Human Resources and Skills Development Canada
Ressources humaines et Développement des compétences Canada

Now and Tomorrow
Excellence in Everything We Do

April 2009

Evaluation of the Training Centre Infrastructure Fund (TCIF)

Final Report

April 2009

Strategic Policy and Research Branch

SP-947-04-10E

Canada

Evaluation of the Training Centre Infrastructure Fund (TCIF)

Final Report

Evaluation Directorate
Strategic Policy and Research Branch
Human Resources and Skills Development Canada

April 2009

SP-947-04-10E
(également disponible en français)

Note: the departmental catalogue number is placed on the front cover, bottom left hand side.

You can order this publication by contacting:

Publishing Services
Human Resources and Skills Development Canada
140 Promenade du Portage
Phase IV, 12th Floor
Gatineau, Quebec
K1A 0J9

Fax: 819-953-7260
Online: http://www12.hrsdc.gc.ca

This document is available on demand in alternative formats (Large Print, Braille, Audio Cassette, Audio CD, e-Text Diskette, e-Text CD, or DAISY), by contacting 1 800 O-Canada (1-800-622-6232). If you have a hearing or speech impairment and use a teletypewriter (TTY), call 1-800-926-9105.

Paper
ISBN: 978-1-100-15702-3
Cat. No.: HS4-103/2010E

PDF
ISBN: 978-1-100-15703-0
Cat. No.: HS4-103/2010E-PDF

Table of Contents

List of Tables

List of Abbreviations

AIG	Apprenticeship Incentive Grant
BCTD	Building and Construction Trades Department
BDC	Business Development Bank of Canada
CCQ	Commission de la Construction du Québec
CSGC	Common System for Grants and Contributions
HRSDC	Human Resources and Skills Development Canada
RMAF	Results-based Management Accountability Framework
STIP	Skills Training Infrastructure Program
TAD	Trades and Apprenticeship Division
TAFE	Technical and Further Education
TBS	Treasury Board Secretariat
TCIF	Training Centre Infrastructure Fund
TTF	Training Trust Funds
UTC	Union Training Centres
WSS	Workplace Skills Strategy

Executive Summary

The Training Centre Infrastructure Fund (TCIF) was initially announced in Budget 2004 and represented an immediate measure of the broader Workplace Skills Strategy. TCIF was a three-year $25 million pilot project, designed to address the growing need for union-employer training centres to replace aging equipment and simulators that were not up to current industry standards. TCIF was terminated after the first year in September 2006 as part of cost-saving measures resulting from an expenditure review process, hence not completing the full duration of the pilot. The Government of Canada decided to make investments which focused on direct contributions to individuals and employers, such as the measures announced in the Budget 2006 – the Apprenticeship Incentive Grant, the Apprenticeship Job Creation Tax Credit, and the Tools Tax Deduction.

During it existence, 46 projects were funded with $6.5 million distributed to Union Training Centres (UTCs) across Canada in amounts ranging from under $20,000 to $465,000, with the average agreement being approximately $150,000.

Apprenticeship is a provincial and territorial responsibility with Human Resources and Skills Development Canada (HRSDC) playing a role in supporting skills development. Trade unions play a role in providing training to their members via joint training trust funds established through collective bargaining agreements, whereby unions and employers contribute to employee training. Union Training Centres (UTCs) invest in skills development using funds provided by training trust funds which, in most cases, are incorporated entities, jointly managed and funded by unions and employers and are founded on multi-employer collective agreements[1]. The estimated 215 UTCs across Canada play a central role in providing journey person training and, in some cases, pre-apprenticeship and apprenticeship training for the unionized sectors[2].

This evaluation of the Training Centre Infrastructure Fund (TCIF) focuses on program rationale and relevance, results or success, and cost-effectiveness.

The evaluation gathered information from four different lines of inquiry: 1) review of program documents and files; 2) literature review including sources from Canada, United States, Australia and Great Britain; 3) 14 key informant interviews; and 4) a survey of 66 UTC administrators who applied for funding.

The evaluation was reduced in scope as a result of the cancellation of TCIF in its second year of operation. The four lines of inquiry noted above that were retained in the methodological design, were considered most likely to provide the required and relevant information for determining TCIF success and relevance. Case studies and a number of planned surveys were dropped from the methodological design. Consequently, the evaluation findings are largely based upon the views of those with a vested interest in the program, particularly the funded

[1] O'Grady, J. (2005). Training trust funds: A review of their history, legal foundations, and implications for trade union training strategy. Ottawa: Canadian Labour Congress.

[2] IBID

recipients and, to a lesser extent, some of the external key informants. Consequently, the findings are potentially biased toward favourable program outcomes.

Key Findings

There is evidence supporting the need for a program that supports the purchase of equipment by UTCs. Currently, Ontario is the only province to provide a comparable program and this program, the Ontario Skills Training Infrastructure Program (STIP), did not exist during the time of TCIF. There is some indication from interviews with experts and stakeholders that the UTCs that needed the funding the most, that is those with fewer resources, were unable to access the TCIF because of the required 50% cost-sharing. The Ontario program provides 75% of the costs in their cost-sharing arrangement.

The findings indicate that overall TCIF was successful in achieving its intended outcomes as indicated by the following:

- TCIF did help to leverage funds through the 50% contribution by UTCs, with a majority indicating their UTC's trust funds overall expenditures on training equipment increased the year they received funding compared to previous years.
- New partnerships were established by 47% of the UTCs funded.
- There is evidence that the equipment purchased with TCIF funding responded to the changing technological needs of the industries.
- The new equipment resulted in changes to training including more hands-on opportunity, additional courses and changes to existing curriculum. Experts and external key informants emphasized the importance of hands-on training in order to maximize the benefits of training.
- UTCs reported that they believed that the skills acquired during training were applied in the work setting because the equipment was similar or identical to that funded by TCIF.
- UTC representatives indicated that training on TCIF-funded equipment did lead to job enrichment and/or increased opportunities.
- TCIF has positively contributed to the existing skill gap through providing trained workers. However, it is impossible to measure the actual impact of TCIF on the skill gap since other factors, such as wage growth, vacancies, turnover and demographics, also impact on the skill gap.

Cost-effectiveness analysis could not be undertaken as results data was not available for TCIF. Instead, the evaluation relied upon an assessment of alternative approaches to that of TCIF. The findings from this analysis indicate that other approaches are possible. However, those that would appear to cost less may not be as effective at achieving the stated goals of TCIF. Both the survey and key informant interviews indicate that most people feel that TCIF is quite cost effective because it supports training in UTCs which allows for larger numbers of trades people to be trained than can occur at worksites.

Based on the information from the survey, over 10,000 people have been trained on TCIF-funded equipment between the time of purchase and the time of the survey in summer of 2008. It was also seen by some key informants to motivate the private sector to contribute more. The preceding suggests that TCIF may be an effective approach. However, it cannot be concluded that it is the best approach nor that is a cost-effective approach.

There were mixed views on whether the private sector should play a larger role than they currently do. Both key informants and survey respondents pointed to the unwillingness of some employers to contribute financially, while some of the literature pointed to the private sector as an under-utilized resource. At the same time other literature pointed to some of the pitfalls of not having government support. There was no suggestion that it would be appropriate for the private sector to play a role in administering the program.

It is difficult to know whether TCIF had a complementary or a displacement effect on UTC spending on equipment because precise figures on how much was spent during years when the TCIF funding were not available. However, the majority of UTCs reported spending more on equipment when receiving TCIF funds and there was no overlap with other government funding sources during the period in which it operated.

While it was not a part of the evaluation, the importance of standardized training was noted and there was some indication that a national program such as TCIF would be in a position to support standardized training across provinces and territories.

Conclusions

The findings indicate:

- Despite its short existence, TCIF did achieve or work towards achieving most of its intended outcomes; and
- There is evidence to suggest that TCIF is an effective approach when compared to alternative, less costly approaches.

Management Response

Background

In the 2004 Budget, the Government of Canada announced the Training Centre Infrastructure Fund (TCIF) as a new $25 million pilot project and an immediate measure of the Workplace Skills Strategy (WSS). TCIF was designed to address a growing need for union-employer training centres to replace aging equipment and simulators that were not up to current industry standards. The pilot project matched employer and union investment in new machinery and equipment for selected training centres with a particular focus on trades that had undergone significant technological change or whose scope had broadened or had new curricula, thereby requiring new equipment to address the changes in skill requirements.

The Trades and Apprenticeship Division (TAD) within HRSDC was responsible for program development/design of TCIF and was directly involved in program delivery and administration. TCIF was terminated as a result of the expenditure review announced in the 2006 Budget of all existing government programs and the Government's intent to support new initiatives that promote a more skilled and educated workforce. TCIF was cancelled for funding under Years 2 (outstanding commitments were honoured) and 3.

In the 2006 Budget, the Government announced new investments in support of apprenticeship that focus on direct contributions to individuals and employers: the Apprenticeship Incentive Grant to encourage more Canadians to pursue careers in the skilled trades, the Apprenticeship Job Creation Tax Credit for employers and the Tradesperson Tool Deduction for employed tradespeople.

HRSDC concurs with the findings in the summative evaluation that TCIF achieved its immediate outcomes of increasing partnerships among unions and employers and increasing investment leveraged from unions and employers for upgrading Union Training Center (UTC) equipment.

The scope of the evaluation was reduced as a result of a departmental decision due to the early cancellation of the program. The evaluation, in addition to showing that TCIF achieved its immediate outcomes, provides lessons learned for future initiatives. The following information helps to contextualize the evaluation report and provides further feedback highlighting the success of the TCIF program and lessons learned.

Stakeholder interest in applying for TCIF

The evaluation assessed the demand for TCIF by considering the proportion of applications received from eligible training centres and determined that approximately one-third of all union training centres submitted a letter of intent. This represented a significant interest, given there was only one month from the time TCIF was launched on March 31, 2005 to the deadline of April 30, 2005 to submit letters of intent. Furthermore, given there was no

national advertising campaign, awareness of TCIF was primarily "word of month" via the Canadian Building and Construction Trades Department (BCTD), an umbrella organization representing the 14 unionized construction trades and the Canadian Labour Congress. These and other stakeholders were instrumental in supporting HRSDC to ensure TCIF information, such as the brochures, were passed on to their membership. Informal feedback from the BCTD indicated strong interest in TCIF funding, however union training centre administrators indicated that the Year 1 application deadline was challenging particularly since many had little experience in preparing applications for government funding.

