



SOLVING THE SKILLED TRADES SHORTAGE

A FEASIBILITY REPORT EXAMINING THE BARRIERS AND
SOLUTIONS TO YOUTH PARTICIPATION IN THE SKILLED TRADES IN
CANADA AND PROPOSING THE DEVELOPMENT OF PILOT PROJECTS
TO INCREASE THE SUPPLY OF YOUTH INTO THE SKILLED TRADES

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Background

The main objective of this report is to undertake a preliminary assessment of perceived shortages of qualified skilled trades people and identify how these may be addressed.

The report includes:

- Review of the theoretical and empirical literature underlining the nature of the skilled trades shortage in Canada;
- Summary of interviews with concerned parties in e.g., sector councils and industry organizations outlining barriers and solutions to increasing the supply of skilled tradespeople in Canada; and
- Suggested methodological approach for a series of innovative pilot projects designed to help solve the skilled trades shortage in Canada.

Overview of the Issue

Canada does not have a tradition of developing skilled trades as does, for instance, Germany. In the immediate post-war period, much of the demand for skilled trades in manufacturing and construction was satisfied through immigration. This legacy has had a major effect on the institutional and market structure for skilled trades and the prevailing attitudes toward skilled trades among youth.

The Canadian education system has tended to promote the acquisition of academic skills and high-level vocational skills. Canada has one of the highest rates of post-secondary enrolment in the world. Canada has become very good at producing doctors, engineers, computer scientists, government bureaucrats, accountants and managers, if not skilled tradespeople. This fact accounts for why a good portion of the literature is sanguine about the skills of the Canadian labour force—there is considerable skill but it just does not happen to be directed towards the trades.

From an institutional perspective, skilled trades tend to be considered as an afterthought for those who lack the academic aptitude to pursue the normal course from secondary school through to postsecondary school. Postsecondary school enrolments are geared toward the humanities or high-level vocational disciplines like engineering, medical sciences, computer science and accounting. Most secondary school graduates attempt to immediately pursue their studies in the colleges and universities. Those who are unsuccessful (and hundreds of thousand are) typically end up working in the service sector. Although some people do go straight into technical trades, it is often because relations or friends with connections in the trades (and unions) have urged them to pursue this course. There is little in the mainstream system that encourages young people to pursue skilled trades as a first choice following secondary school.

Consider, for example, the process facing Ontario secondary school graduates. If they choose to continue to college or university, they simply apply in this system in their last year of secondary school. There is a very well established system for sorting through these applications and assigning successful applicants to postsecondary institutions. Moreover, the postsecondary financing system revolves around these successful applications.

Contrast this with the process facing those who wish to pursue a trade through apprenticeship training. According to Skills Ontario, they must:

- first, find an employer who wants to hire an apprentice
- then, either they or the employer must contact a training consultant at the closest Ministry of Training, Colleges and Universities apprenticeship office;
- the training consultant will meet the trainee and the employer at the workplace to assess the employer's ability to train;
- Once the consultant determines that a high standard of training can be provided, the trainee and the employer sign an apprenticeship contract, which registers the trainee as an apprentice, and training begins

Not surprisingly, many choose to skip this process and join their friends in applying directly to the postsecondary institutions that, by comparison, are a model of streamlined efficiency.

Theoretical and Empirical Review

Many years of effectively treating the skilled trades as a secondary career path has had the consequence of diminishing the status of these trades in the eyes of many youth. This situation has not been improved by the fact that trade and vocational graduates generally do less well in the labour market when compared to community college and university graduates. This conclusion is based on evidence from successive National Graduate Surveys (Table 1). In addition to the higher rates of unemployment and lower earnings of trade/vocational graduates, these surveys also found that trade/vocational graduates were much less likely to be working in a field that used their training.

Table 1
Unemployment and Earnings, Trade Vocational School Versus Community College, Canada

Level of Study	Year of Graduation	Unemployment Rates		Full-Time, Full-Year Earnings	
		2 Years After Graduation	5 Years After Graduation	2 Years After Graduation	5 Years After Graduation
Trade/Vocational	1982	25%	17%	\$16,000	\$21,900
	1986	17%	19%	\$19,900	\$27,700
	1990	20%	14%	\$24,200	\$29,400
	1995	15%	N/A	\$25,900	N/A

College	1982	10%	4%	\$18,700	\$25,200
	1986	13%	7%	\$20,700	\$30,200
	1990	10%	6%	\$26,700	\$31,900
	1995	10%	N/A	\$27,500	N/A

Source: Statistics Canada's National Graduate Surveys of 1984, 1988, 1992 and 1997.

