



Return on Investment in Literacy and Essential Skills Training: Some Evidence

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Scope of Presentation

- This presentation examines the Return on Training Investment (ROTI) on literacy and essential skills training through an environmental scan / literature review.
- It seeks to address the following questions:
 - What are the different ways of measuring ROTI for both formal and informal training?
 - What are the different ROTI methodologies used for literacy/essential skills training?
How can they be used?
 - What evidence exists regarding ROTI with respect to workplace-based essential skills training?
 - Which types of essential skills training have the highest rates of return?
 - How does Canada compare with other selected OECD countries?

Context

- Growing importance within developed economies of the education, skills, talents and abilities of workers as a source of comparative advantage.
- Demographic and technological change are creating skill shortages in many countries particularly in emerging areas of their economies.
- At the same time there is also the presence of sizable populations with skill levels which are insufficient to adequately deal with everyday tasks in the knowledge-based economy.
- Continuous learning is increasingly recognized as a key means to promote productivity and improve the standard of living.

Why ROTI is Important

- Substantial private and public investments in adult training and continuous learning are made every year in Canada as well as other advanced nations.
- One of the keys to incite investment in workplace training in general and essential skills in particular is to have a good understanding of ROTI.
- Decision to train or not depends to a large extent on ROTI.
 - Employers, governments, workers and other stakeholders need to know the return on investment in order to make informed decisions.
- Training evaluation and ROTI methodologies assist human resources managers and senior executives by enabling them to:
 - Improve decision making in terms of optimizing training investments;
 - Assess the link between training and firm performance; and
 - Demonstrate the value of training.

Purpose

- To present various approaches to measuring ROTI such as:
 - Quantitative Analysis
 - Econometric approaches
 - Individual firm-level case studies
 - Qualitative Analysis
 - Surveys
- To present evidence on ROTI for literacy and essential skills training from:
 - Australia
 - France
 - New Zealand
 - United Kingdom
 - United States
 - Canada

Human Capital Theory

- A starting point to understand the question of ROTI is human capital theory.
- The OECD defines human capital as the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being.
- Economic theory argues that it is the stock of human capital that largely determines the employment earnings of workers.
- Investments in human capital are similar to investments in physical capital
 - Individuals or firms will only invest in human capital if they expect their return on investment to be greater than the market interest rate.

Canadian Context

What are Essential Skills?

- In 1994, Human Resources Development Canada's Essential Skills Research Project identified a profile of essential skills:
 - Enable workers to perform the required tasks of their job
 - Provide individuals with a base for continuous learning, and
 - Improve worker's ability to adapt to change.
- According to the 2003 International Adult Literacy and Skills Survey (IALSS) survey, 9 million Canadians or 42% of the working age population lack adequate essential skills competency.

Nine Essential Skills:

- Reading Text
- Document Use
- Numeracy
- Writing
- Oral Communication
- Working with Others
- Continuous Learning
- Thinking Skills
- Computer Use

Measuring ROTI

- There are two main approaches to measuring ROTI:
 - **Quantitative techniques:**
 - Econometric and individual firm case study techniques.
 - **Qualitative techniques:**
 - Approaches such as surveys based on interviews with employers, employees and union representatives.

- There are two main challenges in measuring ROTI:
 - **Separation of variables:**
 - While training influences the performance of the enterprise, it is difficult to separate the impact of training from the impact of the many other variables that influence it.
 - **Direction of causation:**
 - Are firms successful because they train or are they successful and therefore they can offer training opportunities to their employees?

Quantitative Approaches to Measuring ROTI

Econometric Methodologies

- Generally track the wages of trainees under the theoretical assumption that productivity improvements as a result of the training should be reflected in higher wages.
- Examples of econometric studies include:
 - Holzer et al. (1993) which used data on firms that applied for grants under the Michigan Job Opportunities Bank Upgrade in 1988 and 1989.
 - Black and Lynch (1996) which used data collected from the National Center on the Educational Quality of the Workforce National Employers Survey.
 - Kayahan (2006) which estimated the rate of return to formal and informal training in Canada using the Workplace and Employee Survey (WES).
- While the overall results from such studies demonstrate that training has a positive impact on business results, the approach has a number of disadvantages including:
 - Such studies are complex and do not provide employers with information that they can readily use to influence training investments decisions.
 - They generally provide little or no information regarding the types of training that are effective or the cost of specific training programs.

Quantitative Approaches to Measuring ROTI (cont.)

■ Individual Firm Case Study Approaches

- Involves an in-depth examination of detailed data from one firm in order to estimate the costs and returns from the company's training program.
- Links training with business outcomes such as revenue increases, costs reductions, and increased output.
- Holds promise for Canadian businesses because it is user-friendly, practical, and involves a relatively easy to understand methodology.
- Provides insight into intangible benefits that result from training through gathering and analysis of qualitative information.
- One of the most widely known individual firm case study techniques is the Kirkpatrick/Phillips model due to its relatively simple and easy-to-understand ROTI process.