Evidence of skills training using the new equipment

Site-visits conducted by TAD officials to all TCIF recipients to ensure the equipment was on-site, also provided an opportunity to better understand the breadth of training provided by union training centres. For example, many centres were designated by the P/T apprenticeship authorities to deliver apprenticeship training thereby providing access to equipment for union and non-unionized apprentices. Some union training centers also provided pre-apprenticeship training and responded to specialized training needs from contractors. For example, an Ontario-based union centre which had purchased graders[3] using TCIF funds has trained 156 workers and another six to start in September 2009. Training delivered included a specialized grader training program for work on major infrastructure projects in the North. Other centres were responding to the skills demanded by their contractors, for example providing "green power" training to electricians on installation and maintenance of alternative power such as wind and solar technologies.

HRSDC contact with the TCIF recipients was only up to the end of the contribution agreement, which coincided with the purchase of the equipment and thus the actual training on the equipment was just at the beginning stages at the time of the Evaluation. The original plan was to survey TCIF recipients' one-year following the end of their contribution agreement to assess the actual number of trainees using the new equipment, what new skills had been acquired and to assess what were the market and human resource impacts of training on the new equipment. This was no longer possible with the early termination of the program and the subsequent decision to reduce the scope of evaluation activity.

Establishment of good working relationship with union training centres as a result of direct HRSDC involvement throughout TCIF

Good working relationships were developed as a result of continual involvement of TAD officials with the trades unions throughout the program lifecycle. This was critical given the newness of the program requiring clear communication related to program eligibility and the short timeframes associated with the application and contribution agreement periods. All TCIF recipients and Year 2 applicants were immediately contacted both by

[3] Heavy equipment machinery that grades surfaces, carries out precision excavations, and conducts snow removal.

phone and letter following the announcement concerning the termination of TCIF. Many recipients expressed appreciation for the support received from HRSDC.

Lessons Learned

- *HRSDC's direct contact with the trade union community involved in apprenticeship and journeyperson trades training as a result of TCIF, leverage partnerships helpful for future programming, such as the Apprenticeship Incentive Grant (AIG).*

  The BCTD network provided support to HRSDC's Apprenticeship Incentive Grant (AIG) awareness campaign by distributing brochures to their members during the first year of program delivery. Furthermore AIG information was provided to members attending their national legislative conference.

- *Cost sharing*

  TCIF required partners to contribute 50% of the equipment purchase cost; federal contributions covered 50% of equipment purchase cost, with a maximum federal contribution of $500,000 per training centre per year. The evaluation noted that the cost-sharing formula was a challenge for smaller UTCs.

  In contrast, the Government of Ontario announced in the 2007 Budget a one-time investment of $25 million in the Skills Training Infrastructure Program for union-employer training centres in Ontario. Under this cost-shared program, to leverage industry support and spread benefits of the program, a contribution of 25% towards eligible costs was required by proponents.

- *TCIF was a fore-runner in what continues to be a need to provide support for capital costs associated with training.*

  As mentioned in the Evaluation, the Province of Ontario launched the Skills Training Infrastructure Program (STIP) in the months following the termination of TCIF, whereby the criteria for STIP eligibility was similar to TCIF (i.e. for the purchase of new additional training equipment used by union-employer training centres).

  Furthermore, in March 2009 the Government of Canada launched a $2B Knowledge Infrastructure program to support infrastructure enhancement at post-secondary institutions including universities and colleges, which has been supported by the Association of Community Colleges. Although equipment used for trades training is not detailed, eligible expenses would include upgrades to building systems and projects intended to improve health and safety and environmental and waste-management practices of college facilities which would involve employing skill trades workers. For example, in May 2009, a joint initiative was announced under this federal program and the 2009 Ontario budget for infrastructure investments totaling more than $1 billion in capital projects at colleges and universities across Ontario.

Building on this continued need and the TCIF approach, HRSDC recently developed strategic investments in other HRSDC programming. For example, funding eligibility under the Sector Council Program has been expanded in the recent amendments to the program Terms and Conditions to include costs for training equipment for eligible Sector Councils.

Conclusion

Although short-lived, the Training Center Infrastructure Fund proved to be successful in meeting its immediate outcomes and strengthened federal partnerships with union stakeholders involved in trades training. This informed improvements to other federal programs such as the Sector Council Program Initiative.

1. Introduction and Context

This final report presents the findings of the evaluation of the Training Centre Infrastructure Fund (TCIF), focusing on program rationale and relevance, results or success, and cost-effectiveness.

1.1 Program Description

This section provides information regarding the program background and design as well as the program logic.

1.1.1 Program Background

The Training Centre Infrastructure Fund (TCIF) was initially announced in Budget 2004 and represented an immediate measure of the broader Workplace Skills Strategy. TCIF was a three-year $25 million pilot project, designed to address the growing need for union-employer training centres to replace aging equipment and simulators that were not up to current industry standards. TCIF was terminated after the first year in September 2006 as part of cost-saving measures resulting from an expenditure review process. New federal initiatives were introduced in Budget 2006 to support the skilled trades that focused on direct contributions to individuals and employers, such as the Apprenticeship Incentive Grant, the Apprenticeship Job Creation Tax Credit, and the Tools Tax Deduction.

As of 2001, there were an estimated 1.4 million trades people working in Canada, with 30% working in unionized positions.[4] "Demographic trends, low apprenticeship completion rates and an increasing demand for new skills required to exploit new technologies in the workplace"[5] have led to skills gaps and shortages in the trades sector, which in turn, presents a threat to the Canadian economy. The TCIF was a pilot project intended to help address anticipated shortages in the skilled trades by increasing the access to training on updated equipment and machinery through funding to Union Training Centres (UTCs). The program was based on the assumption that out-dated equipment and machinery was a significant barrier to effective skills training and the development of competencies currently required in the workplace.[6]

Although the Government of Canada recognizes that apprenticeship is a provincial and territorial responsibility, Human Resources and Skills Development Canada (HRSDC) plays a role in supporting skills development. Unions play a role in providing training to their members via joint training trust funds (TTFs) established through collective bargaining agreements, whereby unions and employers contribute to employee training. Union Training

---

4 HRSDC Report on Plans and Priorities 2004-2005.

5 IBID

6 Malatest and Associates Ltd. (2003, June). The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades.

Centres (UTCs) invest in skills development using funds provided by TTFs which, in most cases, are incorporated entities, jointly managed and funded by unions and employers and are founded on multi-employer collective agreements[7]. The estimated 215 UTCs[8] across Canada play a central role in providing journey person training and, in some cases, pre-apprenticeship and apprenticeship training for the unionized sectors[9] .

1.1.2 Program Design

The TCIF pilot project, administered by Human Resources and Skills Development Canada (HRSDC), provided funding intended to leverage cash contributions from union and employer consortia to purchase updated equipment and machinery for training purposes in order to meet current industry standards and development. The TCIF contributions covered up to 50% of the cost of equipment, with a maximum federal contribution of $500,000 allocated per training centre per fiscal year. The remaining 50% of the equipment cost had to be covered through cash contributions by the union-employer consortium or a TTF as well as 100% of other expenses associated with training delivery, installation and/or maintenance[10]. The fund did not cover equipment such as standard tools/supplies nor equipment used in the delivery of training courses (e.g laptop computers, LDC projectors) that was not trade-specific.

In order to be eligible for funding, applicants had to be a union industry consortium that included union representation (from a national union office and/or local union) and employer/industry from which the unionized workers are employed. The consortium was required to own/operate an established UTC or a mobile training unit that would house the equipment and deliver training to remote sites. In Quebec, the Commission de la Construction du Québec (CCQ), given their unique role in overseeing trades training and apprenticeship in the construction sector, were regarded as the eligible recipient, and made a single application on behalf of a number of Quebec-based UTCs.

In TCIF's first year, 46 projects were funded in all provinces, except Prince Edward Island, as there were no applicants. This represented a $6.5 million contribution from the Government of Canada, and the actual allocations ranged from under $20,000 to $465,000. (The UTC cash portion was in addition to this allocation). There was limited time to complete projects in the first year as most contribution agreements started in December 2005 and initially ended in March 31, 2006, although some amendments were made to extend the end date beyond March 31, 2006. All applicants, in both the first and second year, were from the construction and manufacturing trades. The type of trade areas funded in the first year included, for example, electrical workers, carpenters and millwrights, and pipefitters.

---

[7] O'Grady, J. (2005). Training trust funds: A review of their history, legal foundations, and implications for trade union training strategy. Ottawa: Canadian Labour Congress.

[8] Malatest and Associates Ltd. (2003, June).

[9] O'Grady, J. (2005). Training trust funds: A review of their history, legal foundations, and implications for trade union training strategy. Ottawa: Canadian Labour Congress.

[10] HRSDC Departmental Performance Report 2005-2006.

Fifty-five proposals were received in the second year. Approximately half of those that received funding in the first year re-applied for funding in Year Two[11]. Approximately $1.4 million was spent in the 2006-2007 fiscal year in order to honour the outstanding commitments from Year 1.

1.1.3 Program Logic Model

The program logic model was developed as part of the Results-based Management Accountability Framework (RMAF). It is attached in *Appendix A.*

1.2 Evaluation Context

This evaluation was conducted to assess the results associated with expenditures, in compliance with the Treasury Board Secretariat requirements. TCIF was cancelled on September 25, 2006 following the 2006 Government of Canada expenditure review and its resulting shift in funding priorities. Discontinuing TCIF in its second year created $13.6 million in savings for the federal government. New federal initiatives were introduced in 2006 to support the skilled trades including the Apprenticeship Incentive Grant, Apprenticeship Job Creation Tax Credit, and a Tools Tax Deduction.

As a result of the cancellation, the evaluation design was reduced in scope and was designed to obtain information from only four lines of inquiry: The re-scoped evaluation did not include case studies, surveying of trainees, nor applicants who were rejected or those who cancelled their applications or contribution agreement. Instead, representatives from the funding recipients were asked to provide information regarding the impact on the trainees. The evaluation focused on collecting data from those sources where it was felt that there would be a greater likelihood of obtaining a response.

[11] IBID

2. Evaluation Design and Methodology

2.1 Evaluation Design

The original evaluation design included gathering data from the UTC trainees and conducting case studies. Because of the termination of the program, the evaluation was reduced in scope and redesigned to make the most of the information available.