The economist Robert Solow has observed the apparent paradox of high levels of investment in technology coinciding with slow overall growth in productivity. ‘You can see computers everywhere except in the productivity statistics’ was how he put it. Similarly, there would appear to be a paradox between high levels of unemployment in the trades coinciding with claims of shortages of skilled trade labour. As Solow might have it: ‘the shortage of skilled trades is obvious except in the employment statistics’.

How does one explain the apparent paradox? To begin, many construction trades tend to be seasonal, so there is a possibility that employment is more sporadic. But a more likely explanation is that the definition of “qualified” and “skilled” are changing so quickly that employers genuinely may be having difficulty finding qualified individuals who have the right combination of technical and employability skills to perform in today’s work environment. As an example, the 1994 International Adult Literacy Survey found that over 10 per cent of *university* graduates had difficulty reading and interpreting texts. It may be that those unemployed skilled trades people either have had their technical skills atrophied or lack the right combination of technical and other skills to be effective on the job.

There is a tendency for economists to discount the skills shortage issue. To begin, the theoretical competitive model of the labour market suggests that people will acquire skills in relationship to the returns to education and that any shortage will be a temporary phenomenon. In Canada, there are still significant positive returns to pursuing other postsecondary options. The vocational/trade option is most likely to apply to a niche market of reasonably bright youth who do not wish to pursue other postsecondary options. Although sector associations¹ try to appeal to those in low paid service sector jobs, many of these people may not have the aptitude to actually develop skills in areas such as carpentry, bricklaying and electricity. These trades are much more skilled than the service sector jobs being done by a typical high school graduates or, for that matter, many humanities graduates.

For their part, employers may tend to exaggerate the workforce’s lack of skill. As Lasett (1992) has suggested, from the employers’ standpoint, skills are always in short supply at the wage that they would like to pay for these skills. This is part of the process of job matching. Employers would prefer to have fully-trained employees arrive at their door, but in the real world they usually have to spend time and resources training employees to

¹ E.g. construction, see www.madewiththetrades.com.

their specific circumstances. If they can get the education system to produce skills specific to their needs, this saves them the cost of doing it themselves. The education system has to strike a balance between developing generic skills that are applicable in a variety of work settings and specific skills unique to a particular work setting. One reason why vocational trades may not be more popular is that youth may feel that vocational training is too specific and therefore may limit their options to pursue a number of different career paths.

Economists' theoretical model, combined with the observation of relatively high levels of (non-trade) skill in the workforce, and high rates of return to college and university education leads to most economic studies drawing the conclusion that skills are not a major problem for the Canadian economy. Typical are those conclusions reached by two HRDC working papers. Henson et. al. (1998) found that "despite often loud complaints about skills shortages, little well developed and reliable information is available on the current or future occupational skill imbalances. At present, we simply do not know if labour market skill shortages constitute a serious problem in Canada". Massé et. al. concurs, "our analysis of various indicators suggests that Canada is not suffering from a broad-based shortage of skilled labour."

Notwithstanding economists' claims, employer groups continue to persevere with their opinion that there is, indeed, a skills shortage. At a general level, the Canadian Federation of Independent Business (CFIB, 2000), an association of small and medium-sized businesses, found in a November 2000 survey that "about 1 in every 20 jobs remain unfilled. Respondents cited the inability to find suitable skilled labour as a major barrier". Similarly, a Canadian Labour and Business Centre's (CLBC, 2001) survey of labour and management leaders found similar levels of concern, especially in relationship to the replacement of forthcoming waves of retirees.

Front-end baby boomers are now in their early fifties and will begin to retire on masse in the next 5 to 10 years. Although this is a long-term issue, it is one that will potentially have seismic-like ramifications for the Canadian labour market. The CLBC survey touches on this issue, but because it is not of immediate concern, many business executives are perhaps not attaching the importance to the issue that it deserves. To be fair, there is not much that individual organizations can do to manage the labour shortage issue. Although this is not specifically a skilled trades issue, generalized labour market shortages will undoubtedly have implications for the skilled trades.

