The Contribution of Postsecondary Education to the Future of Work

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Informing the Future of Higher Education

Field of Study:
- (3%) Math, computer and information sciences
- (8%) Architecture and engineering
- (2%) Agriculture, natural resources, conservation
- (8%) Physical and life sciences
- (7%) Health
- (26%) Law, social and behavioural sciences
- (1%) Personal, protective and transportation services
- (6%) Education
- (5%) Arts and communications
- (16%) Humanities
- (19%) Business, management and public administration

Occupation:
- (6%) Computer and information systems
- (4%) Civil, mechanical, electrical, chemical and other engineers
- (0%) Architects, urban planners and land surveyors
- (0%) Mathematicians, statisticians and actuaries
- (3%) Natural and applied sciences
- (0%) Physical sciences
- (0%) Life sciences
- (1%) Policy and program officers, researchers and consultants (STEM)
- (0%) Psychologists
- (7%) Health
- (2%) Judges, lawyers, and Quebec notaries
- (1%) Social workers, counsellors, clergy and probation officers
- (2%) Policy and program officers, researchers and consultants (non-STEM)
- (3%) Paralegals, social services, education and religion
- (5%) Art, culture, recreation and sport
- (11%) Teachers and professors
- (13%) Sales and service
- (15%) Management
- (21%) Business, finance and administrative
- (3%) Trades, transport and equipment operators
- (2%) Processing, manufacturing and utilities
- (1%) Primary Industry
The education system is by far the largest education and training site where individuals learn what they need to succeed in work (and life).
The Big Skills Questions for Postsecondary Education

• What skills should a postsecondary graduate possess?

• What skills do employers want?

• How well do postsecondary programs teach these skills?

• Can we teach skills more effectively and efficiently?
Classes of Postsecondary Skills

**Disciplinary knowledge**
- Solve equations
- Know concepts

**Basic cognitive skills**
- Literacy
- Numeracy

**Higher order cognitive skills**
- Problem solving
- Critical thinking
- Communication

**Behavioural (soft) skills**
- Persistence
- Initiative
- Resilience
Employers emphasize cognitive and behavioural skills

- **Communication skills**: 100%
- **Interpersonal skills**: 88%
- **Critical thinking skills**: 63%
- **Problem solving skills**: 63%

Data from employer surveys.
Does postsecondary education adequately prepare students for work?

72% of educators say yes.

45% of graduates say yes.

42% of employers say yes.

Does postsecondary education adequately prepare students for work?

96% of chief academic officers say postsecondary institutions are doing a good job.

11% of employers agree.
Essential Adult Skills Initiative (EASI)

Test at start of program  

Use Education and Skills Online (PIAAC Online) to measure change of literacy, numeracy & problem solving

Test at end of program

**11 colleges:** Algonquin; Centennial; Conestoga; Fanshawe; Fleming; George Brown; Humber; Sault; Seneca; Sheridan; St Lawrence

**9 universities:** Algoma; Brescia; Brock; McMaster; Nipissing; Queen’s; Guelph; York; Quest [BC]
EASI Results – Literacy & Numeracy

% of cohort

Literacy levels

- Below Level 1
- Level 1
- Level 2
- Level 3
- Level 4/5

First year students
Final year students

Numeracy levels

- Below Level 1
- Level 1
- Level 2
- Level 3
- Level 4/5

First year students
Final year students
Literacy Levels

**Level 2**

“Submit a vote for or against a new workplace dress code on an employer’s Web page.”

“Name two reasons stated in an employee newsletter for an increase in company sales.”

**Level 3**

“Find out whether a utility company accepts the same type of payment if paid by mail or online using information from a monthly billing statement.”

“Search several Web pages of a national health organization for evidence supporting the claim that exercise can lead to greater work productivity.”

**Level 4/5**

“Evaluate posts in a discussion forum on health remedies by comparing the information against that in a website from a well-known medical center.”

“Determine which claims in a newspaper article about the benefits of sleep are supported by information and graphs in two long research articles.”

Postsecondary and Workplace Skills Project (PAWS) Critical thinking and labour market success

Measure critical thinking skills at start of program (Fall 2016)

Measure critical thinking skills at end of program (Winter 2017)

Link skills and admin data to tax records (January 2020-2021)

PSE Admin Data

Tax Data
PAWS Results -- Critical Thinking

COLLEGE

UNIVERSITY
What have we learned?

- Skills measurement is doable and scalable.
- Most students are average, but too many are below average and too few are above average.
- Skills gains in some situations but not others.
Policy implication 1: What are the new right questions to ask?

“The difficulty lies not in the new ideas but in escaping from the old ones, which ramify...into every corner of our minds.”
Policy implication 2: The sweet spot is skills

The World of Work

Postsecondary Education

SKILLS

Which ones?

Measurement

Credentialing

Informing the Future of Higher Education

Higher Education Quality Council of Ontario
Informing the Future of Higher Education
“Whether they are older, work full-time, have a disability, are a single parent, first-generation or Indigenous ... the non-traditional student is becoming the new normal.”
Visit our website: www.heqco.ca
To see all of our reports and research.

To join our mailing list, just give me your business card.
## Numeracy Levels

### Level 2

“Figure out the price of a shirt that will be discounted by 25 percent.”

“Determine how many months in a year had sales above the mean sales for the year from a table of monthly sales.”

### Level 3

“Determine the amount of concentrated lemonade flavoring and water needed to make a large container of lemonade that is in the same ratio of flavoring to water as a smaller amount of lemonade.”

“Read a complex graph, comparing the amount of salt, sugar, and fat in a typical diet for men versus a typical diet for women, to determine the amount of sugar consumed by men.”

### Level 4/5

“Determine how much medicine to give to a child when the dosage is based on the child’s body weight.”

“Calculate profit from a table containing lists of income and expense sources.”