12,579.8	140.8%	8,030.6	136.2%
1997-98	171,051.6	169.6%	5,627.1	106.3%	12,278.7	137.4%	8010.9	135.8%

Part-Time Postsecondary includes: Mandatory Postsecondary, Postsecondary Electives, Post-diploma Health. Part-time Non-postsecondary includes: Basic communication and Numeric Skills, Occupational Certification, Prior Learning Assessment (as of 1993-94), Ontario Management Development Program (OMDP), Miscellaneous, Tuition Short Courses, Other Vocational.

Note: New program weights for full-time postsecondary were introduced 1991-92. New part-time conversion formula was introduced 1992-93.

[1] Source: Ontario Ministry of Colleges and Universities, College Affairs Branch, *A Summary of Information Relevant to the General Purpose Operating Grant Allocations, 1981-82 to 1990-91*, June 1990 (as presented in the 1993 ACAATO Environmental Scan), and 1990-98 data from Ministry of Training, Colleges and Universities, Colleges Branch

Exhibit 3.3

Apprenticeship Training in Ontario[1]

Training Days Purchased

YEAR	CAATs		NON-CAAT TRAINERS		TOTAL
	Full-Time	Part-Time	Full-Time	Part-Time	
1988-89	789,462	116,833	1,560	0	907,855
1989-90	777,991	122,407	7,560	589	908,547
1990-91	972,237	123,363	15,033	2,140	1,112,773
1991-92	977,053	107,480	24,643	2,179	1,111,355
1992-93	834,143	100,129	33,878	2,187	970,337
1993-94	723,770	81,867	33,088	411	839,136
1994-95	661,217	100,098	34,432	60	795,807
1995-96	627,385	134,117	26,442	449	788,393
1996-97	517,493	139,859	27,135	1,273	685,760
1997-98	488,503	187,980	39,131	1,858	717,472
1998-99	494,763	228,634	51,026	1,367	775,790

Planned:

1999-00	494,906	297,418	60,246	1,367	853,846

[1] Source: 1989-1992 - Ontario Ministry of Skills Development, Apprenticeship and Client Services
1993-1998 - Ontario Ministry of Education and Training, Workplace Support Services
1998-1999 - Ontario Ministry of Training, Colleges and Universities

Exhibit 3.4

General Purpose Operating Grants[1]

Over 10 years

Fiscal Year	Activity Base (Weighted Funding Units supported by grant) [1]	General Purpose Operating Grant[2]	Grant per Weighted Funding Unit[3]
1988-89	121,927.5	613,243,803	$5,030
1989-90	123,385.2	645,773,556	$5,234
1990-91	133,673.1	685,039,064	$5,125
1991-92[4]	168,357.3	723,192,315	$4,296
1992-93	185,008.6	739,947,106	$4,000
1993-94	188,932.2	700,747,370	$3,709
1994-95	191,204.4	690,747,370	$3,613
1995-96	196,667.8	684,961,891	$3,483
1996-97	194,353.3	597,621,175	$3,075
1997-98	196,968.2	581,595,887	$2,953
Projected			
1998-99[5]	204,329.0	612,153,320	$2,996
1999-00[6]	204,329.0	625,091,106	$3,059

Notes:
1. Derived from annual audit of enrolment report. The number shown represents the reported weighted funding units for the activity year, not the two- or three-year historical average used in the actual grant calculations.
2. Does not include special purpose grants. General Purpose Grant allocation for 1993-94 to 1995-96 has been reduced by $40 million to reflect the impact of the social contract reduction. GPOG allocation for 1997-98 does not include the amounts set aside for the Strategic Programs Investment Fund or Common Information Systems. In 1998-99, the GPOG allocation does not incude the amount set aside for Ministry initiatives.
3. Not adjusted for inflation. Not adjusted to reflect the additional impact of geographic and economy of scale adjustments included in the annual grant calculation.
4. 1991-92 first activity year with new weights. Introduction of the new weights caused an inflation in the number of weighted funding units.
5. Estimate, derived by increasing the 1997-98 activity base (weighted funding units supported by grant) by the percentage increase in enrolment reported in the November 1998 and March 1999 enrolment reports by OCAS.
6. Assumingflatline enrolment.

[1] Ontario Ministry of Training, Colleges and Universities, Colleges Branch, May1999.

Exhibit 3.5

General Purpose Operating Grant *vs* Total Operating Grants to Colleges [1]

YEAR	General Purpose Operating Grant (GPOG)	Total Operating Grants (TOG)	GPOG as a Percentage of TOG
1986-87	562,642,545	598,300,000	94.0%
1987-88	586,836,175	625,600,000	93.8%
1988-89	613,243,803	661,700,000	92.7%
1989-90	645,773,556	700,400,000	92.2%
1990-91	685,039,064	771,500,000	88.8%
1991-92	723,192,315	826,900,000	87.5%
1992-93	739,947,106	868,400,000	85.2%
1993-94	700,747,370	808,200,000	86.7%
1994-95	690,747,370	807,900,000	85.5%
1995-96	684,961,891	809,200,000	84.6%
1996-97	597,621,175	688,781,299	86.8%
1997-98	581,595,887	686,461,500	84.7%
1998-99	612,153,320	692,586,500	88.4%
1999-2000	625,091,106	700,049,500	89.3%

Note:

1. The GPOG for 1993-94 through 1995-96 has been reduced by $40 million to reflect the social contract.

[1] Source: Ontario Ministry of Training, Colleges and Universities

Exhibit 3.6

College Tuition Fees, 1999-2000[1]

Province	1990-91 Fees ($)	1999-2000 Fees ($)	% Increase
Ontario	740	1,684	128%
Alberta (average)	573	1,689	195%
British Columbia (average)	1,060	1,750	65%
Manitoba (average)	605	1,432	137%
New Brunswick	500	2,400	380%
Newfoundland	484	1,452	200%
Nova Scotia (average)	766	1,200*	57%
Quebec	nil	nil	n/a
Prince Edward Island	1,118	2,000	79%
Saskatchewan	720	2,005	178%

*1998-99 tuition fee is used, as 1999-2000 fee policy is unavailable at this time.

[1] Ministry of Training Colleges and Universities Telephone Survey of Fees, Report Date September, 1999 - Fees may not be final.

Exhibit 3.7

College General Purpose Operating Grant Changes vs. Government Revenue Changes

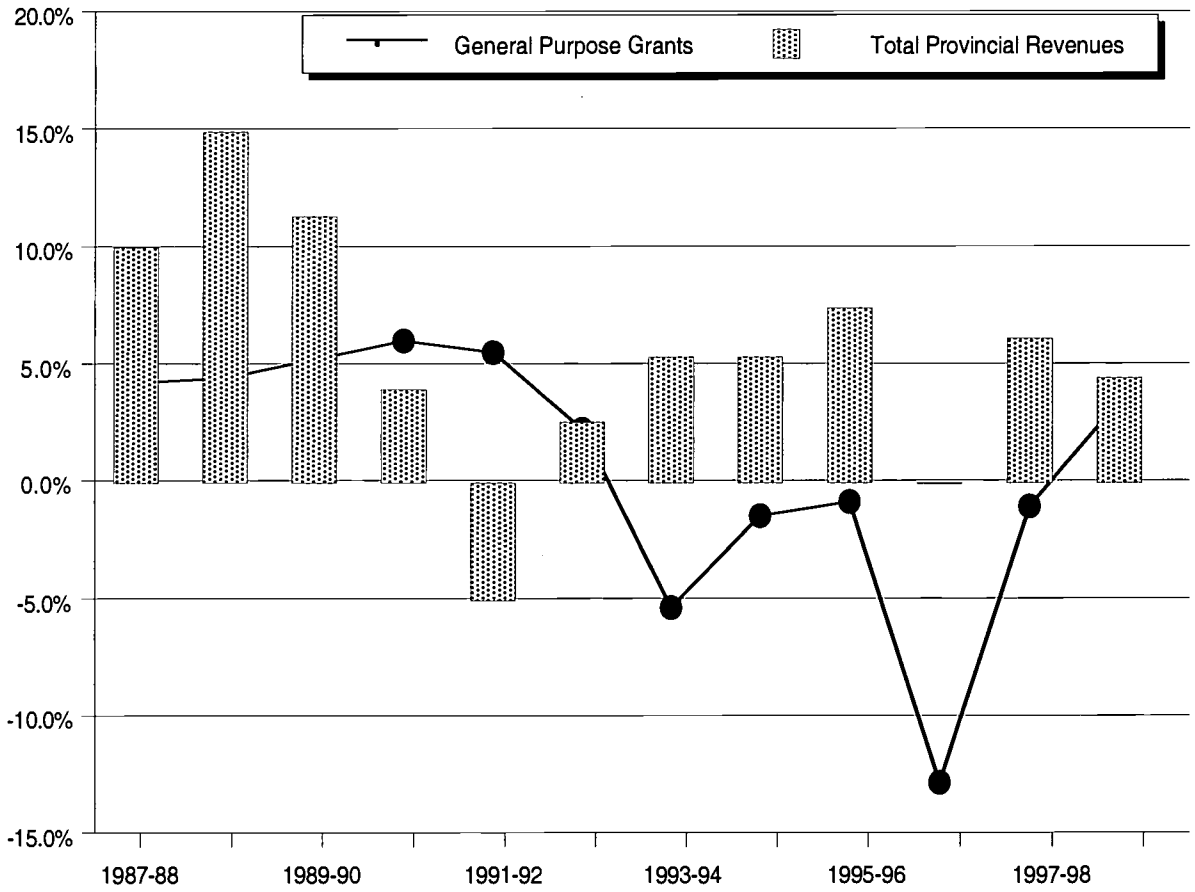
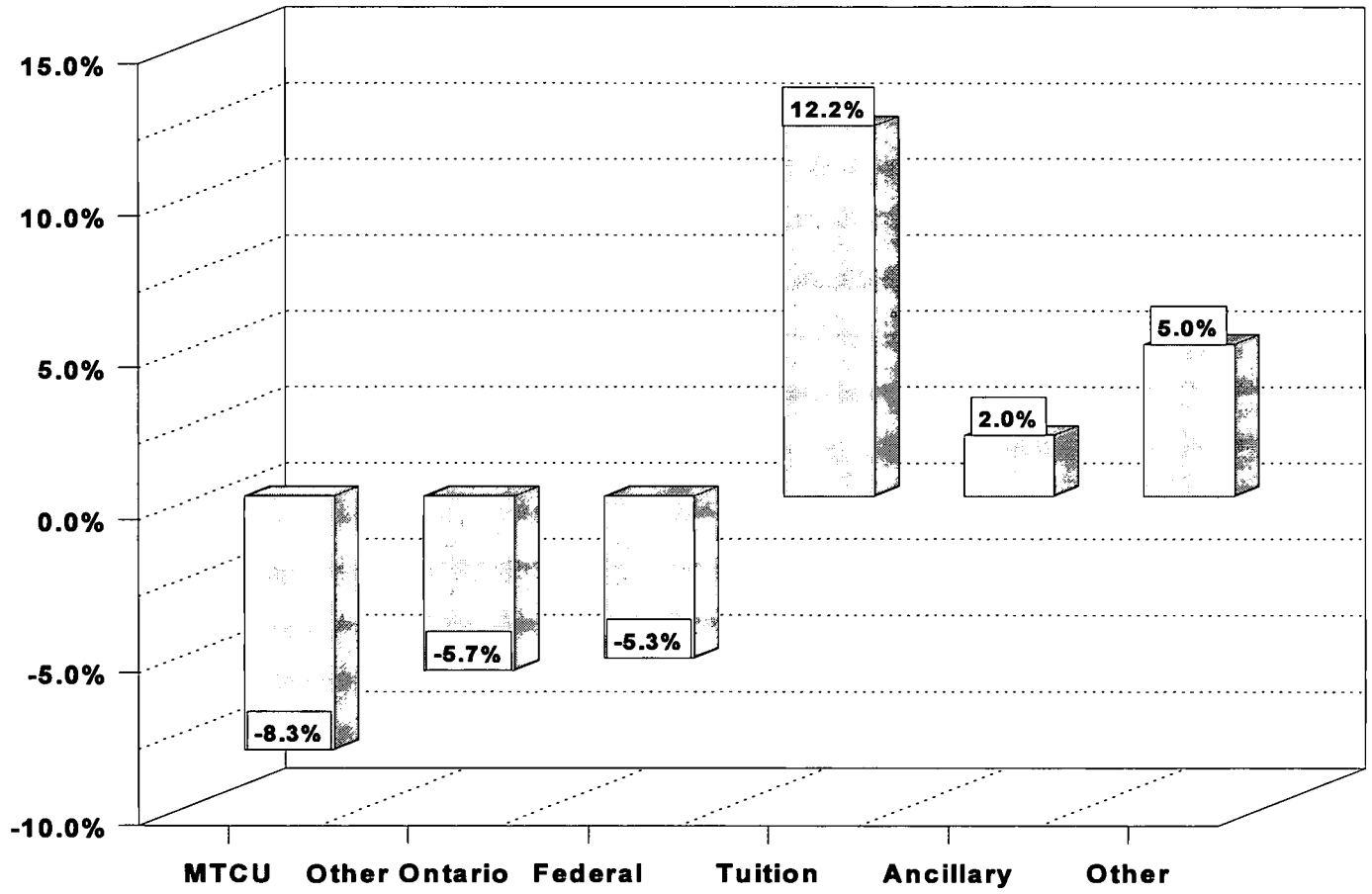