Exhibit 1
Summary of Auto Parts Manufacturers Associations Compensation and Human Resources Practices Survey
Fall 2001

- ◆ The average age of the skilled trades work force has increased again over that reported in 1998, 1999 and 2000.
- ◆ The average responding company will lose approximately four skilled tradespeople through retirements over the next two years.
- ◆ The greying of the workforce demands as much as 30% more skilled trades people, technicians, and technologists over the next decade".
- ◆ A greater percentage of smaller companies have deficits of skilled trades employees than larger companies. The average current deficit of skilled trades employees per responding company is between one and two.
- ◆ The biggest shortages among skilled trades employees over the next three years are anticipated to be for industrial electricians, millwrights and tool and die makers, as reported in previous year's survey
- ◆ Nearly 60 percent of responding companies have attempted to recruit for skilled trade positions in 2000/2001. Among these recruiting companies, 13% of companies could not fill skilled trade positions
- ◆ 44% of respondents reported that they will need to increase the number of skilled tradespeople employed by 1 to 5 people between 2002-2004.

Source: Auto Parts Manufacturer's Association Human Resource Network. *APMA HR Network Newsletter*. Fall 2001.

Sector groups dealing specifically with the skilled trades have also identified demographic trends that will result in future shortages as an issue. Consider, for example, the findings of a recent survey by the Auto Parts Manufacturers Association (APMA, 2001) summarized in Exhibit 1. APMA found persistent shortages of industrial electricians, millwrights and tool and die makers. The greying of the workforce was seen to increase future demand for hiring of skilled trades people by much as 30 per cent over the next decade.

The APMA study was consistent with the CFIB study in finding that smaller organizations are especially affected. The construction industry is one dominated by small firms that have difficulty recruiting and retaining skilled trades people. Ninety-five per cent of construction companies have less than 20 employees. The CFIB survey found that the construction industry experienced a shortfall of 35–60 thousand workers. Much of the problem is regionally specific, as both central and western Canada have experienced a building boom. The regional nature of this problem may be exacerbated by the tendency to license trades provincially. Although some progress has been made in inter-provincial mobility of the trades (e.g. Red Seal trades) there remain inter-provincial barriers to mobility, most notably between Ontario and Quebec.

Prism Economics (2000) specializes in human resource issues for the construction trades. Its recent research has found:

- ◆ The construction work force is older than the population as a whole

- ◆ A smaller number of young people 15-24 are entering the sector
- ◆ A large group of 45-54 year olds will be leaving between 2000 and 2010
- ◆ Some trades stand out as older (e.g. welders, sheet metal workers)
- ◆ Some trades are younger (e.g. sprinkler fitters, floor covering, roofers)
- ◆ Certified workers are among the older workers
- ◆ Younger workers are not seeking certification
- ◆ Union workers are (on average) 5 years older than non-union

In some senses the construction sector mirrors the challenges facing of larger unionized organizations, especially in the relationship between unionization and tenure. Grant has found skilled trades in unionized workforces tend to be dominated by long tenured employees.² Unionized industries like railways have tended to protect existing employees at the expense of new hires during downsizing. Consequently, they have relatively old workforces and have limited experience in recruiting large number of young trades people into their companies. The retirement wave will inevitably hit these companies and they will experience shortfalls in supply unless considerably more young people move into skilled trades in the next five to ten years.

There is also a systems level of analysis that needs to consider the shortage issue in the context of demographic change. This is not insignificant because many skilled trades feed into sectors (e.g. construction) where the end product is not a tradeable good (e.g. housing and office construction). A shortage of skilled labour will therefore have the effect of increasing the relative costs of these goods and possibly lowering the overall productivity of the economy.

Methodological Issues

Labour market researchers and human resource practitioners may differ in their views of the severity of the issue because they frame the research question differently. Researchers tend to look at secondary measures of labour market tightness such as vacancy rates, unemployment rates and wage rates. These indicators are seen to be unbiased and tend to point to significant enough slack in the skilled trades to allay concerns about widespread shortages.