One of the key evaluation design features was the use of multiple lines of evidence, including qualitative and quantitative data collection methodologies. The qualitative sources of information, such as key informant interviews with internal/external stakeholders, experts, and literature review were supported by the more quantitative methodologies including the administrative data and file review and survey of funding recipients and applicants.

Moreover, the evaluation design benefited from the situation where 2 unique groups were created as a result of the program cancellation. That is, the ability to compare the group of applicants that received funding during the first year of TCIF operation, with the group that was eligible for funding (according to the initial assessment of the funding proposals) but did not receive funding. It should be noted that only UTCs that were deemed eligible, based on their letters of intent, were asked to complete a full application.

2.2 Data Collection Methods

The evaluation gathered information through four different lines of inquiry:

1. a document and file review;
2. a literature review;
3. key informant interviews; and
4. a survey of Union Training Centres (UTCs).

The evaluation issues matrix in *Appendix B* shows the lines of inquiry that were used to collect information for each of the evaluation issues and questions. This section briefly describes each of the methods used. *Table 1* indicates the timing of data collection for each of the lines of inquiry.

Table 1
Timing of Data Collection

Line of Inquiry	Timing
Document and file review	February 11 – April 17, 2008
Literature review	March 10 – April 24, 2008
Key informant interviews	March 14 – May 15, 2008
Survey of recipients/eligible non-recipients	March 14 – May 31, 2008

2.2.1 Document and File Review

Five types of documents were included in the review: Government of Canada documents, HRSDC program documents, UTC applicant's files provided by the program, Common System for Grants and Contributions (CSGC) reports and Provincial/Territorial documents that are available publicly. The file review involved the most relevant information, as it was specific to TCIF. This included the applications, the letter of intent, HRSDC recommendation reports, contribution agreement and an overview of the final project report Other documents reviewed included the 2004 Federal budget, HRSDC Departmental Performance Report 2005 – 2006, the TCIF Results-based Management Accountability Framework (RMAF) other TCIF planning and reporting documents, CSGC spreadsheets and a scan of provincial territorial government websites to obtain information regarding similar programs.

2.2.2 Literature Review

The literature search was conducted using a number of databases and related websites applying a number of terms related to equipment, training, union and funding. Additionally experts were consulted to obtain their advice on relevant literature or literature sources. A bibliography was produced and reviewed to determine the most fruitful sources. The criteria for selection of literature for inclusion in the review were: recent article/report or landmark document, relevant to at least one of the four evaluation questions, and credibility and quality of the information provided. Literature from Canada, United States, Australia and Great Britain was included in the review. The Malatest report *Supporting Apprenticeship Training Through Innovative Use of Equipment and Technology Upgrades*[12] and the work completed by the Canadian Apprenticeship Forum[13] produced some of the most relevant information.

2.2.3 Key Informant Interviews

A total of 14 key informant interviews were conducted, as outlined below. Each group of key informants was interviewed using a guide specifically tailored to their specific knowledge.

- Five internal key informants including personnel from the TCIF program, the Sector Council Program and Treasury Board Secretariat (TBS).
- Five external key informants including representatives from union organizations, Sector Councils, and trades/employer associations.

---

[12] Malatest and Associates Ltd. (2003, June). The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades.

[13] Canadian Apprenticeship Forum (2004). *Accessing and completing apprenticeship training in Canada.* Ottawa: Canadian Apprenticeship Forum.
Canadian Apprenticeship Forum (2006). *Apprenticeship – Building a skilled workforce for a strong bottom line.* Ottawa: Canadian Apprenticeship Forum.

- Four experts, with the following backgrounds:
  - Economist and former chair of the Federal Committee on Apprenticeship in the United States with a long-term interest in construction industry research, particularly related to apprenticeship and training;
  - Director of Research and Analysis with the Ontario Construction Secretariat with a focus on the economic side of construction and skills availability;
  - Executive Director and Director of Training, in the Ontario construction industry and;
  - Primary researcher within a consulting firm focussing on the economics of construction training.

2.2.4 Survey of Recipients and Applicants

All Year 1 funding recipients and all Year 2 applicants deemed to be eligible for funding were asked to participate in an on-line survey. The survey sample included 66 UTCs including 44 UTCs that received funding in Year 1 and 51 UTCs that applied for funding in Year 2 of which 29 had received funding in Year 1. (Those that applied both years were only surveyed once). Funding applicants whose applications were rejected, or those who cancelled their applications or contribution agreements were not surveyed.

Applicants that received funding and those that did not completed a slightly different survey, however, there were identical questions in both surveys, consequently it was possible to undertake comparative analysis of the findings for the two groups.

A telephone pre-test of the survey instruments was conducted by telephone with 2 potential respondents. The on-line survey started the beginning of May, 2008 and survey respondents had 12 working days to complete it. Up to three e-mail survey reminders were sent out to non- respondents during the survey period.

As shown in Table 2, the overall response rate of the survey was 71.2%, representing 75% of the UTCs that received funding in the first year and 64.7% of the UTC year two applicants, including those that were funded in Year 1. An analysis of the non-respondents indicates the only trade not represented in the survey was bricklayers.

Table 2
Survey Response Rates

	Year 1 Recipients	Year 2 Applicants*	Total (excluding overlaps)
Respondents	33	33	47
Non-respondents**	11	18	18
Total	44	51	66
Response rate	*75.0%*	*64.7%*	*71.2%*

* Includes all of Year 2 Applicants including those funded in Year 1.

** Includes respondents who were reached but did not respond to the survey without providing an explicit reason as well as one individual who specifically declined.

The survey was undertaken two years after the program was terminated. An analysis of the respondents' characteristics indicates that the respondent group was representative of the sample frame. A comparison was also made between Year 1 recipients and Year 2 applicants. The two groups seem similar in examining their respective attributes. Similarities occur partly because 18 UTCs are included in both years. The overlap also means that the cases are not independent of each other.

2.3 Strengths and Limitations of the Methodology

One of the key strengths is the use of multiple lines of evidence, including qualitative and quantitative data collection methodologies. The qualitative sources of information, such as key informant interviews with internal as well as external stakeholders and experts, and literature review are supported by the more quantitative methodologies including the administrative data review and the survey of funding recipients and applicants. This can help offset the limitations of the individual lines of inquiry which are discussed below.

As well, conducting a survey of the entire population with the high rate of return gives a high level of confidence, providing a complete picture when analysing the data and drawing conclusions.

The limitations of the evaluation include:

- A quick review of the funding recipient files revealed that overall final reports lacked the consistency required to provide information relevant to this evaluation. For example, the final reports were submitted shortly after the end-date of the contribution agreement which was just to the point of the acquisition of the equipment. Consequently extensive information on impact of training on the equipment could not be provided in the final report.

- Extensive literature is not present on the topic of high replacement costs of machinery for trades training purposes. This places a limitation on the amount of rich detail that could be gleaned from the literature.

- A primary limitation of the key informant interviews is that a number of the internal people interviewed were not involved at the inception of the program. Thus, they had limited knowledge of the reasons for establishing the program and of the activities involved in the early implementation.

- The lack of direct contact with trainees and employers. Consequently UTC representatives were used as a proxy, with the assumption that they would be able to provide information regarding outcomes for trainees and employers as a result of their ongoing contact with both groups. Consequently, it was not possible to validate the assumption upon which the program was based – namely, that out-dated equipment and machinery was a significant barrier to effective skills training and the development of needed workplace competencies.

- The survey was undertaken two years after the program was terminated. This time lag might result in recall error. Additionally, respondents' perceptions of the outcomes of the funding and the activities resulting from the funding might reflect a bias towards portraying their project in a favourable light. As such, the survey may overestimate the results of the program.
- Evaluation findings are largely based upon the views of those with a vested interest in the program; particularly the funded recipients and, to a lesser extent, some of the external key informants. As a result, findings are potentially biased towards favourable program outcomes.

3. Key Findings

This section presents a summary of the key findings, organized by evaluation question.

3.1 Program Rationale

Evaluation Question 1.1: Did the TCIF address an actual need?

One of Human Resources and Skills Development Canada's (HRSDC) 2004 strategic goals was to enhance the competitiveness of Canadian workplaces by supporting investment in and the recognition and utilization of skills. To support this outcome, the Workplace Skills Strategy (WSS) was launched with a primary goal of helping to address the emerging skills needs of the Canadian labour market and workplaces around the country. The WSS had several sub-components, and the TCIF was one of them. The development of the TCIF pilot project was based on the assumption that financial barriers prevented the purchase of training equipment.

Need for TCIF

There was not extensive literature regarding the extent to which the high replacement cost of capital equipment is a barrier to skills training or to the acquisition of updated or new training equipment by UTCs. However, the available literature indicates that the lack of financial resources is a barrier to training[14].

The Malatest report on *Supporting Apprenticeship Training Through Innovative Use of Equipment*[15] is the primary source of information available on the percentage of equipment that is out-of-date and the estimated cost of replacing out-of-date equipment. This information can contribute to an assessment of need for such equipment when combined with information regarding the ability of UTCs to replace the out-dated equipment. Although this research provides a preliminary assessment of the issue, it is based on a limited number of survey respondents. Hence, the results should be interpreted with some caution. The report indicated that less than 30% of industry training centre equipment in the industry training centres surveyed was up-to-date. By comparison, 48% of equipment in Canadian Community Colleges was considered up-to-date. In 2003, the Malatest report estimates that the 23 community colleges that responded to their survey would require approximately $608.9 million to upgrade their equipment so that 80% could be considered modern and up-to-date. Figures were not provided for UTCs. However, given that a lower percentage of UTCs have up-to-date equipment, it is likely that the cost of replacement would be significant.

[14] Goodrum Paul. (2007, Aug). *Construction Industry Craft Training in the US and Canada.* For the Construction Industry Institute.

[15] Malatest and Associates Ltd. (2003, June). The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades.

According to Lior and Wortsman[16], representatives of industry, business, labour and sector councils indicate that most of the equipment available for apprenticeship training is second-generation or older. A report produced by the Canadian Apprenticeship Forum[17] in 2004 noted that Canadian employers perceive the cost of apprenticeship as a major barrier to apprenticeship training.