Exhibit 3.8

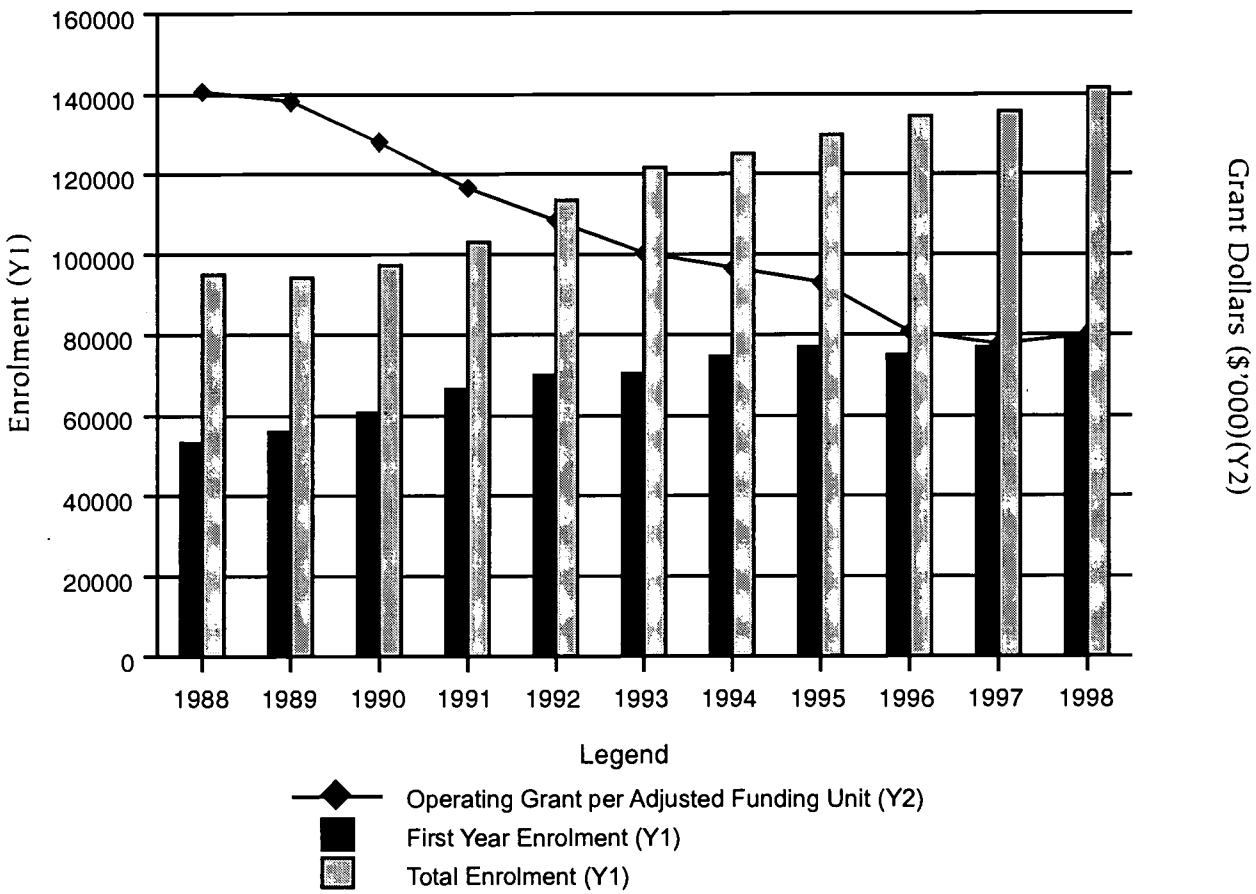
Change in College Proportion of System Revenue Between 1990-91 and 1997-98, by Source[1]



1 Source: Ontario Ministry of Training, Colleges and Universities, College Financial System Reports

Exhibit 3.9

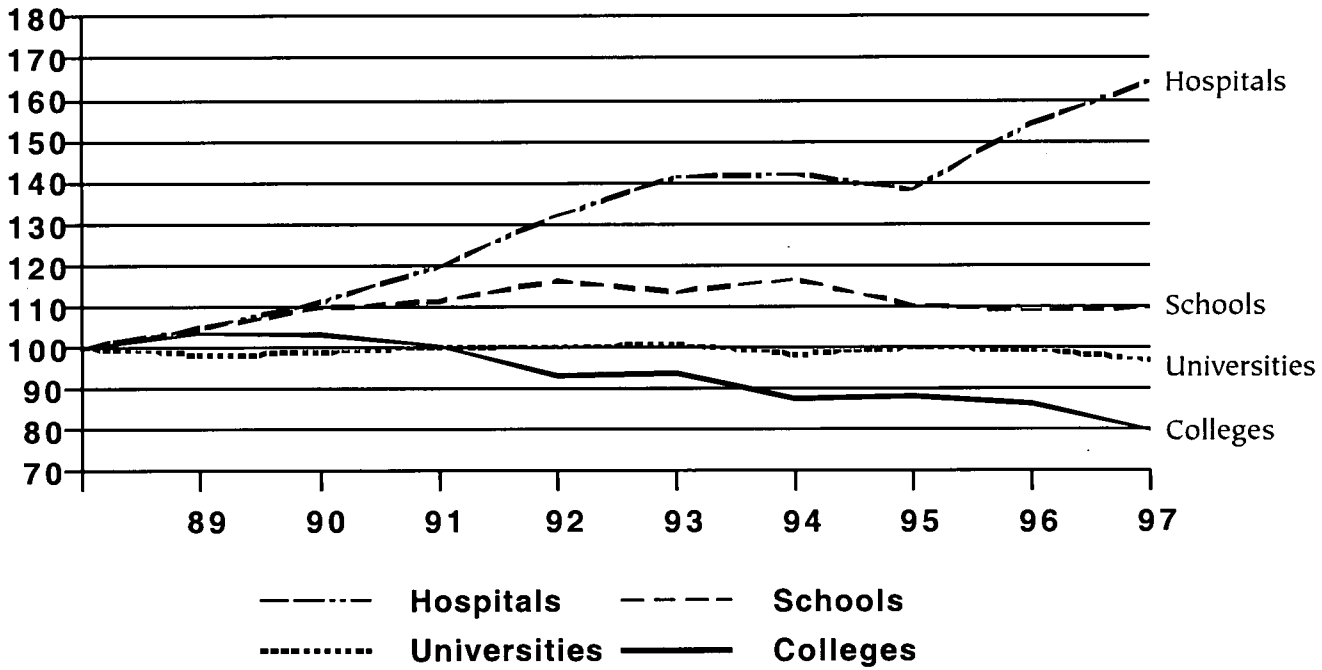
Full-time Postsecondary Enrolment & the General Purpose Operating Grant



Source: 1987 to 1994, Ministry of Education and Training OCIS and CAAT 2 surveys (excluding sponsored and International Students) November 1 count. 1995, 1996, 1997 and 1998 figures are from OCAS enrolment counts.

Exhibit 3.10

Expenditures per Client
Colleges and Three Other Public Sectors Ontario



Adapted from: **Ontario Universities- 1998 Resource Document**

Notes:
- Schools: Total school costs per pupil
- Hospitals: Total operating costs per patient day
- Colleges: Operating revenue per provincially funded FTE student
- Universities: Operating expenses per FTE

Sources:
- Schools: Ministry of Training, Colleges & Universities
- Hospitals: 1994-95 Statistics Canada, 1995-6 Canadian Institute for Health Information,1996-97 COU estimate based on CIHI & OHA data
- Colleges: Ministry Training, Colleges & Universities
- Universities: COFO-OU, financial Report of Ontario Universities

Section 4

Information Technology

- Challenges and Issues
- Impact of Technologies in the Workplace
- The Internet
- Software Sector and Human Resource Issues
- Education and IT
- Public Policy and Governance

Information Technology

Information Technology is undergoing explosive worldwide growth. It is permeating all aspects of daily life: the workplace, home and leisure. The unprecedented technological change and economic growth is threatening to increase the gap between the haves and have nots, and marginalize the most dependent. (see Exhibit 4.1)

Challenges and Issues

There are many new challenges and issues presented by the evolution of information technology. Many of these issues are being addressed on a number of fronts. One of the real challenges is to develop a comprehensive, centralized, up-to-date resource that outlines the current initiatives in the various areas. These issues and challenges include, but are not limited to:

- *Access/equity issues*: the "digital divide" between the haves and have nots poses issues and challenges for government, industry and suppliers of services including education.
- *Ethical issues*: students can buy term papers, exams and answers over the Internet. Information is not validated or verified and it is difficult/impossible to hold any one individual accountable.
- *Cyber-venting*: individuals have created websites that evaluate professors and their courses at universities and colleges and, at the corporate level, evaluate companies and/or management.
- *Privacy and consumer protection*: the use of junk mail, selling e-mail addresses.
- *Hate propaganda and pornography:* how to control access to these areas and yet continue to provide young people with opportunity to use the Internet appropriately.
- *Hackers*: What is secure and what isn't? How does one provide security without unduly limiting access?
- *E-commerce*: trading, billing, purchasing, banking, doing business with government.
- *Governance and public policy*: balancing government support without intervention that would limit the growth of various industries.

- *Infrastructure*: the need for appropriate infrastructure on a national basis as well as at an individual and organizational/group basis.
- Costs: the costs of hardware, software, maintenance and upgrading.
- *Skills*: education and training of all staff to maximize the appropriate use of technology.

Impact of Technologies in the Workplace

A study on the impact of technologies on learning in the workplace was released in March 1999.[2] (See Exhibit 4.2) The study found that:

- In Canadian companies, total training activities, including formal and informal training, remained virtually unchanged over the last three years. However, the *incidence* and *intensity* of formal training increased significantly over the last three years.
- Smaller establishments (less than 20 employees) lag behind medium and larger establishments in training.
- Employees in 69% of establishments had access to personal computers, 50% had CD-ROM access, 47% had access to the Internet, and 8% had access to company learning centres.
- Only 28% of establishments reported using learning technology to provide training in the last 12 months.
- Establishments using learning technology expect to increase their use in the next 12 months.
- The most frequently used learning technologies were: CD-ROM-based, 78%; computer based, 59%; and Internet-based, 40%.
- Training using learning technologies was largely undertaken by higher-skilled employees.
- Fifty-six per cent of respondents said they would be more willing to invest in learning technology if the training was endorsed by an organization they trusted.
- Thirty-nine per cent of respondents felt employees learn better with traditional methods than with learning technology.
- A few benefits that were supported included: improved employee satisfaction with

training; increased effectiveness with the training; greater flexibility to schedule training; and self-pace and uniformity of training.

- The major barriers were related primarily to the cost of new technology and equipment and the cost of purchasing or developing new training material.

Two additional studies reflect the impact of information technology on learning and the workplace. These further demonstrate the pervasiveness of information technology and the issues and challenges which confront organizations and individuals. (See Exhibit 4.3)

The Internet

Three surveys, each with a slightly different focus, were conducted this year relating to the use of the Internet in Canada.

1) An *Angus Reid/Globe and Mail* poll of 1,500 Canadian adults, conducted in June 1999, found:

- Fifty-five per cent of Canadians (or 12.7 million) are connected to the Internet, an increase of 13% since September 1997.
- Of those who have access, 19% have access at home and work, 19% at home only and 14% at work only.
- On average, users spend 6.3 hours per week on the Internet.
- Younger Canadians spend more time on the Internet than the national average.[3]

2) The number of Canadian households connected to the Internet has increased:

- The percentage of households with a home-based Internet user has gone from 16% in 1997 to 22.6% in 1998; from work, the usage rate is 23%; and from school, 12.1%.
- The number of households using the Internet from any location was 3.4 million (29.4%) in 1997 and increased to 4.3 million (35.9%) in 1998,
- Internet usage is greater at home and in the workplace among higher income earners in 1998.
- Internet access from schools and libraries narrowed the disparity between the highest and the lowest income households.