Kirkpatrick/Phillips

A five step training evaluation methodology with each step of the model building on the prior step.

Level one: Reaction – measures the degree to which trainees liked the training.

Level two: Learning—measures trainees' learning.

Level three: Behaviour – measures if trainees are using what they learned.

Level Four: Results – measures the business results of the training.

Level Five: Return on investment

Qualitative Approaches to Measuring ROTI

■ Surveys

- Surveys involve interviews with employers, employees and union representatives from private and public-sector workplaces that represent a range of economic sectors.
- Serve as a measure of the opinions of employers, employees and unions regarding the benefits of training investments.
- Provide important information regarding the impacts of training on a firm and usually take into account both tangible and intangible benefits
- Do not produce a quantifiable ROTI.
- The Conference Board of Canada uses surveys to link training to business outcomes.
 - CBOC (1999) – used a survey to examine the benefits of workplace education programs (WEP) that develop basic skills

RESEARCH FINDINGS

Literacy and Essential Skills ROTI

- Research findings from a review of the training evaluation literature on literacy and essential skills from Canada, the USA, the UK, France, Australia and New Zealand.
- Focuses on the return to the following types of essential skills training:

➤ **Literacy**

➤ **Oral Communication**

➤ **Working with Others**

➤ **Thinking Skills**

➤ **Computer Use**

➤ **Continuous Learning**

Return to Literacy Training

- Ford's 1994 case study entitled "Three Rs in the Workplace: Magnavox Electronic Systems Company" describes the evaluation of a literacy training program.
 - The evaluation, which used the Kirkpatrick/Phillips Approach, involved the collection of data on all of the evaluation levels: reaction, learning, behaviour, results, and ROTI.
 - The evaluation found that there were \$27,600 savings from reduced waste and \$294,000 in benefits from increased productivity. Comparing these benefits to the costs of the training program resulted in a **ROTI of 741%**.
- Other studies include:
 - The Conference Board of Canada (1997) – qualitative survey
 - Long (1997) – qualitative survey
 - Bassi (1994) – qualitative survey

Return to Oral Communication Skills Training

- Skillsnet (2005) presents the case study of Glanbia Meats PLC, a pork meat processing company located in Ireland, which provided an English language training program to its employees who were largely non-national migrant workers.
 - The case study used the Kirkpatrick/Phillips methodology to evaluate the training program.
 - To calculate ROTI, the methodology used data related to the tangible benefits and compared it to the cost of the training program to determine that the training program generated a **ROTI of 61%**.
 - In addition, the program generated intangible benefits such as improved confidence of employees, improved staff retention, better career progression potential of employees, reduced accident risks, and improved hygiene awareness .
- Other studies include:
 - Business in the Community (2007) – individual firm case study

Return to Working with Others Skills Training

- Bailey (2007) presents the case study of an anti-sexual harassment and awareness training program in an American health care company.
 - The program was a one-day harassment workshop for all first and second level supervisors and managers. The goal of the training was to identify inappropriate and illegal behaviour related to sexual harassment.
 - The evaluation methodology used the Kirkpatrick/Phillips ROI Analysis with the result that the program saved over \$2.8 million in turnover costs and over \$350,000 in grievance costs.
 - The training program's **ROTI was found to be 1,052%** with the high rate of return largely due to the fact that the program was successful in avoiding sexual harassment claims.
- Other Studies Include:
 - Russ-Eft (1994) case study – ROTI of 336%

Return to Thinking Skills Training

- Ouimet's 1994 Canadian study entitled "The ROI of Work Process Analysis: Multi-Marques Inc." examined the case of Multi-Marques Inc., the largest bakery in Quebec at the time of the study, and its thinking skills training program.
 - A training program was introduced to develop the problem solving and thinking skills of supervisors so that they could solve difficulties related to their work processes.
 - The results of the training program were positive as it enabled supervisors to perform their own work process analyses and solve their own problems.
 - The Kirkpatrick/Phillips Approach was used to estimate a **ROTI of 215%**.
 - High ROTI attributed to:
 - Low costs due to the employee's investment of their personal time in the training and
 - Efficient transfer of learning to the workplace through the use of real workplace problems in the training program.

Return to Computer Use Skills Training

- The Spring 1996 issue of *Ontario Food Processor Training* highlights a case study of H.J. Heinz Company of Canada, Ltd., a major processor of ketchup, baby food, cereal and soup.
 - New equipment was introduced which brought a considerable need for new computer skills to monitor and control it.
 - As a result, the company started a comprehensive training program focused on basic skills training which included computer training initiatives.
 - Using a pay-back period methodology, the company found the benefits from the training would pay for the training in about 20 months.
 - In addition, the company would benefit from a number of intangible benefits such as reduced absenteeism and improved worker confidence and morale.