The Malatest report further supported the need for programs like TCIF indicating that *"there is a high level of support for a conceptual initiative that would upgrade equipment used in trades training programs. A majority of stakeholders in all sectors were supportive of an initiative. Respondents cited a variety of factors that would justify such an initiative including:*

- *The need to augment current efforts by provincial/industry sectors;*
- *To help alleviate future supply concerns associated with aging of the workforce;*
- *To ensure that students were learning skills on relevant and prevalent equipment;*
- *To minimize injuries/possibility of accidents using older/unsafe equipment."*[18]

An internet search as well as input from all key informants indicated that a program similar to TCIF did not exist at the time of the initiation of the pilot project or at any time during the life of TCIF. The Ontario Skills Training Infrastructure Program, a program similar to TCIF was introduced in March 2007 after TCIF was cancelled as part of a government job enhancement strategy.

Both external key informants and experts pointed to increasing skill shortages and the need for training. As pointed out by one expert, it is estimated that between 200,000 and 300,000 people in Canada are going to leave the trades by 2015. Furthermore, according to the experts and external stakeholders, it will be increasingly more necessary to ensure workers have up-to date skills, which will require training on more complex and expensive equipment. They also noted that new legislation and standards have increased the expectations regarding levels of competency in some trades.

While the foregoing does provide an indication of the need for a program like TCIF, it does not rely on direct observation of the state of training equipment in UTCs. Even if there were a need for new investment in training equipment in UTCs, there is no logical link to direct government involvement. Also, it must be emphasized that TCIF was targeted on skilled tradespersons who were unionized and they represented only 30% of the total number of skilled tradespersons in Canada.

---

[16] Lior, K., and Wortsman, A. (2006). *Renewing Apprenticeship: Innovative Approaches.* Toronto Training Board. Poole, K. E., Salem, P.L. and White, M. (2005, February). *A Workforce Needs Assessment of the Arizona Construction Trades Industry.* Phoenix: Arizona Department of Commerce. Queen's University Press.

[17] Canadian Apprenticeship Forum (2006). *Apprenticeship – Building a skilled workforce for a strong bottom line.* Ottawa: Canadian Apprenticeship Forum.

[18] Malatest and Associates Ltd. (2003, June). *The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades*, p. ii.

Demand for TCIF

The actual uptake of the fund could be an indicator of the need for the type of support offered through TCIF. An estimation of uptake was determined by a calculating the percentage of eligible UTCs that applied for funding, based on an approximation of 215 UTCs in Canada. There is no precise documented number of UTCs across Canada that would have fulfilled the eligibility criteria based on their membership, training target groups, financial capacity and training activities at the time. According to the file review, at least 81 UTCs, representing about 32% of the estimated number of UTCs in Canada, submitted letters of intent and applications for TCIF funding at least once during the lifetime of the program. Internal key informants indicated that, given that a new program takes time to become known, the high level of interest from UTCs as demonstrated by the number of Year 1 and Year 2 applications for funding indicates strong interest in the program.

Both internal and external key informants indicated that there likely were factors other than need that contributed to a UTC's decision to apply for funding. They noted that some of the smaller UTCs do not have the human resource capacity to follow through with the application process, while others that needed the funding the most, were unable to access the TCIF because of the required 50% cost-sharing.

The survey of UTC applicants provided evidence that TCIF addressed an actual need. Among the respondents who applied for funding in Year 2 (31 UTCs) and did not receive any funding because of program cancellation, 39% indicated that they had not purchased any of the equipment for which they applied since the cancellation of TCIF. The reasons given for not purchasing equipment were mainly 1) lack of other funding sources; 2) insufficient training funds; and 3) the price of the equipment. However, a total of 58% did indicate that they had purchased some of the equipment despite program cancellation.

Most of the UTCs that purchased equipment in the absence of TCIF funding did so with assistance from STIP, an Ontario program that came into effect shortly after the cancellation of TCIF. Most of the UTCs that received no other funding did not purchase the equipment. Survey respondents indicated that alternate external funding influenced the UTC's decision to purchase equipment after the cancellation of TCIF. Among Year 2 applicants that received alternate funding within the last four years (37%), 61% purchased some of the equipment for which they applied. Of those Year 2 applicants who did not receive any funding (58%), 92% had not purchased any of the equipment which could indicate that funding is needed to support UTCs in purchasing equipment and that TCIF addressed an actual need.

3.2 Program Success

Evaluation Question 2.1: Did TCIF help to leverage increased funds from employers and unions for the purchase of new/upgraded training equipment at funded union training centres?

One of the intended intermediate outcomes of TCIF was to contribute to an increased level of investment leveraged from unions and employers for upgraded UTC equipment. The TCIF program was designed to leverage investments by UTCs on training equipment through a 50% cash contribution and a 100% cost coverage for maintenance, installation and related training activities. Because the program operated for only one year, it is not possible to look at trends over time.

During its existence, the $6.5 million spent by HRSDC was matched by UTC's training trust funds. There are cases where the funding recipients contributed more than the required 50 percent in purchasing the equipment. In addition, UTCs were 100% responsible for the costs associated with maintenance of the equipment and costs related to installation and training delivery Survey respondents who received funding in Year 1 were asked what happened with their UTC's trust funds' overall expenditures on training equipment the year they received funding from TCIF. A total of 90% indicated that their UTC's trust funds' overall expenditures on training equipment increased the year they received funding compared to previous years. It is difficult to know whether TCIF was the only factor contributing to the increased spending. The UTCs may have known about the forthcoming TCIF incentives and held off from spending on equipment until they got the subsidy. The increase in 2005/2006 may also be explained by other factors such as the economic cycle or membership increases for instance.

However, external stakeholders and experts indicated that the contribution from TCIF was an incentive for employers to contribute more than they would have otherwise in that employers saw that their money could go further. External stakeholders noted that funding such as TCIF made employers feel more positive about contributing and hence they were more likely to contribute extra amounts.

Evaluation Question 2.2: Did TCIF lead to increased partnerships among unions, and between unions and employers?

Increased partnerships among unions and between unions and employers was an intended intermediate outcome of TCIF. Although one of the requirements in applying for funding was the existence of union-employer partnerships, there was no specification that it had to be a *new* partnership. To the contrary, given the UTC needed to be established for a minimum of one year, it assumes that the consortium was based on an pre-existing partnership. A review of TCIF files provided evidence of one new partnership being formed for the purposes of making the funding application. In this case, several smaller training trust funds pooled their resources to submit a single application. The equipment purchased was mobile and thus could be used by several union training centres. One external stakeholder provided an example of a new partnership being formed in order to make the funding application, noting that there was already sufficient partnering by

design of the union-employer training trust fund, so there was not a need to develop new partnerships in order to submit an application.

However, 47% of survey respondents indicated that their UTC had established new partnerships as a result of receiving TCIF funding. Most of those that established new partnerships had done so with one or two other organizations. Partnerships established were with industry associations, other UTCs in the same trade and community colleges. It appears that new partnerships were formed after the application process thus accounting for the higher reporting in the survey.

Evaluation Question 2.3: Did the new/upgraded training equipment funded by TCIF address new skills required by changes or standards in the industry?

The literature indicates that technological change in the skilled trades is ongoing[19]. According to employers and labour representatives, there is a need to respond to these changes with updated training so that trainees are adequately prepared for the workforce[20]. This up-to-date training needs to be accompanied by up-to-date training equipment[21]. This constant change in technology was confirmed by both internal and external stakeholders who noted that all Red Seal trades continually re-examine competencies in order to reflect current industry requirements.

The TCIF funding criteria required that the equipment purchased had to respond to significant technological change. Based on the file review, the assessment of the applications was done in accordance with the eligibility criteria as all funded equipment reflected the technological needs of the industry at the time of the assessment. Program monitoring activities demonstrated that the equipment proposed by Year 1 recipients was actually bought as planned.

As indicated in *Table 3*, almost all survey respondents, including both Year 1 recipients and Year 2 applicants that purchased equipment in the absence of TCIF funding, indicated that the purchased equipment reflected the changing technological needs "somewhat" or "a lot". The similarities in answers from the two groups are not unexpected since most of the 58 % of Year 2 applicants that purchased equipment bought equipment that was identical to the equipment they applied for, even though less equipment was purchased in some cases. It should be kept in mind that the majority of those purchasing equipment in the absence of TCIF did so with assistance from STIP.

[19] Canadian Apprenticeship Forum (2004). *Accessing and completing apprenticeship training in Canada.* Ottawa: Canadian Apprenticeship Forum.

[20] IBID

[21] Technical and Further Education (TAFE) Directors Australia (2004). *Funding for Technical and Further Education (TAFE): A TDA Position Paper*. Canberra, Australia: TAFE.

Table 3 Extent to Which Equipment Reflected Changing Technological Needs		
Response	Percent of Respondents	
	TCIF funded equipment	Non-TCIF funded equipment
Not at all	0%	5.3%
A little	0%	0%
Somewhat	33.3%	21.1%
A lot	66.7%	68.4%
Don't know/Don't recall	0%	5.3%
Prefer not to answer	0%	0%
Total	*100%*	*100%*
Number of respondents	*30*	*19*

A review of program files indicates that in all cases the assessment of applications took into consideration many factors including "significant technological change", geographical location and type of trade. For example, although carpenters may not experience the same degree of technological development in their equipment as electricians, other changes experienced in that trade were still relevant. Assuming that the assessment of the applications was done in accordance with the eligibility criteria, all funded equipment reflected the technological needs of the industry at the time of the assessment.

The following are some examples provided by external stakeholders that indicate the types of changes in technology and the reasons workers need updated equipment in their training:

- Certain equipment, such as a CNC plasma cutter used to produce cabinetry, is very expensive so workers cannot readily purchase it. However, workers are expected to be familiar with the latest equipment in order to maintain their employment and UTCs can provide this opportunity only if they have up-to-date equipment.
- The TCIF helped a boilermaker's UTC purchase training equipment that it could not buy on their own. One external key informant stated that by helping the UTC stay current with changing technologies and training on state-of-the-art equipment, the boilermakers were better able to compete in the global market. For example, shipbuilding which had been outsourced to Korea and China because of expense is now slowly being won back to the Canadian market because of higher technical skills.
- Electrical trade training centres purchased technical equipment related to wind and solar power technologies.
- New welding equipment reduced the time, energy and margin of error associated with older models.
- Another training centre was able to purchase a rough-terrain crane using TCIF funding that provided training for trades people involved in construction projects in remote areas.

Evaluation Question 2.4: Did TCIF contribute to changes in method and content of training at funded union training centres which reflected changing technological needs within industry?