- About half (50.4%) of the highest income households include someone who regularly uses the Internet at work, 12 times the level for the lowest income households (4.1%).
- Those with higher levels of education used computer communications more.[4]

3) The Information Technology Association of Canada engaged Data International Corporation to survey 2,000 Canadian adults on their attitudes on electronic commerce (or e-commerce). The results show that an increasing number of Canadians use the Internet to buy and sell goods:

- Between October 1996 and October 1998, the number of Canadians accessing the Internet went from 18.4% to 33.9% of the population.
- The use of e-mail is the most popular Internet activity; usage has increased by 50%.
- The number of Canadians who purchased goods over the Internet increased by approximately one-third between 1997 and 1998; 250,000 Canadians made at least one purchase in the two-month period ending in October 1998.
- The number of people who use Internet banking doubled (to 50,000) in the same period.[5]

In May 1999, after conducting an in-depth review under the Broadcasting Act and the Telecommunications Act, the CRTC determined that the new media on the Internet are achieving the goals of the Broadcasting Act and are vibrant, highly competitive and successful without regulation. There is concern that any attempt to regulate the Canadian Internet activities would place the industry at a competitive disadvantage.

Canadian executives lead Internet usage worldwide:

- 99% of Canadian senior executives have access to the Internet;
- nine out of 10 go online more frequently than executives in other countries.[6]

A *Globe and Mail* feature on the Internet reported that:[7]

- 71% of all web sites are American;
- 5% of content on the Internet is Canadian;

- 5% of Internet content is in French;
- 80% of Internet content is alphanumeric (non-graphic based);
- about 150 million people are connected to the Internet (half of them are in the United States);
- there are about 400 Internet providers in Canada;
- by 2001, an estimated 40 per cent of Canada's households, or 5 million, are expected to have access to the Internet;
- Canadians spend more than 20 hours a month online, with 60 per cent connecting at least seven times a week.

Canada leads the world this year in connecting its schools, postsecondary institutions and libraries to the Internet.[8]

- There is a push to link 250,000 elementary and secondary classrooms to the Internet by next year.
- Finding Canadian content is challenging.
- The postsecondary level in Canada accounts for up to 17% of online courses on the Internet.
- The Open University of Britain has set up in the U.S. and has its eye on Canada.
- There is a dearth of independent, meaningful analysis on the impact of learning with technology.
- Twenty per cent or fewer Canadian teachers are comfortable with multimedia and other technologies.
- Industry Canada will spend more than $20 million over the next three years to promote domestic learning software.

Industry Canada made several commitments regarding Information Technology in *Canada: Connectedness in Canada*, making this country the most connected nation in the world by year 2000, including:[9]

- *Canada Online*: providing all Canadians with access to a world-class infrastructure.

- *Smart Communities*: build a number of smart communities.
- *Electronic Commerce*: become a world leader in e-commerce.
- *Canadian Government Online*: world leader in Internet-based government information.
- *Canadian Content Online*: Canadian content in key emerging sectors such as tele-learning and tele-health.
- *Connecting to the World*: Canada as a global centre of excellence for connectedness.

Human Resource Issues in the Software Sector

A study of the human resource development and planning systems by the Canadian software sector found that there are a number of existing and potential problems. These include: the training provided by the education and training system; the capacity of educational institutions; the quality of career guidance provided to students; unemployed and self-employed contract workers; and the attraction and retention of workers. Other findings include:

- The stakeholders associated with various components of the HRDP system have been coming together to pool their respective resources towards solving problem areas in the system.
- There is a vibrancy in the software sector that shows no signs of declining.
- Estimates of software employment growth over the 1990s range from 36% to 90%.
- Software is a global growth industry resulting in a global demand for talented software professionals.
- The bulk of workers in the software industry are in the 25 - 44 age group; there is a below-average representation of women.
- The specific skills, education and training backgrounds required by software sector jobs are ill-defined, making it difficult for young people to make appropriate career and training decisions and for educators to plan relevant curricula.
- The true magnitude and nature of software labour demand, aside from rough estimates, is unknown.
- A Statscan survey showed that companies were having greater difficulty recruiting workers to fill professional positions than they were for entry-level positions.

Education and IT

The lack of solid research on the impact of technology on student learning is thwarting educators in understanding how to make full use of technology and to make it available on an equitable basis.

In November 1998, an American survey of 202 state universities and land-grant colleges was conducted requesting specific information on information technology issues. The survey found that:

- Information technology is affecting nearly every area of campus life, providing new tools for education, outreach, research and administrative systems.
- Sizeable investments have been made, and will continue to be made, in information technology. On average, approximately 5% (responses ranged from 1%-25%) of operating budgets are being allocated for IT expenditures,
- A patchwork of funding sources, including student fees, are used to finance IT. By assessing fees, 71% ask their students to share in the burden of financing IT.
- IT is being used to benefit people beyond their campuses; two thirds of the respondents are participating in a "virtual university" and/or are a partner in an IT supported distance education project that benefits non-traditional students." (Refer also to Education and Training Section.)

Public Policy and Governance

The public policy and governance issues around information technology are receiving increasing attention.

- The C.D. Howe Institute released a policy study *The Electronic Village: Policy Issues of the Information Economy* in November 1998. It encompassed such topics as regulation and policy setting for telecommunications, competition in telecommunications, international influences, foreign investment, infrastructure, and Canadian content requirements.
- The Alliance for Converging Technologies has developed a program on *Governance in the Digital Economy.* This is a new international program designed for government leadership in the digital economy that examines the practical implications for government of the new technology and the new economy and looks at the full range of issues involved in transforming the public sector.

- A paper prepared for the Council of Ministers of Education, Canada, examined technology-mediated learning and the implications for higher education. The report concluded with recommendations for government which included specific recommendations for a policy framework and support.
- A study in the United States that examined the issues of equity and access with regard to educational opportunity and virtual universities concluded that equity between the "haves" and "have nots" cannot be achieved without public policy ensuring access to technology.

Footnotes: Information Technology

1. Gladieux L., and Watson S. Swail, *The Virtual University and Educational Opportunity: Issues of Equity and Access for the Next Generation,* College Board, Washington D.C., April 1999.

2. Ekos Research Associates Inc. and Lyndsay Green & Associates, *The Impact of Technologies on Learning in the Workplace: Final Report* for The Office of Learning Technologies, March 1999.

3. The Globe and Mail, July 5, 1999.

4. The Toronto Star, May 1999

5. *Canadian Attitudes to Electronic Commerce,* ITAC's Final Submission to the CRTC Proceedings on New Media, February 8, 1999.

6. Young, Lesley, *Canadian executives lead Internet usage worldwide,* Canadian HR Reporter, May 31, 1999.

7. Globe and Mail, *Schools work to bridge the 'digital divide'*, June 21, 1999.

8. The Globe and Mail, *Canada Raises its Voice on Web*, June 21, 1999.

9. Industry Canada, *Industry Canada: Making a Difference: Our Priorities for 1999-2000,* July 1999.

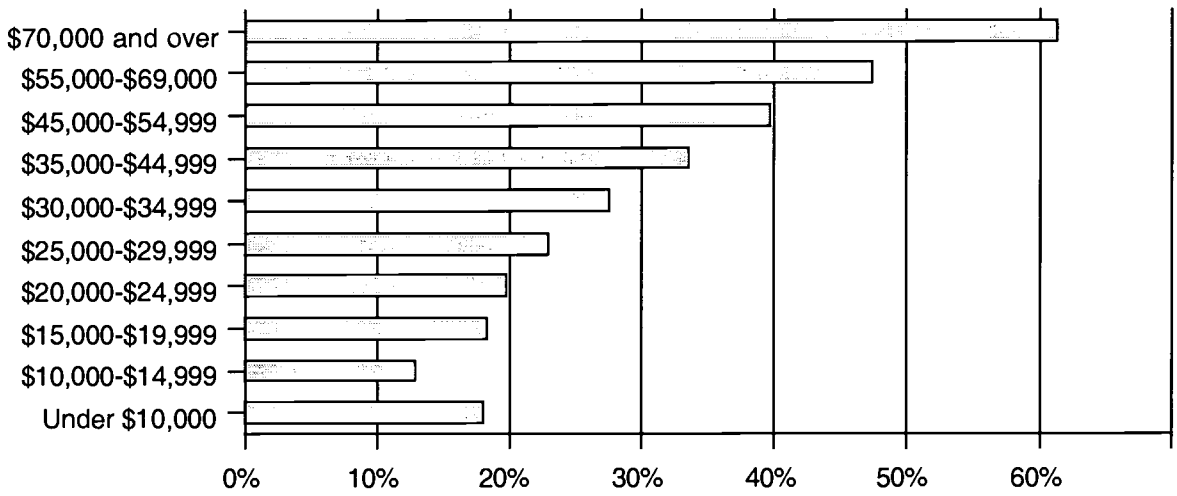
10. Davidman Katie, *Human Resource Development and Planning in the Canadian Software Sector,* CPRN Discussion Paper No. W/04, December 1998.

11. NASULGC Universities, *Connecting with the Future, How do they do it? How do they pay for it?* National Association of State Universities and Land-Grant Colleges, Office of Public Affairs and Commission on Information Technology, May 1999.

Exhibit 4.1

Affording Technology

Percentage of Canadian households with computers, by income



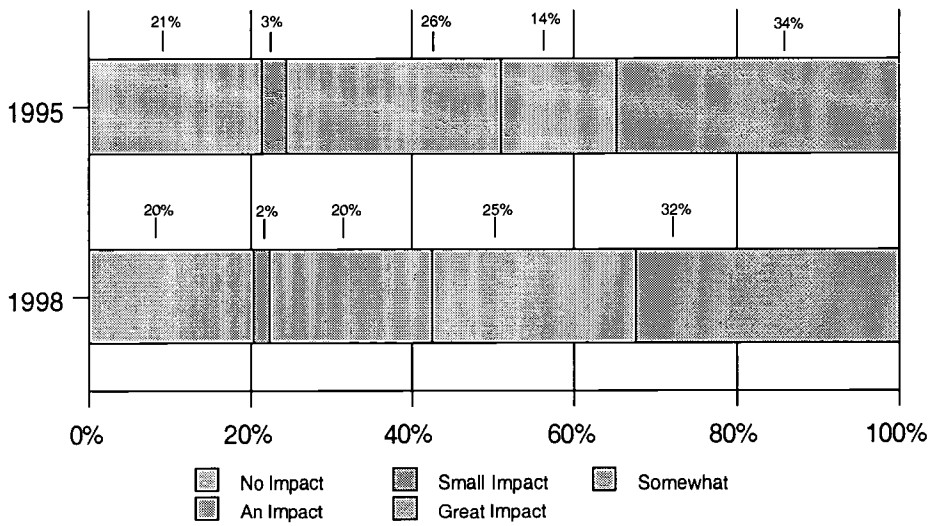
Sources: Statistics Canada, 1997; The Globe and Mail

Exhibit 4.2

Technological Infrastructure of the Workplace[1]

	Establishment Size			
	Overall (n = 700)	1-19 (n = 230)	20-99 (n = 234)	100 + (n = 235)
Employee access to personal computers	69%	64%	89%	94%
CD-ROM Access	50%	42%	83%	83%
Employee Access to Internet	47%	42%	66%	72%
An Intranet System	27%	18%	51%	54%
Learning Centre	12%	8%	24%	33%
Videoconferencing Facilities	7%	3%	20%	27%
None of the above	26%	33%	7%	0%

Impact of Technology on the Workplace over the Past Three Years



Note: Percentages may not add up to 100 since the percentage "don't know/no response" is not included in this chart.

1. Ekos Research Associates Inc. and Lyndsay Greeen & Associates, *The Impact of Technologies on Learning in the Workplace: Final Report* for The Office of Learning Technologies, March 1999.

Exhibit 4.3

Information Technology and Learning

The *1998 Learning Technology Research Report*[1] from ASTD focused on four key developments in learning technology. These four developments promise to accelerate the trend toward technology delivered training and to have a far reaching impact on training.