Return to Continuous Learning Skills Training

- Graham's 1994 study entitled "Self-Directed Work Teams: Litton Guidance and Control Systems"

- Examined the case of a training program in this American firm for self-directed work teams that would foster an environment of continuous learning and continuous quality improvement of products and services.
 - The core objective of the program was to encourage employees to constantly grow, develop, and learn.
 - The training program was evaluated using the Kirkpatrick/Phillips Approach which found that a number of key business results were achieved through the training.
 - The results included a substantial reduction in scrap rates from \$1 million per month before the training to \$0.5 million per year after the training, a 45% improvement in productivity and significant quality improvements.
 - Comparing these benefits to the costs of the training program yielded a **ROTI of 650%**.

Recap

- Understanding ROTI is an important tool for employers to make timely training investment decisions.
 - Two key quantitative ROTI measurement techniques: econometric techniques based on data from a large sample of firms and techniques involving individual firm case studies.
- There exists limitations to large scale econometric approaches
 - Using available data are not appropriate for analyses of essential skills training because they don't utilize firm specific and training program specific cost data.
- Individual firm case studies are the most effective in evaluating training programs
 - Kirkpatrick/Phillips model and the neo-human capital approach are among the most popular.

Recap

- Individual firm case studies found that there is a high ROTI for literacy and essential skills training investment in workplace.
- Reasons for high positive rates of return
 - Intangible benefits are included in ROTI calculations.
 - Many literacy and essential skills training programs are achieving significant results on small investments.

ROTI for Essential Skills Training	
Literacy	741%
Oral Communication	61%
Working with Others	336% to 1052%
Thinking Skills	215%
Computer Use	Payback – 20 months
Continuous Learning	650%

Annex – Summary of Key Findings

Country	Type of Essential Skill Training	Training Evaluation Methodology	Author of Study (Year)	Key Findings
Canada	Literacy	Qualitative Survey	Conference Board of Canada (1997)	Enhanced literacy skills contributed to improved self-confidence of employees and significant benefits for employers.
Canada	Basic Skills	Qualitative Survey	Long (1997)	Employees became highly motivated to continue learning, contributed to a positive learning culture in the workplace.
Canada	Thinking Skills	Case Study: Kirkpatrick/Phillips	Ouimet (1994)	ROTI = 215%
Canada	Computer Use	Pay-Back Period Methodology	Ontario Food Processor (1996)	Training paid for itself in 20 months.
U.S.A.	Literacy	Case Study: Kirkpatrick/Phillips	Ford (1994)	ROTI = 741%
U.S.A.	Working with Others	Case Study: Kirkpatrick/Phillips	Bailey (2007)	ROTI = 1,052%
U.S.A.	Working with Others	Case Study: Kirkpatrick/Phillips	Russ-Eft (2007)	ROTI = 336%
U.S.A.	Continuous Learning	Case Study: Kirkpatrick/Phillips	Graham (1994)	ROTI = 650%
U.S.A.	Literacy	Qualitative Surveys	Bassi (1994)	Majority of respondents indicated that the quality of output improved as did the firm's ability to use new technology.
U.S.A.	Workplace Education	Qualitative and Econometric	Krueger and Rouse (1998)	Wage gains of 0.5% for program participants as well as improved commitment to lifelong learning.

Annex – Summary of Key Findings (cont.)

Country	Type of Essential Skill Training	Training Evaluation Methodology	Author of Study (Year)	Key Findings
Ireland	Oral Communication (ESL)	Case Study: Kirkpatrick/Phillips	Skillsnet (2005)	ROTI = 61%
U.K.	Computer Use	Case Study: Kirkpatrick/Phillips	ROI Institute (2007)	ROTI = 140%
U.K.	Basic Skills	Qualitative Analysis	The Network (?)	Key benefits include improve attitude towards learning and improved self-confidence among program participants.
U.K.	Oral and Written Communication Skills	Case Study	Business in the Community (2007)	Significant financial benefits for the company; company became employer of choice.
Australia	Workplace Literacy and language training	Qualitative Survey	Government of Australia (1996)	Positive effects on the workplace: –Cost savings –Enhanced openness to further learning –Improved worker morale and confidence
New Zealand	Literacy	Case Study	New Zealand Department of Labour (2006)	–34% increase in sales –31% increase in profits –50% reduction in rejects
France	Basic Skills	Qualitative Case Study	Tabet (1988)	Improved self-confidence and willingness to learn of workers, improved job performance, and better knowledge of employer’s work expectations.