As a part of the funding application, UTCs were requested to describe how they anticipated that the consortium would integrate training on the funded equipment into their curriculum. Some of the ways in which consortia anticipated integrating training on the funded equipment included: new course offerings, integration of the training into existing courses, and more hands-on-training. It should be noted that the funding agreement only covered the period of time when the equipment was being purchased, therefore details related to use of equipment and training activities was limited.

Table 4 provides an overview of the changes to training as a result of purchase of new equipment that were reported by survey respondents, indicating a high level of consistency between the anticipated and actual changes in the methods and content of training as a result of the new equipment. The non-TCIF funded equipment was purchased by second-year applicants through their own resources or with support from STIP. It is to be expected that the TCIF funded equipment would have a similar impact to the non-TCIF funded equipment since most UTCs that purchased equipment (the majority with funding from another source), bought the equipment for which they had applied to TCIF.

All but one Year 1 recipient (29 out of 30) indicated that their UTCs provided training on the equipment funded by TCIF. Likewise, among those who had provided training until now, all except one UTC (28 out of 29) stated that the purchase of equipment had contributed to changes in their training activities. The most frequent changes were more hands on training (89% of recipients), addition of new courses (71% of recipients) and changes to existing curriculum (68% of recipients). New workshops (39% of recipients) and new on the job training activities (32% of recipients) occurred less frequently. Since the equipment purchased by Year 2 applicants was similar to what they applied for it, was not unexpected that the changes made by Year 2 applicants followed a similar pattern.

Table 4
Types Changes Made in Training as a Result of Equipment Purchased with TCIF Funding

Response	Percent of Respondents	
	TCIF funded equipment	Non-TCIF funded equipment
More hands on training	89.3%	84.6%
Addition of new courses	71.4%	76.9%
Changes to existing curriculum	67.9%	53.8%
New workshops	39.3%	30.8%
New on the job training activities	32.1%	23.1%
Other (not specified)	3.6%	7.7%
Number of respondents	*28*	*13*

* The total % does not add up to 100% as respondents could provide more than one answer to the question.

The survey results are further confirmed by external key informants, almost all of whom indicated, that TCIF did contribute to changes in method and content of the training and that these changes matched industry needs. For instance, one of the external stakeholders interviewed noted that the TCIF funding helped create training opportunities using alternative power technologies such as solar and wind generated power, as well as with laser and fibre optic technologies.

Evaluation Question 2.5: Did TCIF lead to increased skills levels in the skilled trades addressed by the training? Were there any unintended benefits of training on new/updated equipment funded by TCIF?

An intended mid-term outcome of TCIF was increased skill level in the skilled trades as a result of training on new equipment.

As indicated previously, the TCIF funding supported UTCs in purchasing new equipment that resulted in changes in training that reflected the changing needs of the industry. Experts indicated that they expected that training on up-to-date equipment would lead to an increase in competencies. The literature indicates that one of the key benefits of up-to-date training in the trades is development of skills relevant to the workplace[22]. One expert pointed to the logic of the situation: "If you don't have the up-to-date equipment, you can't expect that the training will lead to new skills being developed." External stakeholders and survey respondents indicated that new curriculum was developed, which provided training in new areas and which, external stakeholders felt, would logically result in individuals becoming competent in new areas.

The survey indicates that an increase in skill levels did occur. As indicated in *Table 5*, 100% of Year 1 recipients thought that the training on TCIF-funded equipment contributed "somewhat" or "a lot" to increased skill levels in the skilled trades.

[22] Buchanan, J., Evesson J. and Briggs C. (2002). *Renewing the capacity for skills formation: the challenge for Victorian Manufacturing.* Sydney: Australian Centre for Industrial Relations Research and Training.
Malatest and Associates Ltd. (2003, June). *The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades.*
Sharpe, A., Arsenault, J., and Lapointe, S. (2008). *Apprenticeship Issues and Challenges facing Canadian Manufacturing Industries.* Ottawa: Centre for the Study of Living Standards.

Table 5 Extent to Which Training Led to Increased Skill Levels and Other Benefits			
	Percent of Respondents		
Response	Increased skill levels within the targeted trade(s)	Increased interest to enter skilled trades	Local access to training opportunities, reducing the cost for travel
Not at all	0%	6.9%	6.9%
A little	0%	24.1%	6.9%
Somewhat	27.6%	31.0%	44.8%
A lot	72.4%	31.0%	34.5%
Don't know/Don't recall	0%	0%	0%
Prefer not to answer	0%	0%	0%
N/A	0%	6.9%	6.9%
Total	*100%*	*100%*	*100%*
Number of respondents	*29*	*29*	*29*

Additional benefits perceived by the survey respondents included increased interest in entering the skilled trades (62%), local access to training opportunities resulting in a reduction in transportation costs (79%), and increased skill levels within the targeted trade(s) (100%). A few respondents also noted that benefits included an increased level of knowledge in instructors and increased training time on equipment. This latter benefit was supported by external key informants. One important unintended benefit stated by one of the training centres was the ability to receive provincial/territorial accreditation for apprentice and pre-apprenticeship technical training.

Evaluation Question 2.6: Were the new skills learned by trainees using the new/ upgraded equipment applied on the job? Have trainees used identical or similar equipment on the job to that used during training?

Table 6 shows that approximately 97% of the survey respondents, who were comprised of representatives from the UTCs, indicated that the skills acquired during training using TCIF-funded equipment were applied on the job either somewhat or a lot. Ninety-three percent of respondents with non-TCIF funded equipment indicated that it resulted in skills that are applied at work 'a lot' compared to 59% respondents with TCIF funded equipment. However, this difference is not significant because of the small size of the sample.

Because of the re-scope of the evaluation due to the cancellation of the program it was not possible to reach directly the trainees or employers to get their assessment of training impact. Fortunately, UTC representatives were knowledgeable about their clients and were able to provide their perception of the impact of training on employers and trainees.

Table 6 Extent to Which Acquired Skills Using Purchased Equipment Are Applied at Work		
Response	Percent of Respondents	
	TCIF funded equipment	Non-TCIF funded equipment
Not at all	0%	0%
A little	3.4%	0%
Somewhat	37.9%	7.1%
A lot	58.6%	92.9%
Total	*100%*	*100%*
Number of respondents	*29*	*14*

Moreover, a vast majority of the Year 1 survey respondents (83%) indicated that the equipment purchased through TCIF was similar or identical to the equipment used at work. No one indicated that the skills were not applied at all. The results were similar for equipment purchased by Year 2 applicants.

Evaluation Question 2.7: Did TCIF lead to job enrichment or increased employment opportunities for persons trained on new/upgraded equipment?

Table 7 presents the benefits to workers perceived by UTC representatives responding to the survey.

Over half the survey respondents indicated that development of skills through training with TCIF-funded equipment led to an increased opportunity in a number of areas including: hours of work, geographical mobility, occupational mobility and supervisory responsibilities. Almost half of the respondents indicated that the skill development resulted in increased wages, with 21% indicating that it did not. Although wage level was one of the potential benefits indicated by TCIF applicants, it may not be the best indicator since, as pointed out by external key informants, for some trades the wage level is determined by other factors, such as the number of years practicing as an apprentice or journeyperson and not the necessarily the skill level based on training.

Table 7 Extent to Which Skill Development on TCIF-funded Equipment Contributes to Benefits for Workers					
	Percent of Respondents				
Response	Increase in hours of work/ contracts	Increase in wages	Increased geographical mobility	Increased occupational mobility	Increased supervisory responsibilities
Not at all	3.4%	20.7%	3.4%	3.4%	10.3%
A little	17.2%	20.7%	17.2%	3.4%	24.1%
Somewhat	34.5%	37.9%	41.4%	41.4%	37.9%
A lot	31.0%	10.3%	31.0%	48.3%	17.2%
Don't know/Don't recall	10.3%	0%	3.4%	3.4%	3.4%
Prefer not to answer	0%	0%	0%	0%	3.4%
N/A	3.4%	10.3%	3.4%	0%	3.4%
Total	*100%*	*100%*	*100%*	*100%*	*100%*
Number of respondents	*29*	*29*	*29*	*29*	*29*

External stakeholders and experts supported the findings from the survey. All external stakeholders indicated that training using TCIF-funded equipment led to increased opportunities within the relevant industries because the training made the workers more attractive to employers, noting that in some instances the training was essential for obtaining employment in the first place. One stakeholder noted:

> "What we heard . . . was that they could not even get to the job site unless they got this training that was provided. Until they got trained, they did not have opportunities for employment with certain contractors. It also provides them with a little bit more edge in their portfolio."

As one expert indicated, the more skills that workers have the more versatile they are and attractive to employers. This benefits tradesworkers as they have the better pick of jobs, and greater job security. Further, they pointed out that a wide skill set could also help with obtaining promotions.

While one expert and most external stakeholders indicated that improving skills should make the workers more employable no matter where they seek work, they also noted that other factors, such as a lack of standardization in training, can interfere with geographical mobility. Despite that caution, almost three-quarters of survey respondents indicated that training on TCIF funded equipment contributed to geographical mobility.

The above findings on job enrichment and increased employment opportunities for persons trained on new or upgraded equipment are based on the perceptions of UTC representatives and external stakeholders and experts. As earlier noted, final reports from funded UTCs lacked consistency and only provided information up to the point of equipment acquisition. Results data pertaining to the impact of the training provided on the equipment purchased was unavailable.

Evaluation Question 2.8: Has TCIF led to, or is expected to lead to, a reduction in skill gaps in the skilled trades addressed by the training?

TCIF did reach a large number of trades people across Canada and there is evidence that the training led to increased skill levels. Based on information provided by survey respondents, approximately 5,081 journeypersons and 5,553 apprentices received training on TCIF-funded equipment since it was purchased using the Year 1 funding, with the number trained in any given trade varying from five to 1,500. Moreover, in many cases the equipment had been in place for less than a year when this question was asked, the number of trained tradesworkers had not reached a maximum.

Almost all key informants indicated that TCIF should, in theory, contribute to a reduction in skill gaps, given sufficient time. However, as experts and external stakeholders pointed out, factors other than training - including wage growth, job vacancies, turnover rates and demographic shifts – also contribute to shifts in the skill gaps at the macro level. For example, the current demographic of Canada's population is contributing to an increase in the skill gap as older workers retire faster than new workers are coming on stream. This is contributing to fewer workers with the required skills. So while the skill gaps may not be reduced, programs such as TCIF can contribute to slowing down the increase in skill gaps that is currently occurring.