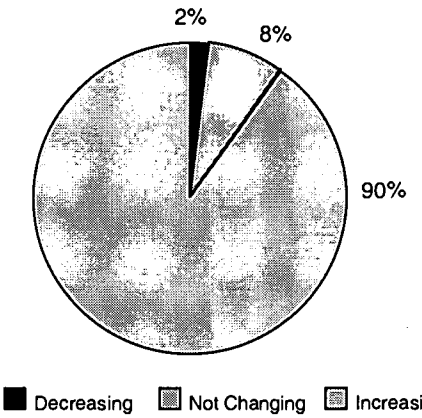
- *The Internet*: the impact of the Internet continues to be underestimated. It is not just the technology but the 'smarts' to take the technology and put it to effective use. International data corporation estimates that IT-related internet-based training (IBT) accounted for $197 million and will surge to $5.5 billion in 2002.
- *Intelligent Tutoring Systems* tailor training to a learner's needs and allows voice-based interaction.
- *Object-based learning*: a new paradigm in the way learning is organized, delivered and stored. Learning takes the form of independent, reusable software objects. These learning objects can be used in combination with one another to provide any and all manner of CBT, customized to a learner's needs and then rearranged for another training purpose. Motorola University and the U.S Defense Department are pursing this avenue.
- *Voice Recognition Technology* is being harnessed in ways that enhance interactivity with learning technologies and that free workers from their keyboards.

The ASTD's *National HRD Executive Survey*[2] looked closely at the issues around information technology and training. Some of the key findings include:

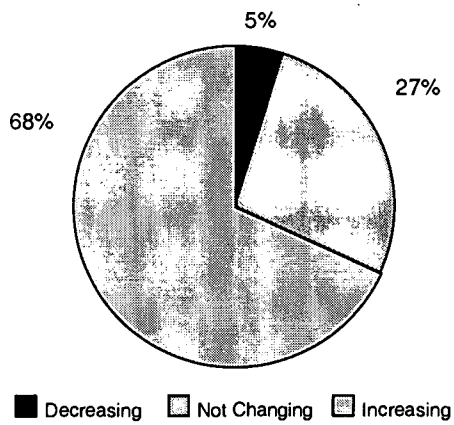
- nearly all organizations provide some type of IT training;
- expenditures on IT training were headed up in most organizations;
- the primary obstacle to IT training is keeping up with technological change;
- less than 40% of IT courses are taught by in-house employees in the typical company; and
- even courses on IT are largely taught in an instructor-led classroom setting.

Exhibit 4.3 (continued)

Importance of IT Training



Change in IT Training Expenditures



IT Training Obstacles		
Issue	**Mean Rating Scale: 1 (low) to 5 (high)**	**% Rating Item as Difficult (4 or 5)**
Keeping pace with the rate of technological change	4.03	71.9%
Keeping employees with strong IT skills from leaving	3.75	61.4%
Determining the effectiveness of your IT training	3.49	54.4%
Finding qualified and skilled IT instructors	3.00	33.3%
Identifying the IT training needs of your employees	2.88	26.3%
Deciding upon the best delivery method	2.79	26.3%
Finding high quality vendors and suppliers of IT training	2.63	22.8%
Obtaining senior management commitment to IT training	2.59	22.4%

1. Source: American Society for Training and Development, *1998 Learning Technology Research Report*
2. Source: American Society for Training and Development, *1998 National HRD Executive Survey on Information Technology Training*, 1998.

Section 5

Ontario Population

Ontario Population

Demographics 1998

Ontario's population grew by 13.2% between 1991 and 1998 with significant variation by region (See exhibit 5.2 and 5.3).

- The largest increase in both percentage and absolute numbers occurred in the Greater Toronto Area (GTA).
- The percentage change was approximately the same in the east and southwest regions with the southwest experiencing higher absolute numbers growth.
- The north experienced the lowest percentage and absolute numbers growth.

The GTA population grew mostly through large gains in international migration and to a lesser extent, natural increase. Within Ontario 16,900 more people moved away from GTA to other areas of the province than to Toronto from these same areas.

Between 1996 and 1998, the age distribution remained relatively proportional, though moderately older.

- The proportion of Ontarians 0-14 decreased its share by only -0.1% from 1991. In Ontario, similar to the rest of Canada, this decrease is expected to continue.
- Ontarians aged 65 and older increased in share of the total population by 0.7%. This is projected to continue.
- The number of youths under the age of 25 is projected to continue to increase beyond 2003. The projections are not proportionate across all age groups.

Fertility and birth rates continue to decline, life expectancy continues to increase. The median age of Canadians has increased nearly three years since 1991 to 36 years from 33 years.

In Ontario the number of males per 100 females (sex ratio) is 97.2.

Demographics: July 1999

Canada's population has surpassed the 30.5 million mark despite the slowest growth rate since 1971. There was an overall decrease in the number of immigrants, fewer births and an increase in the number of deaths.

Ontario's population stood at 11,560,900 as of July 1, 1999, up 1.3% from July 1, 1998. There was a decrease of 14,800 immigrants in 1998-99 and a net inflow increase from other provinces, rising from 9,200 to 17,000 during the same period. Ontario accounted for 37.8% of Canada's population.

Several census metropolitan areas (CMA's) had net inflows of people: Toronto, Oshawa, Ottawa, Windsor, Kitchener, Hamilton and London. Two northern CMA's had net outflows: Thunder Bay and Sudbury.

The following information is the most recent information in this area and is important for colleges in planning for the diverse groups of learners they serve.

- The diversity of the Canadian population continues to increase, in large part to changing immigration patterns. In the 1996 Census[1]:
  - 4.7 million people reported a mother tongue other than English or French, a 15.1% increase from 1991, although only 2.8 million people reported speaking a non-official language at home.
  - Almost 80% of immigrants between 1991 and 1996 reported a language other than English or French as mother tongue. More than half were from Asia and the Middle East.
  - 3.2 million people identified themselves as members of a visible minority.

The increasing diversity of the Canadian population is, in turn, changing the composition of the Ontario population, especially in its urban population[2]:

- 42% of those who immigrated to Canada between 1991 and 1996 settled in Toronto.
- 53% of the Canadian visible minority population resided in Ontario and of this proportion, 80%, primarily of Chinese and South Asian descent, resided in Toronto.

- Members of visible minorities made up 12% of the Ottawa-Hull population.

Footnotes: Ontario Population

1. Statistics Canada, Census 1996: Mother Tongue, Home Language and Knowledge of Languages, December 2, 1997

2. Statistics Canada, Census 1996: Ethnic Origin, Visible Minorities, February 17, 1998.

Exhibit 5.1

Ontario Population Growth[1]
by Region

	1991	1998	% Change 1991 - 1998	# Change 1991 - 1998
East	1,672,320	1,846,665	10.4%	174,345
Central	525,920	616,744	17.3%	90,824
GTA	4,235,735	4,987,008	17.7%	751,273
Northeast	581,910	596,377	2.5%	14,467
Northwest	240,550	253,595	5.4%	13,045
Southwest	2,828,340	3,111,158	10.0%	282,818
All Regions	10,084,775	11,411,547	13.2%	1,326,772

Notes: The statistical tables in the 1998 Annual Demographic Statistics 91-213 are unrounded and should not be considered precise. They are the best possible demographic estimates given the most current information available.

East: includes the counties of Frontenac, Haliburton, Hastings, Lanark, Leeds and Grenville, Lennox and Addington, Northumberland, Peterborough, Prescott and Russell, Prince Edward, Renfrew, Stormont, Dundas and Glengarry, Victoria, and the Regional Municipality of Ottawa-Carleton.

Central: includes the counties of Bruce, Dufferin, Grey, Simcoe, and the Muskoka District Municipality.

GTA: includes the Regional Municipalities of Durham, Halton, Peel, York and the Toronto Metropolitan Municipality.

Northeast: includes the districts of Algoma, Cochrane, Nipissing, Parry Sound, Sudbury, Timiskaming and the Sudbury Regional Municipality.

Northwest: includes the districts of Kenora, Rainy River and Thunder Bay.

Southwest: includes the counties of Brant, Elgin, Essex, Huron, Kent, Lambton, Middlesex, Oxford, Perth, Wellington and the Regional Municipalities of Haldimand-Norfolk, Hamilton-Wentworth, Niagara, and Waterloo.

[1] Source: 1991 and 1996 Population counts from: Statistics Canada, Census 1991 and 1996, and 1998 Annual Demographic Statistics (91-213) Special Tabulations.

Exhibit 5.2

Ontario Population by Age Group and Region, 1998[1]

	East	Central	GTA	Northeast	Northwest	Southwest
0 - 14	359,572	130,247	995,707	114,832	54,430	634,422
15 - 19	118,703	42,361	308,559	43,734	18,600	210,175
20 - 24	117,816	36,103	324,952	41,275	17,391	210,061
25 - 44	579,750	184,672	1,722,818	178,606	79,611	966,885
45 - 64	418,308	136,534	1,083,570	139,582	52,915	671,423
65 +	252,516	86,827	551,402	78,348	30,648	418,192
All Ages	**1,846,665**	**616,744**	**4,987,008**	**596,377**	**253,595**	**3,111,158**

Note: The statistical tables in the 1998 Annual Demographic Statistics 91-213 are unrounded and should not be considered precise. They are the best possible demographic estimates given the most current information available

[1] Source: Statistics Canada, 1998 Annual Demographic Statistics (91-213) Special Tabulations.

Exhibit 5.3

Ontario Population Change between 1996 and 1998

by Age Group and Region [1]

	East	Central	GTA	Northeast	Northwest	Southwest
0 - 14	0.8%	2.0%	6.1%	-2.7%	0.6%	2.7%
15 - 19	6.0%	11.8%	6.3%	2.8%	5.9%	6.3%
20 - 24	5.7%	14.5%	5.2%	7.6%	5.6%	6.8%
25 - 44	3.9%	4.9%	8.1%	2.1%	3.6%	5.6%
45 - 64	7.7%	9.4%	9.6%	4.4%	7.1%	7.9%
65 +	5.3%	6.9%	8.4%	5.2%	3.3%	4.6%
All Ages	4.5%	6.5%	7.7%	2.4%	3.9%	5.4%

Note: The statistical tables in the 1998 Annual Demographic Statistics 91-213 are unrounded and should not be considered precise. They are the best possible demographic estimates given the most current information available.

[1] Source: Statistics Canada, Census 1991 and 1996, and 1998 Annual Demographic Statistics (91-213), Special Tabulations.

Exhibit 5.4

Ontario Population Projections

by Age Group [1]

	2001	2011	2021	% Change 2001 - 2021	# Change 2001 - 2021
0 - 14	2,384,835	2,405,877	2,488,684	4.4%	103,849
15 - 19	783,014	885,235	860,434	9.9%	77,420
20 - 24	769,910	901,537	930,538	20.9%	160,628
25 - 44	3,918,437	3,840,937	4,060,064	3.6%	141,627
45 - 64	2,796,109	3,826,616	4,161,228	48.8%	1,365,119
65 +	1,544,108	1,956,134	2,714,281	75.8%	1,170,173
All Ages	**12,196,413**	**13,816,336**	**15,215,229**	**24.8%**	**3,018,816**

Notes: These are the most recent projections available from this source.

[1] Source: Ontario Ministry of Finance, *County Population Projections: 1992 - 2021*, May 1995.

Section 6

Public Policy

- 1999 Ontario Budget
- 1999 Federal Budget
- The Ontario Jobs and Investment Board
- Key Performance Indicators
- Secondary School Reform
- Additional Public Policy Initiatives

Public Policy

The 1999 Ontario Budget

The 1999 Ontario Budget provided new initiatives and continued existing initiatives in several areas important to postsecondary education:

- **The SuperBuild Growth Fund**
  - Will invest $20 billion over five years to build and modernize Ontario's colleges and universities ($10 billion from government and $10 billion from the private sector).
  - $742 million is already committed for facilities modernization and new projects for colleges and universities — $660 million will support new projects;
  - $62.5 million for facilities renewal and $19.4 million for completion of current projects.
  - Facilities renewal will increase to $40 million per year in the future.
- **The Access To Opportunities Program (ATOP)**
  - Will provide an additional $78 million to increase the number of new spaces in computer science and high-demand, high-tech programs in colleges and universities.
- **The Strategic Skills Investment**
  - This initiative will continue with an additional $100 million over five years to support innovative/private partnerships.
  - Nineteen out of the 25 colleges are already involved with industry in self-sustaining programs, totaling $115 million.
- **The Ontario Innovation Fund**
  - A $250 million trust fund for use by Ontario universities, hospitals and colleges for labs, high-tech equipment and other research infrastructure.
- **Aiming for the Top Scholarships**
  - Tuition scholarships to help students who earn top marks but require financial assistance, starting September 2000.

- **The Learning Opportunities Task Force**
  - Has been extended to help postsecondary students with learning disabilities.

The 1999 Federal Budget

The 1999 Federal Budget was considered to be politically neutral, a balanced budget with a surplus. There were limited direct benefits for the education sector. The budget included:

- debt reduction, tax cuts and, to some extent, program spending;
- most increases in spending go to the provinces as increased Canada Health and Social Transfer payments which all provinces require to meet increased health care demands;
- education related initiatives of $1.8 billion over three years for a variety of programs including research, technology partnerships, centres of excellence, Canadian Space Agency, knowledge-based enterprise financing, export financing and employment support programs.