TCIF funded 44 UTCs across 25 different trades, reaching approximately 20% of the estimated number of UTCs. In the second year, TCIF received application from 32 UTCs that had not applied for funding in Year 1 and were eligible for program funding based on program criteria. Within the short-life span of TCIF, the majority of UTCs were not impacted by TCIF. Had the program continued, it might have been appropriate to look for methods to increase the reach and hence increase the potential for more trades people to have upgraded training.

Most survey respondents (90%) indicated that training on TCIF-funded equipment contributed a lot or somewhat to an increased supply of workers with the appropriate skills. Approximately 72% of survey respondents indicated that the skills acquired from training contributed somewhat or a lot to an increased ability among employers and contractors to bid on contracts.

3.3 Alternative Approaches to TCIF and Cost-Effectiveness

Evaluation Question 3.1: Were there alternative approaches to TCIF that would have been more cost-effective in providing access to new/upgraded training equipment for the purpose of increasing skills levels in the skilled trades?

Cost-effectiveness analysis compares the costs and outcomes of two or more approaches or courses of actions. As outcomes data was not available for TCIF, cost-effectiveness analysis could not be undertaken. Instead, the evaluation relied upon an examination and assessment of alternative approaches to that of TCIF.

In March, 2007, the Ontario Skills Training Infrastructure Program, a program similar to TCIF, was introduced by the Ontario Ministry of Training, Colleges and Universities as part of a government job enhancement strategy. This occurred the same year that TCIF was cancelled so there was no overlap in the existence of the two programs. According to the STIP guidelines[23], the program was developed in response to a growing need for new and upgraded equipment to meet the skills training and apprenticeship needs of the Ontario economy. It is intended to increase hands-on training capacity of colleges and UTCs. Experts and a number of external stakeholders were aware of the program but could not comment on whether it was a more cost-effective approach, nor are there any evaluations available at this point.

Experts and external stakeholders suggested a number of alternative approaches that could be less costly, but pointed out aspects that might make the approach less effective. For example, donation of equipment from employers is not costly but may not be effective in achieving the goal of upgrading skills, as the equipment is likely to be older/used. As pointed out by the Malatest[24] report this equipment is often second generation or older, which does not contribute to ensuring the training supports skill development in new technologies.

Another suggested approach of employers loaning equipment allows for a number of trades people to have access to training on the equipment. However, experts pointed out that the employer loses income while the equipment is on loan, which in turn limits the availability of the equipment for training purposes. Furthermore, often equipment cannot be moved which would require training to be completed at the job site, which would also have some logistical issues (i.e. liability, safety, reduced productivity, etc.) The sharing of equipment or use of industry demonstrations is similar to the lending of equipment, with the same disadvantage of limited availability. It would seem that while there are less costly ways to obtain equipment or provide training, the literature raises concern that such cost-cutting measures could be less effective in responding to the need for increased skill in operating new equipment.

Financial loans to UTCs were suggested as being less costly to the taxpayer. Experts indicated that while this approach is theoretically possible, they were not aware of any lending institutions that would provide loans to UTCs. The Business Development Bank of Canada (BDC) provides up to 125% financing (100% of cost of new or used equipment; 25% for related expenses such as training) for manufacturing or processing companies but *not* for UTCs[25]. If such financing were available, the UTC would need to cover 100% of the cost plus the interest, so there would be no cost advantage to the UTC.

---

[23] Ontario Skills Training Infrastructure Program (August, 2007) Guidelines and Requirements.

[24] Malatest and Associates Ltd. (2003, June). *The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades*.

[25] Government of Canada (2008). *Business Development Bank of Canada*, Retrieved April 1, 2008 from Government of Canada: http://www.canadabusiness.ca/servlet/ContentServer?pagename=CBSC_FE/display&c=Finance&cid=1081944214349&lang=en

Other examples of approaches were not necessarily less costly, but rather shifted the cost from the taxpayer to the employer. In the mid-1990's, Quebec passed legislation, based on models in France and Australia, requiring firms with a payroll of $250,000 or more to invest in improving the qualifications of their workforce at a rate of 1% of total payroll a year or to pay an equivalent sum into a national fund to support the development of workforce training.[26] There is no requirement as to how the investment by firms in improving the qualifications of their workforce is to be distributed among employees. The legislation also brought the various partners together and in 1999, they agreed to a provision that waived certain administrative formalities for companies that allocated over 2% of payroll to training, those with an approved internal training service and those that worked with employee representatives to develop a joint, three year training plan. Consistently since 1997, between 65% and 88% of firms contribute more than the 1% threshold.

Currently in Australia, some training is carried out through 'Group Training Organizations' that act as the employer and place apprentices and trainees with host businesses who provide training. Approximately 13% of all apprentices and trainees are employed through such arrangements. The report asserts that there needs to be both public and private investment to ensure sufficient funding levels for training infrastructure.[27]

Almost all UTC representatives responding to the survey (92%) felt that government funding for the purchase of training equipment was one of the most effective means for promoting skills upgrading in the skilled trades (see *Table 8*). The provision of funding to union/employer partnerships to rent/use other training/learning facilities was stated to be effective by 43% of respondents.

Table 8
Most Effective Supports for Promoting Skills Upgrading in the Skilled Trades

Answer	Percent of Respondents
Providing government funding for purchase of equipment	91.5%
Providing government funding to union/employer partnerships to rent/use other training/learning facilities	42.6%
Other	21.3%
Don't know/Don't recall	2.1%
Prefer not to answer	2.1%
Total	*100%*
Number of respondents	*47*

The foregoing review of alternative approaches to TCIF suggests that TCIF may be an effective approach in comparison to the alternatives against which it was compared. However, there is no conclusive evidence to suggest that it is the best approach. Also, and as earlier noted, the absence of cost and outcomes data for TCIF and the alternative approaches considered, prevented the determination of TCIF's cost-effectiveness.

[26] Charest, Jean (2006). *The Role of Labour Standards in a Human Capital Strategy(research report submitted to the Federal Labour Standards Review Commission*.

[27] Group Training Australia (2007) *Policy Statement: A Better Skilled Workforce,* Sydney Group Training Australia Limited.

Evaluation Question 3.2: Would there have been a larger role to be played by the private sector with respect to the achievement of TCIF outcomes? Were there activities within TCIF which could have been more appropriately administered by the private sector?

The private sector already plays a role with respect to supporting the development of apprentices and journeypersons, for example employers associated with a unionized workforce often are contributors to training trust funds (TTF) which support the skills development of its members. As part of its funding criteria, TCIF required an employer-union partnership which for the most part was demonstrated by the existence of a training trust fund. The literature and experts indicate that in both Canada and the United States, TTFs have played a significant role in providing occupational training to union members[28].

As noted previously, some external stakeholders indicated that programs like TCIF can help to leverage private sector investment. Those who felt employers might contribute more with funding like TCIF indicated that this would depend on the size of the employer and its current profitability situation.

Survey respondents were asked to what extent they thought that employers/contractors would be willing and able to increasingly fund the purchase of training equipment for skills upgrading purposes (see *Table 9*). A total of 34% respondents did not think employers would be willing and able to do so at all, 53% indicated "a little" or "somewhat," and 4% indicated "a lot." There was a similar pattern in responses when respondents were asked to indicate to what extent they thought that employers/ contractors would be willing and able to increasingly finance employee training.

Table 9
Perceptions of the Willingness and Ability of Employers to Fund Equipment*

Response	Percent of Respondents	
	Fund the purchase of training equipment for skills upgrading purposes	Finance employee training
Not at all	34.0%	27.7%
A little	19.1%	23.4%
Somewhat	34.0%	27.7%
A lot	4.3%	12.8%
Don't know/Don't recall	8.5%	8.5%
Prefer not to answer	0%	0%
Total	*100%*	*100%*
Number of respondents	*47*	*47*

* The results as presented in Table 9 must be interpreted with caution as - (1) the willingness; and, (2) the ability - of employers to fund equipment purchase are two separate ideas. It is unclear how the survey respondents interpreted the question asked. For example, one survey respondent may have been willing to fund equipment purchase, but they lacked the financial capability, so they responded "not at all" to funding equipment purchase. Another respondent, were willing to fund equipment purchase and ignored the condition that they also had to be able to fund the purchase and thus answered "a little", "somewhat" or "a lot".

[28] Bilginsoy, C. (2003). The hazards of training: attrition and retention in construction industry programs. *Industrial and Labor Relations Review*, 57, 1, pp. 54-67.
O'Grady, J. (2005). Training trust funds: A review of their history, legal foundations, and implications for trade union training strategy. Ottawa: Canadian Labour Congress.

There is general agreement that TCIF should be delivered by HRSDC. Only 6.4% of survey respondents felt that some parts of TCIF should have been delivered by a third party rather than by HRSDC. Most external stakeholders and experts felt it was appropriate for employers to contribute funds through training trust funds but did not view it appropriate for the private sector to deliver the initiative. No one felt there would be any gains by delivering aspects of the program through the private sector.

The literature is mixed on the value of increased involvement of the private sector. Goodrum[29] noted that the private sector is often overlooked as a potential funding source for training. On the other hand, the Alberta Federation of Labour[30] opposes private sector involvement, seeing the potential directing the future of training in the skilled trades. It argues for placing a greater emphasis on more government involvement in training. Alternatively, concern was raised that apprenticeship systems such as the TAFE system in Australia[31], which are solely government funded, can be restrictive in terms of responding to emerging needs.

The literature indicates that employers themselves may be hesitant to become involved in training[32]. The literature noted that costs of training and fear that other employers will 'poach' employees once they are trained present barriers to employer involvement. Australia has developed a collaborative approach that involves government and the private sector[33].

The following are some examples of how the private sector has been engaged to contribute to training:

- In Quebec, since 1996, employers have been required to pay a training tax of up to 1% of payroll if they do not provide eligible training to their employees[34]. Alberta Federation of Labour has recommended that Alberta pass similar legislation.

- In Australia some training is done through 'group training organizations'. The GTO acts as the employer and places apprentices and trainees with host businesses for training. Approximately 13% of all apprentices and trainees are employed through group training arrangements in Australia[35]

---

[29] Goodrum Paul. (2007, Aug). *Construction Industry Craft Training in the US and Canada.* For the Construction Industry Institute.

[30] Alberta Federation of Labour (2006). Beyond Chicken Little: Understanding the need for measured reforms to Alberta's system for skills training. Edmonton Alberta: Alberta Federation of Labour.

[31] Technical and Further Education (TAFE) Directors Australia (2004). *Funding for Technical and Further Education (TAFE): A TDA Position Paper*. Canberra, Australia: TAFE.

[32] Ontario Chamber of Commerce (2006, October). *Retooling for a prosperous Ontario: A global perspective on skilled trades.* Toronto: Ontario Chamber of Commerce.
Schuetze, H. and Sweet, R. (2003). "Integrating School and Workplace Learning" in Sweet, R (eds.) *Integrating School and Workplace Learning in Canada*, Canada: McGill- Canada: An Introduction to Alternation Education Concepts and Issues.

[33] Australian Government, Department of Education, Science and Training (2006). *Strategic Review of Infrastructure Funding.*
Group Training Australia. (2007). *Policy statement: A better skilled workforce*. Sydney: Group Training Australia Limited.

[34] O'Grady, J. (2005). *Training trust funds: A review of their history, legal foundations, and implications for trade union training strategy*. Ottawa: Canadian Labour Congress.

[35] Group Training Australia. (2007). *Policy statement: A better skilled workforce*. Sydney: Group Training Australia Limited.

Evaluation Question 3.3: Did TCIF investments result in impacts incremental to any existing investments?

Almost all key informants noted that TCIF investments resulted in matching funds from UTCs. While not all of these resulted in new funds being provided, a number of key informants gave examples where the UTC would not have been able to purchase the needed equipment without TCIF or the UTC was able to purchase more equipment or higher quality equipment as a result of TCIF funding. For most UTCs the amount of funds available to purchase equipment was greater than it would have been without TCIF.

The majority of survey respondents that received funding in Year 1 (90%) indicated that they increased their spending on equipment, spending what they would have normally spent or more of their own funds plus using TCIF (see *Table 10*). Of the thirty seven percent of the survey respondents that received funding from another source (STIP) in the last four years, 61 % bought equipment and 39 % did not. Of the 58 % of applicants responding to the survey that said they did not receive funding from any other sources, only 8% bought equipment.

Table 10
Consortia's/Trust Fund's Expenditures on TCIF-funded Training Equipment in 2005-2006

Response	Percent of Respondents (Year 1)
Increase	90.0%
Remain on the same level compared to previous years	3.3%
Decrease	3.3%
Don't know/Don't recall	3.3%
Prefer not to answer	0%
Total	*100%*
Number of respondents	*30*

It is difficult to determine the extent to which TCIF funds complemented rather than displacing UTC contributions because while it is possible that overall spending when TCIF funding was available was higher, the actual contribution from the UTC might have been lower than when TCIF was not available. It is likely that while TCIF stimulated some incremental investment by UTCs, it is also likely that some displacement of funds from UTCs occurred. However, as most UTCs that did not receive TCIF funding or funding from another source, did not purchase any equipment this is an indication of program incrementality.

Evaluation Question 3.4: Was there any overlap or duplication of TCIF funding at the national or provincial level? If so, did this have a negative impact on the incremental impacts of TCIF?

As indicated previously, there appears to be only one similar training program in Canada: Ontario's Skills Training Infrastructure Program (STIP) which is very similar to TCIF, but was not available to UTCs during the period of TCIF. In the fiscal year 2007-2008, the Ontario provincial government provided $25 million for funding to UTCs or mobile training units to purchase new or used equipment. Unlike TCIF, it covered the installation

costs, contributed to facility improvement costs and had no maximum ceiling. It also expects only a 25% contribution from the UTC. However, it applies only to Ontario-based centres.

A total of 38% of all UTCs (18) responding to the survey had received funding from another source over the last four years. A total of 14 UTCs in Ontario indicated that they had received funds from the provincial government through the Ministry of Training, Colleges and Universities' Skills Training Infrastructure Program (STIP), which did not co-exist with TCIF. One UTC in Nova Scotia had received funds from the provincial Department of Education. The other three did not indicate the source of funding. While some UTCs did receive funding from other sources, it seems for the most part it was not at the time that TCIF was operating.

External and internal stakeholders were not aware of any other funding programs. Given that the external stakeholders are from UTCs that make an effort to keep current of potential funding sources, it is likely that if they do not know about other programs that such programs should not exist. This is further supported by a scan of all provincial and territorial websites looking for information on past or current programs that could have overlapped or duplicated the TCIF program. It appears that STIP was the only program that provided funding to UTCs for upgrading equipment used in training and it operated after TCIF was cancelled.

4. Conclusions

This section summarizes the conclusions that can be drawn from the findings of this evaluation in relation to program rationale, success and cost-effectiveness.

Program Rationale

There is some evidence that indicates the need for a program that supports the purchase of equipment by UTCs. The studies carried out to date indicate that many UTCs are operating with equipment that is out-of-date and that equipment that responds to technological change in the industries can be costly. Currently, Ontario is the only province to provide such a program, so at the moment the remainder of Canada does not have access to such supports. There is some indication that the UTCs that need the funding the most, that is those with fewer resources, were not able to access TCIF because of the required 50% share structure. The evidence presented does not rely on direct observation of the state of the training equipment in UTCs. Even in the presence of a demonstrated need for new investment in UTC training equipment, there is no causal link to direct government involvement.

Limitations of Methodology

As a result of changes in the evaluation scope arising from program cancellation, evaluation findings are largely based upon the views of those with a vested interest in the program, particularly the funded recipients and, to a lesser extent, some of the external key informants. Consequently, the findings are potentially biased towards toward favourable program outcomes.

Program Success

The findings indicate that overall TCIF was successful in achieving its intended outcomes as indicated by the following:

- TCIF did help to leverage funds, with a majority indicating their UTC's trust funds overall expenditures on training equipment increased the year they received funding compared to previous years.
- It appears that while new partnerships were not formed for the purpose of applying for TCIF that they were developed as a result of the funding.
- Equipment purchased with TCIF funding responded to the changing technological needs of the industries.
- The new equipment did result in changes to training including more hands-on opportunity, additional courses and changes to existing curriculum. Experts and external key informants

emphasized the importance of hands-on training in order to maximize the benefits of training.

- The skills that were acquired during training were applied in the work setting on equipment that was similar or identical to that funded by TCIF.
- UTC representatives indicated that training on TCIF-funded equipment did lead to job enrichment and/or increased opportunities.
- TCIF has positively contributed to the existing skill gap through providing trained workers. However, it is impossible to measure the actual impact of TCIF on the skill gap which is likely to continue to increase because of some factors as presented by experts and literature. The skill drain caused by retirement of skilled trades people is one of the factors raised.

Cost-Effectiveness

Cost-effectiveness analysis could not be undertaken as outcomes data was not available for TCIF. Instead, the evaluation relied upon an assessment of alternative approaches to that of TCIF. The findings from this analysis indicate that other approaches are possible. However, those that would appear to be less costly may not be as effective at achieving the stated goals of TCIF. Both the survey and key informant interviews indicate that most people feel that TCIF is quite cost effective because it allows for training of a large number of trades people and can motivate some of private sector to contribute more. The preceding suggests that TCIF may be an effective approach. However, if cannot be conclude that it is the best approach nor that it is cost-effective.

There were mixed views on whether the private sector should play a larger role. Both key informants and survey respondents pointed to the unwillingness of some employers to contribute, while some of the literature pointed to the private sector as an under-utilized resource. At the same time other literature pointed to some of the pitfalls of not having government support.

It is difficult to know whether TCIF had a complementary rather than displacement effect on UTC spending on equipment. However, the majority of UTCs reported spending more on equipment when receiving TCIF funds and there was no overlap with other government funding sources during the period in which it operated. Some UTCs did not purchase any equipment in the absence of funding.

While it was not a part of the evaluation, the importance of standardized training was noted and there was some indication that a national program such as TCIF would be in a position to support standardized training across provinces and territories.

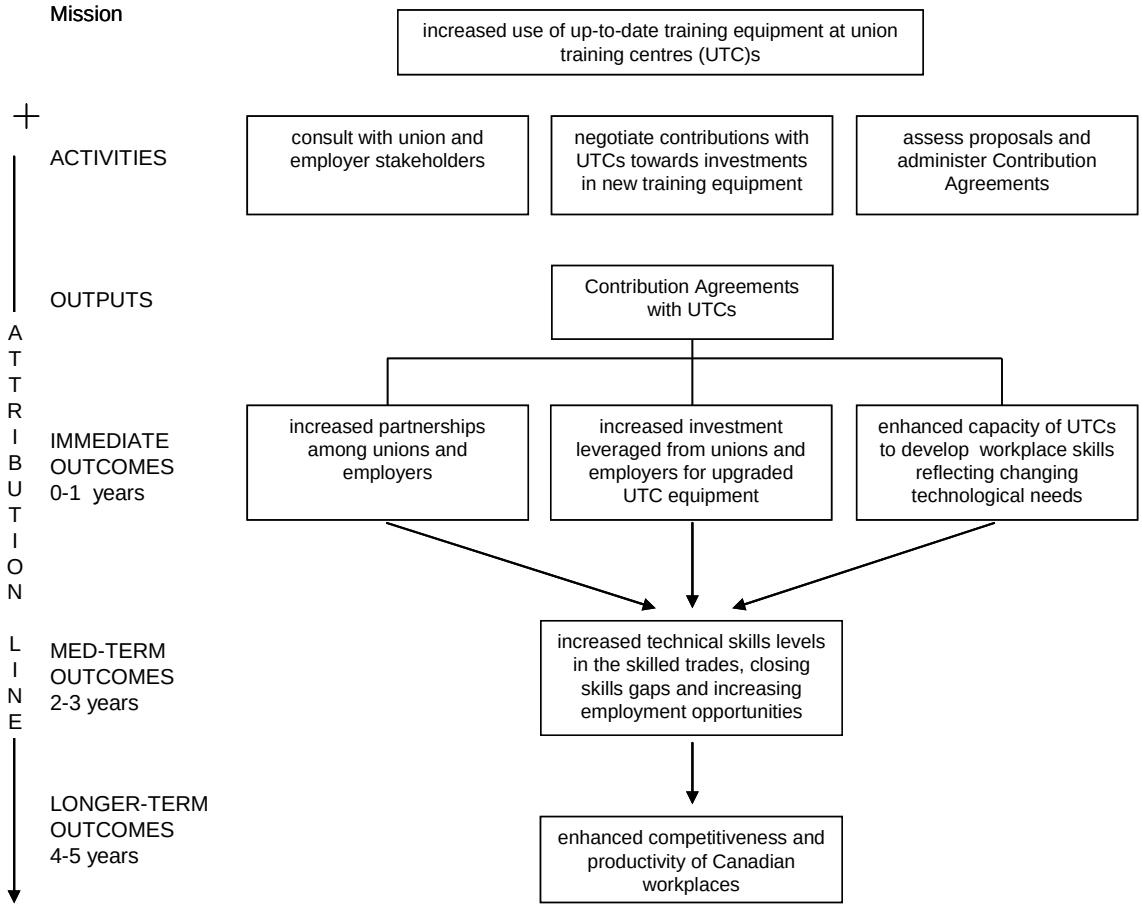
Conclusions

The findings indicate:

- Despite its truncated existence, TCIF did achieve or work towards achieving most of its intended outcomes; and
- There is evidence to suggest that TCIF is an effective approach when compared to alternative, less costly approaches.