The Ontario Jobs and Investment Board

The Ontario Jobs and Investment Board's report, *A Road Map to Prosperity*, was released in March 1999. The report was commissioned to advise the government on the development of an economic vision and strategies for prosperity in the new millennium. The report is explicitly referenced in the April 1999 Throne Speech and the May 1999 Ontario budget. The key points include:

- recognition of the success of the colleges of applied arts and technology as contributing to the social and economic development of the province;
- calls for a "new charter for colleges" in the 21st century to allow colleges to be more market driven, more flexible with more college/private sector/university partnerships;
- an independent quality assurance organization for postsecondary institutions to set standards, access programs and report on quality;
- emphasis on lifelong learning systems that are the key to prosperity in the knowledge economy;
- calls for student loan relief, extended repayment periods and debt relief to ensure financing is not a barrier to qualified students to pursue postsecondary education.[1]

Key Performance Indicators

In August 1998, the Ontario government announced the introduction of the performance-based funding initiative known as Key Performance Indicators (KPI), an enhanced accountability framework for Ontario colleges.

- When fully implemented, up to 10% of total funding available to colleges from the Ministry of Training, Colleges and Universities will be distributed based on each college's performance in relation to the KPIs.
- The initiative is based on themes of accountability and excellence and is a collaborative venture between Ontario's colleges of applied arts and technology and the ministry.
- It is the first public sector performance survey of its kind in Ontario.
- Beginning in 1998-99, data was collected on 5 KPIs: graduate employment, graduate satisfaction, employer satisfaction, student satisfaction and graduation rate.

PROVINCIAL HIGHLIGHTS

- **Graduate Employment**
  - Eighty-nine per cent of recent college graduates got jobs within six months of graduation.
- **Employer Satisfaction**
  - Eighty per cent of employers were satisfied with the quality of the educational preparation of college graduates, 17% were neutral (neither satisfied or dissatisfied) and 3% were dissatisfied.
- **Graduate Satisfaction**
  - Sixty-nine per cent of the graduates were satisfied with the usefulness of college education, 21% were neutral (neither satisfied or dissatisfied) and 10% were dissatisfied.
- **Student Satisfaction**
  - Eighty-one per cent of 61,000 students surveyed say that they are satisfied that their programs provide them with the experiences that will be useful in their future employment, 14% were neutral (neither satisfied or dissatisfied) and 6%

were dissatisfied. For additional details on student satisfaction refer to the section entitled *Learners*.

- **Graduation Rate**
  - Data will be published later in the year after data collection is completed.

For detailed information on the KPI project, visit http://www.acaato.on.ca/kpi.

Secondary School Reform

Ontario's new streamed, four-year high school system began in September 1999. This will result in two graduating classes in 2003-2004, placing demand on colleges and universities for increased access.

- New rigorous standards for high school completion have been developed.
- Colleges, universities and workplace partners have been involved in the writing, feedback and validation of the new destination based curriculum.
- Colleges and universities have indicated concern regarding the abilities of the two systems to accommodate the increased demands. Colleges and universities each submitted a paper outlining the opportunities and challenges confronting the respective sectors and the financial requirements to meet the needs. To view these papers, visit:
  - http://www.acaato.on.ca/dblcohort.html for *Investing in Ontario's Economic Development: Opportunities and Issues for Increasing Capacity in Colleges.*
  - http//www.cou.on.ca/osof-99/osofapr131.pdf for *Ontario's Students, Ontario's Future.*

Additional Public Policy Initiatives

In March 1999, the government announced the acceptance of the **Nursing Task Force's** recommendation that a baccalaureate be the new minimum entry-to-practice requirement for future registered nurses. An implementation committee was struck to advise the government on regulatory changes, time lines and the design of collaborative programs between colleges and universities. The committee is working toward a start date of 2001 for new education programs, with graduates entering the profession in 2005.[2]

- The Nursing Task Force's report also makes recommendations regarding research

in the nursing field and lengthening the college programs for Registered Practical Nurses from three to four semesters.

The Government of Canada and the Government of Ontario signed an agreement on May 4, 1999, to **harmonize student loans** under the Canada Student Loans Program with the student assistance provided by the Government of Ontario. Under the agreement, the harmonized loan will:

- provide comprehensive and easy-to-understand information to student borrowers;
- be portable across Canada — students can select the designated public or private institution of their choice;
- simplify repayment through a one-payment approach;
- increase the interest relief period for student loan borrowers in Ontario;
- eliminate duplication.

The colleges' research activities and demonstrated expertise in the areas of applied technology and the diffusion of technology continue to receive increasing political profile and recognition. These activities are projected to become increasingly important given the impetus for applied degrees.

- In June 1998, the **Canada Foundation for Innovation**, through the $10 million *College Research Development Fund*, is funding a total of 19 college research projects, five of which are in four Ontario colleges.
- *Ontario's Research and Development Fund* has included the colleges of applied arts and technology in its listing of applicants eligible to apply to the Fund.

The Federal government has identified education as one of the pillars of the knowledge economy. As a result of this, it is developing an international strategy for promoting educational services, products and learning software. Colleges have been actively involved in local, provincial and national trade missions to a number of countries.

The Ontario Government passed two acts which have implications for colleges and their learners.

- The **Social Workers and Social Service Work Act**, 1998, establishes the *Ontario*

College of Social Workers and Social Service Workers to govern the practice of social work and social service work. The college's responsibilities include:

- the establishment of qualifications for membership in the college;
- the approval of professional and continuing education programs offered by educational institutions for the purpose of application for membership;
- the establishment and enforcement professional standards.

- The new *Apprenticeship and Certification Act* will help expand **apprenticeship** and encourage greater ownership by stakeholders. Expanding the system will increase in-school training requirements for apprentices. The new act provides for the establishment of committees for any trade to advise the minister regarding apprenticeships programs and the qualifications required for trades, other occupations and skill sets.
  - These committees also advise the minister re: development and revision of programs, curricula, training standards, examinations and the persons and institutions that will provide training.
  - To receive training, an individual must have successfully completed the academic standard prescribed by the regulation or trade; or, if no academic standard has been prescribed by the regulation or trade, must have successfully completed Grade 12 in Ontario or equivalent.

Footnotes: Public Policy

1. *A Road Map to Prosperity: An Economic Plan for Jobs in the 21st Century,* The Ontario Jobs and Investment Board, March 1999.

2. *Good Nursing, Good Health: An Investment in the 21st Century,* Report of the Nursing Task Force, January 1999

Section 7

Operating Expenses

Operating Expenses

While total college expenditures have decreased approximately 10% since 1993-94, salaries and benefits continue to represent approximately two-thirds of college operating expenditures. (See Exhibit 7.2) Non-labour costs, in total, have increased 8.5% from 1996-97 and compensation costs have decreased by 2.5% in the same time period.

Effective April 1, 1997, the Canadian Institute of Chartered Accountants initiated accounting changes which brought the college system's methods of accounting in line with other not-for-profit organizations. One of the effects under the new accounting methods, is that capital assets are no longer expensed as acquired, but are now depreciated over their useful life. The accounting changes are significant, and prevent comparisons of 1997-98 fiscal year capital expenditures to previous years. (See Exhibit 7.1)

A growing concern for colleges are the increasing costs for audit and professional services. Since 1994-95, there has been a 38% increase with a rise of approximately 8% over 1996-97 costs.

Exhibit 7.1

Non-Labour Costs Increase [1]

1997-98

Operating

Type of Costs	Expenditures 1996/97 ($)	Expenditures 1997/98 ($)	% Change
Instructional Supplies	38,955,958	44,401,015	13.9%
Field Work	1,631,536	1,888,691	15.8%
Memberships & Dues	1,528,331	2,274,892	48.8%
Staff Employment	541,742	609,303	12.5%
Professional Development	4,175,829	4,103,521	-1.7%
Travel	13,975,088	14,997,453	7.3%
Promotion / Public Relations	14,051,856	18,084,626	28.7%
Maintenance, Supplies & Vehicles	74,344,470	81,433,264	9.5%
Telecommunications	13,980,502	13,645,244	-2.3%
Insurance	4,715,336	4,987,160	5.8%
Audit & Professional Fees	12,726,124	13,737,390	7.9%
Contracting (various)	63,999,254	75,069,686	17.3%
Electricity, Fossil Fuels, Water, Refuse	29,172,961	28,594,397	-1.9%
Taxes & Bank Charges	15,111,804	14,221,538	-5.8%
Cost of Goods Sold - Anc. Op.	45,772,976	47,889,347	4.6%
Scholarships, Bursaries, Awards	1,044,775	8,896,288	751.5%
Student Assistance from Tuition	1,716,574	8,086,424	371.1%
*Depreciation Expense***	n/a	82,277,493	n/a
Miscellaneous	5,666,876	8,514,949	15.0%
Total Operating Costs:	343,111,992	473,712,681	38.1%

[1] Source: College Financial Information System (CFIS), Ministry of Education and Training, 1996-97 and 1997-98 reports

Exhibit 7.1 (cont'd)

Non-Labour Costs Increase [1]

Capital

Type of Costs	Expenditures 1996/97 ($)	Expenditures 1997/98 ($)	% Change
Rental - furniture & equipment	10,052,447	10,610,614	5.6%
Purchase - furniture & equipment	51,883,618	6,039,559	-88.4%
Premise Rental	15,232,285	14,293,336	-6.2%
*Building, site and leasehold improvements***	48,281,930	n/a	n/a
*Premise maintenance, and Equipment Purchases that are not capitalized***	n/a	3,551,941	n/a
Long Term Debt Interest	5,037,254	6,058,092	20.3%
Total Capital Costs:	130,487,534	40,553,572	-68.9%

** Effective April 1, 1997, based on the Canadian Institute for Chartered Accountants' new accounting recommendations for not-for-profit organizations, capital assets are no longer expensed as acquired, but are now depreciated over their useful life.

Exhibit 7.2

1998 Compensation Costs [1]

Full-time Employees:

Academic Staff	$376,288,984	Full-time salaries
	3,807,111	Coordinators
	2,627,096	Overtime
	3,549,014	Professional development leave
	11,504,484	Termination gratuities
	62,843,214	Mandatory and insured benefits and pensions
	$460,619,903	
Support Staff	$185,873,933	Full-time salaries
	2,610,032	Overtime
	509,804	Termination gratuities
	42,138,528	Mandatory and insured benefits and pensions
	$135,851	Employee health tax (1998 only)
	$231,268,148	
Administrative Staff	$104,924,121	Full-time salaries
	91,626	Professional development leave
	891,364	Termination gratuities
	17,567,758	Mandatory and insured benefits and pensions
	$123,474,869	

Part-time Employees:

Academic Staff	$23,000,166	Sessional salaries
	17,503,749	Partial load salaries
	48,919,889	Part-time hourly salaries
	7,923,698	Insured benefits and pensions
	$97,347,502	
Support Staff	$64,231,347	Salaries
TOTAL COMPENSATION	$976,941,769	

[1] Source: Ontario Ministry of Education and Training, College Financial Information System 1997-98 Report. As at June,1999

Exhibit 7.3

College System Revenue & Expenditures

1997-98 [1]

Item	Revenue	Expenditures
General Purpose Operating Grant	$591,722,241	
Adult Training: Federal	$57,682,465	
Adult Training: MET (MTCU)	$70,623,088	
Adult Training: Other Contracts	$101,005,104	
Tuition Fees	$347,627,941	
Total "Teaching Related" Revenue	$1,168,660,839	
Academic Salaries & Benefits (FT & Other)		$557,967,405
% of Teaching Related Revenue		47.74%
Support Salaries & Benefits (FT & Other)*		$275,514,066
% of Teaching Related Revenue		23.58%
Admin. Salaries & Benefits (FT) **		$117,702,251
% of Teaching Related Revenue		10.07%
Specific Purpose Operating Grants	$81,046,708	
Capital Grants	$46,158,933	
Ancillary Income	$133,392,476	
Other Income	$105,907,274	
Total "Infrastructure" Revenue	$366,505,391	
Non-Labour Operating Costs		$473,712,681
Non-Labour Capital Costs		$40,553,572
Remaining Support Salaries & Benefits		$19,985,429
Remaining Admin. Salaries & Benefits		$5,772,618
Student Stipends & Allowances		$16,192,503
Totals:	**$1,535,166,230**	**$1,507,400,525**

* Calculated as total Support Salaries and Benefits ($295,499,495) less that which was unallocated to the teaching function ($19,985,429)

** Calculated as total Admin. Salaries and Benefits ($123,474,869) less that which was unallocated to the teaching function ($5,772,618)

[1] Source: Ontario Ministry of Education and Training, College Financial Information System Report, June 1999

Section 8

Learners

- Postsecondary Enrolment
- Student Satisfaction KPI
- Graduate Satisfaction KPI
- Contract Training Client Satisfaction Survey
- Continuing Education Provincial Survey
- Student Debt
- The National Graduates Survey

Learners

Postsecondary Enrolment

Overall college enrolment was up by 5.8% for 1998, but appears to be levelling off for 1999-2000. The Health Sciences and Technology areas had significant increases in enrolment over 1997 with Business growth slowing down. The Applied Arts area showed a drop of 2.1% from 1997. (See Exhibit 8.2)

Colleges continue to serve a diverse group of individuals. In 1998, the entering student cohort profile is consistent with the previous few years. Data on the Fall 1998 applicants and registrants include:

Fall 1998 (from the College Application Service)	Applicants	Registrants
Age:		
• 19 and under	38.1%	35.1%
• 20 to 24	44.3%	45.0%
• 25 to 29	8.2%	8.7%
• 30 and over	8.1%	10.1%
• unknown	.94%	.93%
Gender:		
• Female	52.8%	52.7%
• Male	47.2%	47.3%
Current Secondary School Student?:		
• Yes	49.4%	44.4%
• No	50.6%	55.6%
Mother Tongue:		
• English	84.42%	84.47%
• French	4.23%	5.39%
• Bilingual	10.61%	9.39%
• Other	0.75%	0.74%

Fifty-six percent of applicants indicated on their application that they were either previous high school graduates or mature students with the remaining 44% applying directly from high school.

In 1998, a minimum of 11,000 students who entered college had attached a university transcript to their application for admission. For the most recent, detailed information, see Exhibit 8.3

In August 1998, the government announced the introduction of the performance-based funding initiative, known as Key Performance Indicators (KPI), an enhanced accountability framework for Ontario colleges. (See *Section 6: Public Policy* for information.)

Student Satisfaction KPI[1]

The majority of full-time postsecondary students at Ontario's 25 colleges of applied arts and technology say their programs give them the experience they need for future employment, but that they think some services could be improved.

- Approximately 81 per cent of the 61,000 students surveyed say they are satisfied that their programs provide them with the experiences that will be useful in their future employment; 14 per cent were neutral (neither satisfied nor dissatisfied); six per cent were dissatisfied.
- The students were also pleased with the overall quality of the learning experiences in their programs: 75 per cent were satisfied, 18 per cent were neutral (neither satisfied nor dissatisfied), and seven per cent were dissatisfied.
- With regards to facilities/resources and services, system-wide results show:
  - 64 per cent of students were satisfied with the quality of the facilities and resources at their college, 25 per cent were neutral (neither satisfied nor dissatisfied); 11 per cent were dissatisfied;
  - 62 per cent of students were satisfied with the quality of the services available to them; 27 per cent were neutral (neither satisfied nor dissatisfied); 11 per cent were dissatisfied.

Graduate Satisfaction KPI[1]

- The surveys of college graduates were conducted in December 1997 and May 1998, six months after graduation, with 24,388 responding (74.4%),
- Sixty-nine per cent of students were satisfied with their college, 21 per cent were neutral; 10 per cent were dissatisfied.

Contract Training Client Satisfaction Survey

Conducted in December 1998, the Contract Training Client Satisfaction Survey involved 729 corporate and public sector clients who utilize Ontario's colleges for employee training. Last year, approximately 155,900 employees from more than 1,500 organizations took part in college-based training programs. The survey indicated:

- That in the overall rating of clients surveyed, 41% were completely satisfied and 47% were very satisfied. This rating encompassed proposal writing, training, evaluation and follow-up and college representative items.
- Sixty-two per cent of those surveyed indicated they would almost certainly use the college again, and 28% would very likely use the college again.

Continuing Education Provincial Survey

The May 1999, **Continuing Education Provincial Survey**[3] of part-time learners (86,938 returned surveys) at colleges showed:

- high course satisfaction — overall, 86% rated course content with either a 'good' or 'excellent';
- 94% rated their instructor's knowledge of the subject as 'good' or 'excellent';
- that 83% of the students would recommend their course to a friend with similar interests;
- approximately 80% of the students taking courses through continuing education are between the ages of 25 and 54;
- almost two-thirds of students taking courses through continuing education are female;
- 68% of continuing education students are employed full-time, with 16% employed part-time;
- the proportion of continuing education students who have already completed some level of postsecondary education is up 2% from 1996 to 61%; and 27% of these hold university degrees;
- a significant proportion (77%) of students are taking courses for career-related reasons;

- 70% of continuing education students have access to a computer at home, up 3% since 1996; increasing numbers of students would prefer to register using the Internet.

Student Debt

Student debt has been a growing issue for students, colleges and government.

- Tuition fees across Canada have grown by 115% since 1980 while average family income has risen by only 1%, forcing students to resort increasingly to loans to finance their education.
- Graduates of the Class of 1995 owed between 130% and 140% more to student loan programs than the Class of 1982. Overall, 46% of college graduates had borrowed from a student loan program, and on average owed $9,600.
- Graduates aged 25 to 29 years were more likely than older or younger graduates to borrow and to owe larger amounts.
- About 41% of college graduates had repaid their loans or expected to before 2001; only about 4% of 1995 borrowers had defaulted within 2 years.[4]

Private vocational schools had the highest OSAP default rates in 1998 (34.5%), compared to colleges (25.4%) and universities (12.3%). All sectors' default rates declined in 1998 from 1997 — colleges by 2.1%, universities by 1.6% and private vocational schools by 4%.

In Ontario, the average 1998-99 loan owed by students was $6,834 down 4.7% from 1997-98. Over 50% of Ontario college students rely on student loans through OSAP to finance their education. In all three sectors those over 24 and males had higher default rates. (See Exhibit 8.5)

The diversity of student profiles in each postsecondary sector becomes apparent when the number and proportion of OSAP awards by broad student group are examined:

	Married / Sole Support		Independent		Dependent	
	No.	%	No.	%	No.	%
Colleges of Applied Arts and Technology	15,972	23.0	21,243	30.0	32,476	47.0
Universities	8,920	10.0	29,458	34.0	49,350	56.0
Private Vocational Schools	11,933	53.0	7,535	33.0	3,090	14.0

Source: Student Support Branch, Ministry of Education and Training, as of September 4,1999.

- The greater proportion of married and sole support students in private vocational schools suggests that the shorter program lengths and flexible delivery schedules are key considerations for this student group, despite the higher tuition fees and related costs.

The Government of Canada and the Government of Ontario signed an agreement to harmonize student loans under the Canada Student Loans Program with student assistance provided by the Government of Ontario on May 4, 1999. Under the agreement, the harmonized loan will:

- provide comprehensive and easy-to-understand information to student borrowers;
- be portable across Canada (students can select the designated public or private institution of their choice);
- simplify repayment through a one payment approach;
- increase the interest relief period for student loan borrowers in Ontario;
- eliminate duplication.

The National Graduates Survey

The National Graduates Survey, 1997, found that the Class of 1995 had little difficulty in filling out job applications, writing resumes and letters of introduction. The survey also found that:

- For many who graduated in 1995, finding a job with high pay was most important, job location ranked second and actually liking the job ranked third.
- Networking was the most effective method of finding a first job. One-third of college graduates found their first job through friends or family.
- About 25% of college graduates had some trouble with their job search.

Over one in four graduates reported great difficulty in finding a well paying job		
Grads who had difficulty:	College %	Bachelor's %
Finding a job that paid enough	28	27
Finding a job that related to my field of study	25	33
Finding a job where I wanted to live	17	16
Knowing how to find job openings	7	8
Deciding what I wanted to be	7	14
Performing well in job interviews	2	2
Completing job applications, writing resumes or letters of introduction	1	1

Source: Statistics Canada, National Graduates Survey, 1997

- Previous work experience, including co-op programs, was helpful in finding a job;
- In June 1997, 95% of the Class of 1995 had found their first post-graduation job. On average they had held 2.1 jobs between graduation and June 1997, but 6.2% had held five or more jobs.[5]

The Internet can play an important role in preparing for job searches and looking for a job. There are a multitude of possibilities on the Internet to assist staff and students in assessing the job opportunities and are being used increasingly. For example:

- Work Web: Canada's Online Campus Career Centre;
- Campus Worklink — an alliance between CACCEE and Industry Canada. It contains information for job seekers, employers and institutions.

Footnotes - Learners

1. KPI Xpress, M.E.T./A.C.A.A.T.O, Vol.1, No.3, April 1999.
2. *1998 Contract Training Client Satisfaction Survey*, Forum Canada Research, December 1998.
3. *Continuing Education Provincial Survey: Highlights*, Compustat Consultants, 1999.
4. Clark Warren, *Paying off Student Loans*, Perspectives, Spring 1999.
5. Clark Warren, *Search for Success: Finding Work After Graduation*, Canadian Social Trends, Summer 1999.

Exhibit 8.1

Full-time Postsecondary Enrolment

in Ontario Colleges[1]

Year	FTPS Enrolment *excluding* CEIC, and International Students	FTPS Enrolment *including* CEIC, and International Students
1976		58,757
1977		61,094
1978		64,793
1979	not available	70,508
1980		76,585
1981		81,599
1982		90,692
1983	95,107	97,239
1984	96,855	98,859
1985	94,266	96,269
1986	93,474	95,118
1987	94,911	96,191
1988	94,150	95,051
1989	97,347	98,080
1990	102,998	103,598
1991	113,594	114,398
1992	121,919	122,745
1993	125,238	127,526
1994	129,857	132,071
1995	134,127	135,880
1996	134,409	136,128
1997	135,831	137,862
1998	139,627	141,256

[1]1976 - 1994 enrolment figures from Ministry of Education and Training CAAT2 report (November 1 student count)
1995 - 1998 enrolment figures from Ontario College Application Service November 1 survey of colleges

Exhibit 8.2

Trends in Full-time Postsecondary Enrolment at Colleges[1]

Year	Applied Arts		Business		Health Sciences		Technology		TOTAL
	#	% Change	#	% Change	#	% Change	#	% Change	
1986	25,902	--	32,192	--	13,074	--	23,950	--	95,118
1987	28,890	11.5%	33,447	3.9%	13,403	2.5%	20,451	-14.6%	96,191
1988	30,101	4.2%	31,981	-4.4%	13,465	0.5%	19,496	-4.7%	95,043
1989	31,327	4.1%	32,207	0.7%	13,863	3.0%	20,657	6.0%	98,054
1990	33,657	7.4%	33,446	3.8%	14,461	4.3%	21,823	5.6%	103,387
1991	38,526	14.5%	38,081	13.9%	14,336	-0.9%	23,455	7.5%	114,398
1992	41,754	8.4%	40,846	7.3%	14,438	0.7%	25,707	9.6%	122,745
1993	44,728	7.1%	41,515	1.6%	14,546	0.7%	26,467	3.0%	127,256
1994	47,503	6.2%	43,629	5.1%	13,715	-5.7%	27,224	2.9%	132,071
1995	49,989	5.2%	42,932	-1.6%	14,561	6.2%	28,398	4.3%	135,880
1996	47,820	-4.3%	44,675	4.1%	14,386	-1.2%	29,247	3.0%	136,128
1997	48,469	1.4%	46,596	4.3%	12,542	-12.8%	30,255	3.4%	137,862
1998	47,429	-2.1%	48,430	3.9%	13,648	8.8%	32,019	5.8%	141,526
Total % Change		**83.1%**		**50.4%**		**4.3%**		**33.7%**	**48.5%**

Note: Includes CEIC and International Students

[1] Source: Ministry of Education and Training

Exhibit 8.3

Movement of College and University Students [1]

In 1997-98, the College-University Consortium Council (CUCC) conducted a study of the movement of students and graduates between colleges and universities. One objective was to determine the level of desire among postsecondary students to move between each sector. On this level, the study found the following:

From University to College:

In 1996, 10,984 applicants to college through the Ontario College Application Service (OCAS), or approximately 7% of a total of 154,615 applicants indicated on their forms that they had attached a university transcript. This proportion is most likely understated since:

- many college programs don't require postsecondary background for admission;
- not all applicants choose to reveal previous university or other postsecondary study; and,
- the OCAS form doesn't require the applicant to detail previous educational and other activity while the Ontario University Application Centre form does.

In addition:

- 37% of applicants sought admission to 2-year programs;
- 27% of applicants sought admission to 3-year programs; and
- 24% of applicants sought admission to a post-diploma program.

By program area, the top three choices were Office and Business Administration, Social Services, and Visual and Creative Arts.

Of these 10,984 applicants, 60% accepted an offer of admission. The proportion of those who enrolled is not available.