Appendix A: Program Logic Model

Training Centre Infrastructure Fund (TCIF)
Strategic objective: to test whether federal funding can leverage increased investment by unions and employers in purchasing up-to-date training equipment for union-employer training centres.



Appendix B: Evaluation Issues and Questions Matrix

Evaluation Question	Indicators	Methodologies
1. Rationale		
1.1 Did TCIF address an actual need?	• Extent to which the research/literature indicates that high replacement cost of capital equipment for training purposes is a major barrier to skills training. • Percentage of all eligible UTCs that applied for TCIF funding. • Views of key informants on need for funding of training equipment. • Views and documented evidence on extent to which TCIF funding alleviated financial barriers preventing the purchase of training equipment. • Percentage of Year Two TCIF applicants who purchased equipment after TCIF funding was cancelled, and type of equipment purchased.	• Document and file review • Literature review • Key informant interviews • Survey of UTCs
2. Program success		
2.1 Did the TCIF help to leverage increased funds from employers and unions for the purchase of new/upgraded training equipment at funded union training centres?	• Level of funding from union-employer training trust fund/consortia expended on training equipment at UTCs prior to and as a result of TCIF funding.	• Document and file review • Key informant interviews • Survey of UTCs
2.2 Did TCIF lead to increased partnerships among unions, and between unions and employers?	• Views and documented evidence on extent of increased partnerships at local, regional, and/or national level created for purpose of TCIF funding and the provision of training: o Among unions at local, regional, and/or national level o Between unions and employers o Other types of partnerships (e.g., community colleges and industry associations).	• Document and file review • Key informant interviews • Survey of UTCs

Evaluation Question	Indicators	Methodologies
2.3 Did the new/ upgraded training equipment funded by TCIF address new skills brought by changes or standards in the industry?	• Extent to which new/upgraded training equipment reflected the changing technological needs of industry.	• Literature review • Key informant interviews • Survey of UTCs
2.4 Did TCIF contribute to changes in method and content of training at funded union training centres which reflected changing technological needs within industry?	• Number and type of new/improved training activities that resulted from acquisition of new/updated equipment (e.g., curriculum changes, new course offerings, workshops, on-the-job training activities). • Extent to which the skills/competencies acquired as a result of training matched industry needs. • Extent to which the new training activities supported skills that have undergone significant technological changes.	• Document and file review • Key informant interviews • Survey of UTCs
2.5 Did TCIF lead to increased skills levels in the skilled trades addressed by the training? Were there any unintended benefits of training on new/updated equipment funded by TCIF?	• Opinions on skills/competencies acquired during training on new/upgraded equipment funded by TCIF. • Opinions on other benefits as reported by UTCs, e.g. fulfillment of health and safety requirements/regulations.	• Document and file review • Key informant interviews • Survey of UTCs
2.6 Were the new skills learned by trainees using the new/upgraded equipment applied on the job? Have trainees used identical or similar equipment on the job to that used during training?	• Opinions on the extent to which the skills acquired during training on new/upgraded equipment were/are applied in a work context, as reported by UTCs and stakeholders. • Opinions on the extent to which equipment similar or identical to that used during training (related to TCIF funding) was/is used on the job, as reported by UTCs.	• Survey of UTCs

Evaluation Question	Indicators	Methodologies
2.7 Did TCIF lead to job enrichment or increased employment opportunities for persons trained on new/upgraded equipment?	• Opinions on the extent to which training led to, or is expected to lead to, increased opportunities for trainees within relevant industries, e.g., increase in hours of work, contracts, wages, mobility or supervisory responsibilities resulting from skills acquisition, as reported by UTCs and stakeholders. • Opinions on the extent to which training led to, or is expected to lead to, increased occupational and geographical mobility for trainees within relevant industry sectors resulting from skills acquisition, as reported by workers.	• Key informant interviews • Survey of UTCs
2.8 Has TCIF led to, or is expected to lead to, a reduction in skills gaps in the skilled trades addressed by the training?	• UTCs' and stakeholders' perceptions regarding supply/availability of labour with appropriate skills. • Accounts of increased ability for employers/contractors to bid on contracts requiring the competencies acquired as a result of training on the equipment purchased with TCIF.	• Key informant interviews • Survey of UTCs
3. Cost Effectiveness		
3.1 Were there alternative approaches to TCIF that would have been more cost-effective in providing access to new/upgraded training equipment for the purpose of increasing skills levels in the skilled trades?	• Existence and extent of other funding mechanisms to purchase training equipment for use at union training centres. • Feasibility of supporting training through mechanism other than the purchase of equipment, e.g. providing funding to union/employer partnerships to rent/use other training/learning facilities.	• Literature review • Key informant interviews • Survey of UTCs
3.2 Would there have been a larger role to be played by the private sector with respect to the achievement of TCIF outcomes? Were there activities within TCIF which could have been more appropriately administered by the private sector?	• Ability and willingness of the private sector to provide employee training and to fund training equipment for skills upgrading purposes. • Extent to which some program activities could have been more cost-effectively delivered by the private sector (e.g., equipment/ machinery assessment and validation).	• Literature review • Key informant interviews • Survey of UTCs

Evaluation Question	Indicators	Methodologies
3.3 Did TCIF investments result in impacts incremental to any existing investments?	• Extent to which TCIF funding had a complementary (incremental) effect, as opposed to displacement effect. • Extent to which training trust fund consortia expenditures on new/upgraded equipment for training purposes at UTCs remained the same or increased.	• Document and file review • Key informant interviews • Survey of UTCs
3.4 Was there any overlap or duplication of TCIF funding at the national or provincial level? If so, did this have a negative impact on the incremental impacts of TCIF?	• Existence and extent of parallel funding programs for UTCs or other union/employer consortia at the national and/or provincial level.	• Document and file review • Literature review • Key informant interviews • Survey of UTCs

Appendix C: Bibliography

Alberta Federation of Labour (2006). Beyond Chicken Little: Understanding the need for measured reforms to Alberta's system for skills training. Edmonton Alberta: Alberta Federation of Labour.

Australian Government, Department of Education, Science and Training (2006). *Strategic Review of Infrastructure Funding.*

Bilginsoy, C. (2003). The hazards of training: attrition and retention in construction industry programs. *Industrial and Labor Relations Review*, 57, 1.

Buchanan, J., Evesson J. and Briggs C. (2002). *Renewing the capacity for skills formation: the challenge for Victorian Manufacturing.* Sydney: Australian Centre for Industrial Relations Research and Training.

Canadian Apprenticeship Forum (2004). *Accessing and completing apprenticeship training in Canada.* Ottawa: Canadian Apprenticeship Forum.

Canadian Apprenticeship Forum (2006). *Apprenticeship – Building a skilled workforce for a strong bottom line.* Ottawa: Canadian Apprenticeship Forum.

Charest, Jean (2006). *The Role of Labour Standards in a Human Capital Strategy (research report submitted to the Federal Labour Standards Review Commission)*

Goodrum Paul. (2007, Aug). *Construction Industry Craft Training in the US and Canada.* For the Construction Industry Institute.

Government of Canada (2008). *Business Development Bank of Canada*, Retrieved April 1, 2008 from Government of Canada: http://www.canadabusiness.ca/servlet/ContentServer?pagename=CBSC_FE/display&c=Finance&cid=1081944214349&lang=en

Group Training Australia (2007). *Policy statement: A better skilled workforce*. Sydney: Group Training Australia Limited.

HRSDC Departmental Performance Report 2005-2006.

HRSDC Report on Plans and Priorities 2004-2005.

Human Resources and Social Development Canada (downloaded September, 2008) *Role of Labour Standards in Human Capital Strategy,* http://www.hrsdc.gc.ca/en/labour/employment_standards/fls/research/research18/page07.shtml

Jung, T., Misko, J., Lee, K., Dawe, S., Hong, S., and Lee, K. (2005). Effective measures for school-to-work transition in the vocational education system: Lessons from Australia and Korea. National Centre for Vocational Education Research.

Malatest and Associates Ltd. (2003, June). The Malatest final report prepared for the ACCC/CAF/CSC on Supporting Apprenticeship Training Through Innovative use of Equipment and Technology Upgrades.

O'Grady, J. (2005). Training trust funds: A review of their history, legal foundations, and implications for trade union training strategy. Ottawa: Canadian Labour Congress.

Ontario Chamber of Commerce (2006, October). *Retooling for a prosperous Ontario: A global perspective on skilled trades.* Toronto: Ontario Chamber of Commerce.

Ontario Skills Training Infrastructure Program (August, 2007) *Guidelines and Requirements.*

Poole, K. E., Salem, P.L. and White, M. (2005, February). *A Workforce Needs Assessment of the Arizona Construction Trades Industry*. Phoenix: Arizona Department of Commerce. Queen's University Press.

Schuetze, H. and Sweet, R. (2003). "Integrating School and Workplace Learning" in Sweet, R (eds.) *Integrating School and Workplace Learning in Canada*, Canada: McGill-Canada: An Introduction to Alternation Education Concepts and Issues.

Sharpe, A., Arsenault, J., and Lapointe, S. (2008). *Apprenticeship Issues and Challenges facing Canadian Manufacturing Industries.* Ottawa: Centre for the Study of Living Standards.

Technical and Further Education (TAFE) Directors Australia (2004). *Funding for Technical and Further Education (TAFE): A TDA Position Paper*. Canberra, Australia: TAFE.