From College to University:

In 1996, 7,374 of those who applied to university through the Ontario University Application Centre (OUAC), or approximately 7.7% of total applicants, were identified as having

studied at some previous point at an Ontario college. This proportion is most likely understated because:

- the majority, *but not all*, advanced-standing applications go through OUAC;
- most part-time applicants do *not* go through OUAC; and
- *not* all applicants for degree completion programs under agreements with colleges go through OUAC.

Eighty-three per cent sought admission to first-year university programs (based on first choice) while the remainder sought advanced standing. By program area, the top three choices were: General Arts and Science; Business (eg., management, accounting, administration and commerce); and Sciences (eg., general, biological, mathematics, physical education, computer).

Of these 7,374 applicants, 61% accepted an offer of admission; of this proportion 59.5% enrolled.

[1] Source: R.I. Cummins, *Movement between Ontario Universities and Colleges: Report to the College-University Consortium Council*, March 10, 1998

Exhibit 8.4

Ontario Student Assistance Program - College Trends[1]

1. Levels of Student Assistance and Number of Recipients:

Year	Ontario Study Grant (current $)	Canada Study Grant[1] (current $)	Canada Student Loan (current $)	Ontario Student Loan (current $)	No. of College OSAP Recipients	Total Full-time Postsecondary Enrolment [2]	% of Total
1990-91	80,838,901	n/a	65,510,282	9,558,814	42,145	102,998	41%
1991-92	109,578,596	n/a	112,686,222	18,753,774	55,271	113,594	49%
1992-93	125,044,943	n/a	123,343,781	20,697,160	59,612	121,919	49%
1993-94	n/a	n/a	187,008,735	151,935,794	64,450	125,238	51%
1994-95	n/a	n/a	204,453,493	175,897,587	71,595	129,857	55%
1995-96	n/a	n/a	234,680,293	197,265,690	73,094	134,127	54%
1996-97	n/a	n/a	260,511,404	241,772,883	72,329	134,409	54%
1997-98	n/a	n/a	267,928,680	246,830,445	71,884	135,831	53%
1998-99	n/a	17,574,634	260,651,030	216,304,780	69,788	136,170	51%

Notes:

1. The 1998-99 Canada Study Grant figure represents students with dependents only.
2. Excludes CEIC, and International Students.
3. As of September 4, 1999.

[1] Source: Ontario Ministry of Education and Training, Student Support Branch.

Exhibit 8.4

Exhibit 8.4 [cont'd]

Ontario Student Assistance Program College Trends

2. Number of Awards by Student Group:

Student Group	1994-95	1995-96	1996-97	1997-98	1998-99[1]
Dependent at Home	11,185	11,279	12,070	13,505	13,468
Dependent Away	17,311	16,329	16,625	18,123	19,008
Independent[2]	27,692	29,333	27,970	24,677	21,243
Married	6,763	6,886	7,067	6,916	7,263
Sole Support	8,578	9,227	8,581	8,573	8,709
Other	31	42	16	91	97
TOTAL	71,560	73,096	72,329	71,885	69,788

3. Average Loan Amount by Student Group[3]:

	1994-95	1995-96	1996-97	1997-98	1998-99[1]
Dependent at Home	$3,155	$3,220	$3,418	$3,168	$3,085
Dependent Away	$5,388	$5,472	$5,632	$6,203	$5,901
Independent[2]	$5,940	$6,101	$6,358	$6,526	$6,254
Married	$6,072	$5,853	$9,804	$10,813	$10,002
Sole Support [3]	$5,344	$6,062	$14,004	$15,192	$13,438[4]
Other	$5,203	$5,318	$7,967	$7,048	$6,834

Notes:

1. As of September 4, 1999.
2. Includes students who qualify as independent students under the Canada Student Loans Program and dependent students under the Ontario Student Loans Program.
3. Canada Student Loans and Ontario Student Loans divided by the number of awards. Students may receive an Ontario Student Opportunity Grant equal to the portion of a loan that exceeds $7,000.
4. Does not include the value of Canada Study Grants for students with dependents. introduced in 1998-99.

Exhibit 8.5

OSAP Default Rates — 1998 Highlights[1]

The *overall* default rate for Ontario postsecondary institutions is 22.1%, a decrease of 1.4 percentage points from the 1997 default rate of 23.5%. The 1998 default rates for each sector ranges from 12.3% for universities, to 25.4% for colleges, 34.5% private vocational schools and 11.8% for other private and publicly-funded institutions.

To date, the ministry has taken a number of measures to reduce the incidence and cost of loan defaults. These include but are not limited to:

- *Sharing the Cost of Loan Defaults* - Beginning with loans issued in 1998/99, institutions with a 1997 default rate of 15 percentage points or more above the 1997 provincial average of 23.5% are required to share the cost of defaults. In 1999-2000 the policy will also apply to institutions with a 1997 default rate 10 percentage points or more above 23.5%.
- *Reporting Program Outcomes* - Institutions are now required to provide students with accurate information on default rates, graduation rates and graduate employment rates by program allowing students to make a more informed choice of studies.
- *Several strategies impact students directly: Ontario Student Opportunity Grant*- for 1998/99, it is projected at $300 million; *Credit Screening*; *Interest Relief* ; *Income Verification* and beginning this year, the province will recover monies owed on student loans through set-offs against defaulters' personal income tax refunds.

Characteristics	Colleges Default Rate[2]	Universities Default Rate[2]	Private Vocational Schools Default Rate[2]
Age			
24 & Under	23.4%	9.7%	33.4%
25 & Over	27.9%	15.0%	35.1%
Gender			
Male	30.0%	14.1%	35.6%
Female	21.2%	10.6%	33.8%
Withdrawal Status[3]			
Withdrawals	41.4%	25.4%	47.3%
Non-Withdrawals	21.1%	11.5%	31.5%
Interest Relief Program[4]			
1 Term	24.3%	15.3%	24.9%
2 Terms	12.2%	9.4%	12.9%
3 Terms	3.8%	3.8%	5.1%

[1] http://osap.gov.on.ca/not_secure/new98.htm

[2] Number of loans in default as a percentage of numbers of loans issued.

[3] Students reported to OSAP as withdrawing from their program of studies prior to the study period end date identified on their 1995-96 OSAP application/assessment.

[4] Includes students who participated in this program for one term (six months) or more from 1995-96 to 1998. While on interest relief, students were exempted from OSL payments and interest and did not accumulate on their loan.

Section 9

Human Resources

- College Staffing
- Value of Employees
- Teleworking
- E-recruiting

Human Resources

College Staffing

Colleges continue to serve more clients with fewer staff and resources:

- Since 1991 the number of full-time staff in Ontario colleges has decreased by 22.8%. Compared to 1997, the number of full-time support staff increased slightly in 1998 while the number of full-time administrative and faculty members continued to decrease.
- The number of part-time faculty and part-time support staff increased in 1998 by 13% over 1997, with the number of part-time support staff alone increasing by 44.4%. (See Exhibits 9.1 & 9.2)

In September 1998, college teachers ratified a three-year collective agreement that will run until August 31, 2001. The contract is seen as fair, but the settlement will challenge the budgets of some of the community colleges. The college system will use the time provided by the three-year contract to work for changes to the bargaining process.

A new job-evaluation system for non-bargaining unit employees was approved by the minister in August 1999 and is in the process of being implemented by the colleges with support from the Council of Regents.

Colleges, as with most organizations, are struggling with the high demand and lucrative global market for IT professionals. Colleges must address the issues of salary competitiveness, retention and currency of skills of IT professionals to ensure they are able to continue to be leaders in areas of IT education.

Value of Employees

Employees are the most importance resource for any organization. Organizations increasingly realize that by maximizing the value of their workforce there is the potential for higher rewards for all stakeholders. Watson Wyatt undertook a study of 1,020 organizations in North America and in-depth case studies of 17 companies.

- It is clear that organizations are paying a lot of attention to their customers. However, the growing recognition by organizations of the importance of employees can be seen in the second most frequently cited basis for future success, namely employee development. (See Exhibit 9.3)

- Both managers and staff identified the top three skills critical for their jobs as technical knowledge, interpersonal skills and creativity. (See Exhibit 9.4)
- Employees see a shift from technical skills to interpersonal skills as they grow. Significant factors that influence an individual's performance and contribution include succession planning, promotional opportunities, mentoring programs, on-the-job learning and career workshops.
- The study found some strategies that organizations can use to leverage their workforce to make a competitive difference.
  - Competency-based programs can make a difference to the bottom line.
  - Contributions are role-related rather than position-related.
  - Programs that build employee commitment can bring great returns.
  - Training is important but is no substitute for good management.[1]

A survey designed to measure how well organizations are doing at aligning employees with their strategies and goals found significant differences in employee attitudes between those companies that were growing or expanding and all other respondents. (See Exhibit 9.5) Growing organizations do better in key areas than other organizations. They:

- have more effective and more open communication;
- encourage innovation and employee development;
- do a better job of recognizing and rewarding employee performance;
- have senior management that is in touch with its employees; and
- involve employees in decision making that affects them directly.[2]

Teleworking

Teleworking is a growing trend where workers work away from their company's office. They work from home, on an airplane or in a client's office.

- In 1993, Statistics Canada counted 600,000 teleworkers. By 1997 there were more than a million and they predict there will be 1.5 million by 2001.
- The key difference between a teleworker and a traditional worker, is that a teleworker spends more time with a computer and a telephone than in face-to-face meetings.

- A 1998 Conference Board of Canada Report said Canada loses high-tech recruits to American companies offering more innovative work environments. It also reported that "employers enthusiastically cited enhanced worker productivity, the ability to retain valuable employees and increased employee loyalty as the benefits from telework programs."
- A recent survey of 5,000 government teleworkers showed telework helped balance personal and professional lives, reduced stress and absenteeism, reduced the cost of commuting and improved productivity.[3]

E-RECRUITING

The Internet is revolutionizing the recruiting world, transforming the job of a recruiter from a paper manager to that of a headhunter and Internet researcher. A recent study examined the state of Internet recruiting in Canada and found:

- Only 17% of Fortune 500 companies recruited over the Internet in January 1998 compared to 45% in January 1999.
- There are currently 300,000 Canadians who have posted their resumes on-line.
- In early 1999, the most popular commercial job boards were reporting between 10,000 and 20,000 individual sessions each day.
- Sixty-six per cent of respondents indicated that the Internet generated higher caliber applicants than any other method of recruiting, 74% found using the Internet faster and 82% said it saved the company money compared to traditional advertising.
- The centrepiece of a successful recruiting strategy begins with a company's website; 80% of visitors to job boards visit an employer's website before applying for a job.[4]

A study on how HR is responding to employee expectations and organizational needs concluded that "...there is little that is being done that is innovative or creative in addressing the stress caused by increasing work demands, intense pace of change and the conflict between personal and work life."

Footnotes: Human Resources

1. *Competencies and the Competitive Edge*, Watson Wyatt MEMORANDUM, September 1998, Volume 12, Number 3.

2. *Alignment: The Last Frontier for Creating Competitive Advantage*, Results of Watson Wyatt Worldwide's 1997 WorkCANADA: A Study of Workforce Attitudes, Watson Wyatt, 1998.

3. Larin, Nancy, *More Employees are Doing Homework*, Canadian HR Reporter, December 14, 1998.

4. Lermusiaux Yves, *Recruiting Effectively Over the Internet*, Canadian HR Reporter, April 5, 1999.

Exhibit 9.1

College Staff [1]

October 1998

Full-time Staff:

		Male	Female	Total
Academic		3,580	2,708	6,288
Support		1,699	3,753	5,452
Administration		613	802	1,415
Total		5,892	7,263	13,155

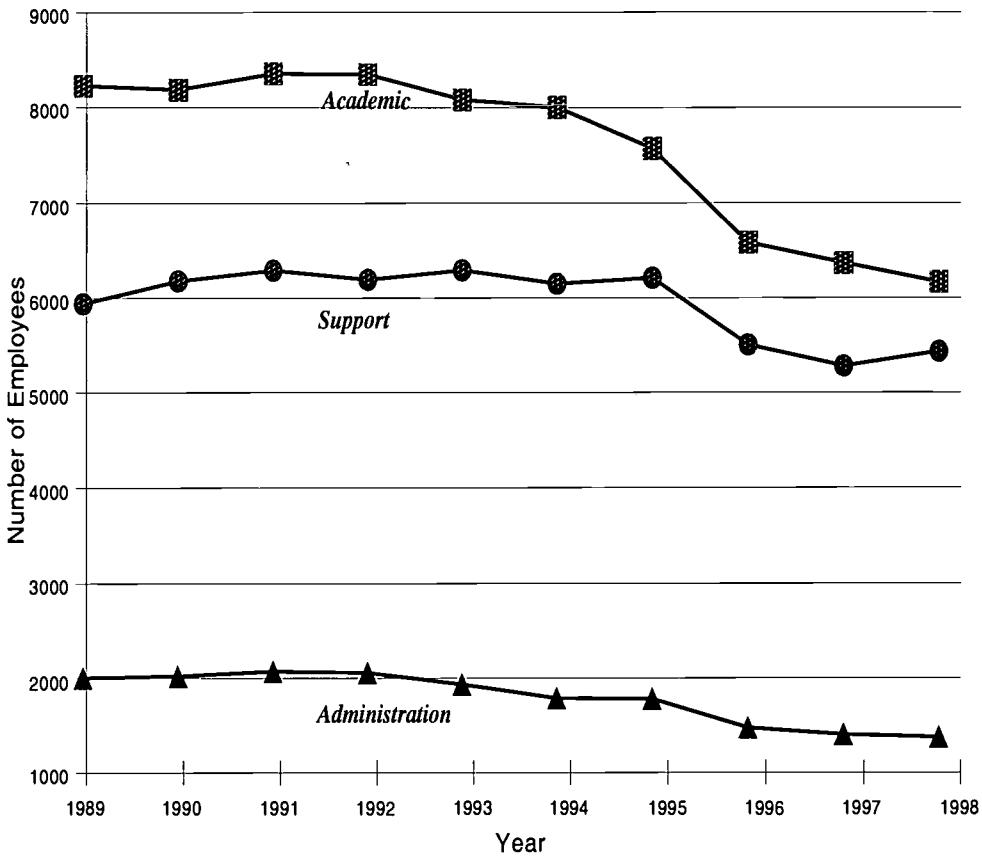
Part-time Staff:

		Male	Female	Total
Academic		5,042	4,636	9,678
Support		1,602	3,290	4,892
Total		6,644	7,926	14,570

[1] Source: Ontario Council of Regents, Human Resources Secretariat, College Surveys

Exhibit 9.2

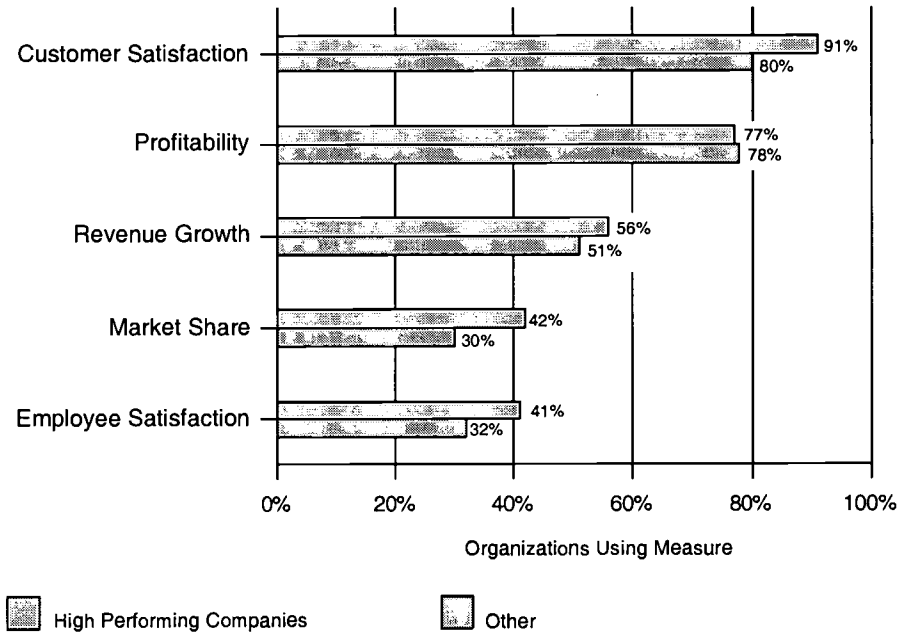
Full-time Staff in Ontario Colleges 1989 to 1998 [1]



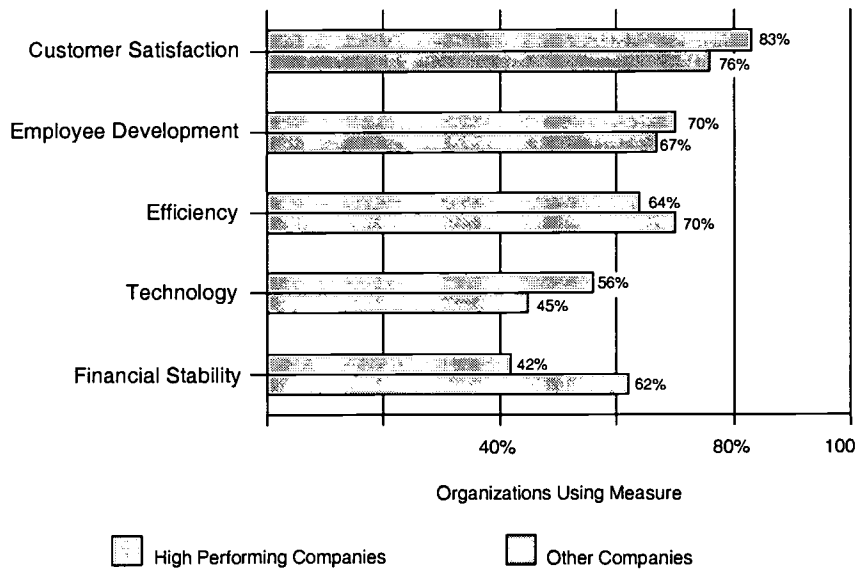
[1] Source: Ontario Council of Regents, Human Resources Secretariat

Exhibit 9.3

Identified Corporate Measures of Success



Basis for Future Corporate Success



1. Competencies and the Competitive Edge, Watson Wyatt MEMORANDUM, September 1998, Volume 12, Number 3.

Exhibit 9.4

Most Critical Core Competencies by Organization Performance[1]

	High Performers	Others
Technical Knowledge	55%	46%
Interpersonal Skills	44%	41%
Communication Skills	32%	26%
Decision-making	29%	29%
Ability to lead/manage	27%	23%
Flexibility/adaptability	27%	34%
Creativity/resourcefulness	23%	20%
Knowledge of business	17%	18%
Willingness to learn	15%	15%
Analytical skills	9%	12%

Notes: Except for technical knowledge, the competencies identified by participants as most important centre around behavioural skills.

Most Deficient Competencies by Organization Performance[1]

High Performers		Other Organizations	
Dealing with ambiguity	17%	Ability to lead/manage	19%
Communication skills	14%	Flexibility/adaptability	15%
Flexibility/adaptability	14%	Dealing with ambiguity	12%
Ability to lead/manage	14%	Decision-making	11%
Creativity/resourcefulness	9%	Communication skills	10%
Interpersonal skills	9%	Creativity/resourcefulness	9%
Decision-making	4%	Interpersonal skills	9%

Note: Organizations identified those competencies that their workforce most lacked.

1.*Competencies and the Competitive Edge*, Watson Wyatt MEMORANDUM, September 1998, Volume 12, Number 3.

Exhibit 9.5

Comparison of People Who Work for Growing Organizations to All Others[1]

	% Agreeing	
	People who work for growing organizations	People who work for all other organizations
Understand organizational values	80	67
Feel comfortable voicing opinions with supervisor	74	59
Encouraged to try new ways of doing things	50	39
Encouraged to question how work is done	60	45
Given the chance to learn new skills	60	46
Performance reviews are conducted on a regular basis	53	40
Organization recognizes employee efforts to improve customer service	56	39
Organization recognizes employee efforts to improve quality	48	28
Organization rewards good performance	40	19
Senior management actions support quality goals	61	40
Senior management behaves consistently with organization's values	61	37
Senior management does a good job of exploring new business opportunities	70	42
Senior management does a good job of making the changes necessary to stay competitive	65	40
My company is well managed	63	39

1. *Alignment: The Last Frontier for Creating Competitive Advantage,* Results of Watson Wyatt Worldwide's 1997 WorkCANADA: A Study of Workforce Attitudes, Watson Wyatt, 1998.

Webography

The following selected websites provide interesting research information and in many cases excellent links to additional resources. Many websites provide information for several sections of The Environmental Scan but have been listed only once. It is not all inclusive. If you have websites you would recommend please use the enclosed feedback form to enlarge our resource list.

Economy and Labour Force

Angus Reid Group

- Many of the Angus Reid Group's recent market research reports are available on this website.
  http://www.angusreid.com

Bank of Montreal

- Economics Department gives analysis of various key economic issues, provincial and federal budgets.
  http://www.bmo.com/economic/

Industry Canada

- Strategis: Canada's most comprehensive Internet site for Canadian businesses and consumers. In the Economic Analysis and Statistic section there are full texts of *MICRO* and the research publications of the branch.
  http://www.strategis.ic.gc.ca

Ontario Ministry of Finance

- Ontario Economy: contains information related to the status of the Ontario economy. It includes economic updates, economic accounts, economic outlook and fiscal review.
  http://www.gov.on.ca:80/FIN/english/oecoeng.htm

Statistics Canada:

- An invaluable link for Canadian statistics, education resources, research papers and labour force survey information.
  http://www.statcan.ca

Human Resources and Development Canada:

- Labour Market Information site gives information on occupations, industry sectors and the changing nature of work and labour market trends.
  http://www.hrdc-drhc.gc.ca/common/lmi.shtml

Education and Training

American Society of Training and Development

- Provides research information relating to workplace training and development and current trends.
  http://www.astd.org

Conference Board of Canada

- Provides information about organizational strategies and practices, emerging economic and social trends and key public policy issues.
  http://www.conferenceboard.ca

Canadian Policy Research Network Inc.

- Many research papers relating to social and economic issues and, specifically, training.
  http://cprn.com

TeleEducation New Brunswick's Telecampus

- This is an example of an extensive database of online courses.
  http://telecampus.edu

The Distance Education Clearinghouse at the University of Wisconsin

- A distance education clearinghouse that includes sections on keeping current, highlights, program resources and courses, technologies, places and services.
  http://www.uwex.edu/disted/home.html

Information Technology

Ekos

- This company is a social and economic research consulting company and produces some interesting research documents.
  http://www.ekos.com

Information Technology Association of Canada

- ITAC identifies and provides leadership on issues that affect the IT industry and advocates on various issues. Provides research and position papers on various issues.
  http://www.itac.ca

Office of Learning Technologies

- OLT's mission is to expand innovative learning opportunities through technologies. This site offers information on OLT funding and publications. It has an excellent library which contains links to Canadian sites, electronic journals and OLT funded projects.
  http://olt-bta.hrdc-drhc.gc.ca

Learners

Career Gateway

- A provincial website that provides a multitude of links for job searches, labour market information, careers and employment profiles of 1996-97 college graduates.
  http://www.edu.gov.on.ca/eng/career/labmark.html

Work/Jobs

- A federal government website for work-ready individuals who want a quick path to job listings, work search help, resume writing and workplace information.
  www.hrdc-drhc.gc.ca/common/work.shtml

Human Resources

Watson Wyatt

- A global human resources consulting firm which has produced interesting research in this field.
  http://www.watsonwyatt.com

General

Association for Institutional Research (AIR)

- Lists Internet resources for institutional research, publications and strategic initiatives
  http://www.airweb.org/

The Canadian Institutional Research and Planning Association

- Contains many links of interest to those involved in institutional research and planning.
  http://www.usask.ca/cirpa

The Institute for Higher Education Policy

- Provides information on research and policy analysis in four primary areas: systems of financing, accountability and finance, new teaching and learning strategies, and responding to social and economic change.
  http://www.ihep.com/

The Society for College and University Planning

- Contains links to plans from other institutions, pertinent online periodicals and books, conferences and recent reports.
  http://www.scup.org/

The 2000 Environmental Scan
FOR
The Colleges of Applied Arts and Technology of Ontario

Feedback Form

The *2000 Environmental Scan* was created to provide individual colleges with relevant information, in an easy to use format, to support their planning and advocacy initiatives. Your feedback is important to ACAATO as it plans for the next edition. Please forward your thoughts and comments to Pam Derks, Director, Research and Policy at:

The Association of Colleges of Applied Arts and Technology
655 Bay Street, Suite 1010
Toronto, ON, M5G 2K4
email: derks@acaato.on.ca • phone: (416) 596-0744 extension 230 • fax: (416) 596-2364

1. *What did you find to be the most useful component(s) of the scan?*

2. *What was missing from this scan that should be included in the next one?*

3. *How have you used the scan in your own work?*

4. *Other comments:*

Your Name:	Telephone: ( )
College/Organization:	Would you be willing to assist in the next Environmental Scan?
Department:	Yes ( ) No ( )

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