These types of analyses tend to deal with the here and now as opposed to the longer-term structural issues related to baby boomer retirements. As such, there is a temporal aspect to the way researchers frame the issue that differs from practitioners. On this point the practitioners may have a legitimate concern, but it is one that researchers may feel uncomfortable in dealing because it requires that they make assumptions about the course of labour market developments over the medium to long term, which are not supported by data. There have been, and continue to be, a number of occupational forecasting exercises (e.g. Dodge Task Force, HRDC Sector Studies and Job Futures) but little analysis of the accuracy of these forecasts. Moreover, it is one thing to complete a forecast but another to engineer an appropriate policy response.

² Michael Grant, "A Human Resource Model for Canadian Pacific Railway", Confidential Paper for CP Rail, 2001.

Another differing perspective is the way “skills” are defined. Economists tend to use formal educational attainment as a proxy for skill. But employers may define these skills more broadly to include employability skills and literacy skills. Once again, the employer perspective is undoubtedly the correct one, but there is a policy issue as to which skills should be developed through the education system and which should be developed through sector associations and individual firms.

Ideally, a larger research project would find ways to reconcile the unbiased labour market indicator approach with the survey approach. For instance, Henson³ suggests a multi-pronged approach where:

- ◆ all readily available indicators are examined in a coherent framework, in cross section and time series modes;
- ◆ new data are generated through specific surveys;
- ◆ consultations are made with labour partners and analytical and empirical models are developed.

Removing Barriers

These research efforts must take place within a context of a desired policy outcome, which is part and parcel of any ‘coherent framework’. At a bare minimum, an objective of policy may be to at least to ensure a level playing field between vocational trades and other paths for youth. There is much anecdotal evidence that young people are biased against trades but little empirical research to support or contribute to this. Moreover, it would be interesting to explore how institutions create biases against trades. One aspect of this may clearly be in the attitudes and behaviours of secondary school teachers and counsellors. But, more importantly, there may be specific school-to-work design issues, like those alluded to earlier, which make the skilled trades path a difficult one to follow. In this regard, the roles of unions and licensing bodies in restricting the supply of accredited labour needs to be examined as does provincial barriers to the free movement of skilled trades.

Implications for Further Research and Planning

The issue of the perceived shortage of skilled trades people is complex. Most researchers and practitioners agree that the forthcoming wave of retirees, which is a demographic certainty, will have very significant ramifications for the labour market. Notwithstanding the tendency for employers and industry associations to over-report shortages of skilled workers in order to increase the supply by stimulating the education system to produce more graduates applying for the trades, the evidence is compelling that there are already real shortages in many parts of the country. The demographic trends will simply magnify the problem in future.

³ Harold Henson, et al., “A Primer On Skills Shortages in Canada”, HRDC Applied Research Branch Paper R96-8-E, 1998.

Current attitudinal biases in Canada's education and training systems, especially the tendency for teachers to view skilled trades as a career path of last resort, discourage youth from applying themselves to developmental paths that will lead them into the skilled trades. Currently, the institutional and market structure for skilled trades is highly fragmented, perhaps leading to a bias toward the 'simpler' course of pursuing humanities in the universities and community colleges.

Lack of effective articulation between education, apprenticeship systems, and the skilled trades workplace effect some sectors of the economy much more than others. Employers who have not made significant efforts to connect themselves to the education system and to streamline career paths to make it easier for students to successfully qualify in the skilled trades face major adjustment costs in the future as the wave of retirements hits them.

Companies like Dofasco, manufacturers of steel products, have spent enormous amounts of time and money on attracting youth from the secondary system into apprenticeships and have worked with colleges to create clear and easily accessible training paths into the skilled trades that serve their sector. They are likely to be able to weather the storm of retirements. By comparison, the automotive sector has done little to attract people into its skilled trades and is facing a major labour shortage in the next few years. This is likely to have an impact on their capacity to grow, which can only partially be offset by increased investment in technology to enhance individual productivity. The challenge is further complicated by the rising skill requirements to qualify in the automotive skilled trades. For example, a newly qualified mechanic will need significant skills and knowledge in electronics as well as the more traditional skills for assembly of parts, systems and vehicles.

More work needs to be done to understand perception and reality about skills shortages. It may be that the shortages are of a specific occupational or regional nature. In particular, there needs to be a coherent way of reconciling the perceived shortages with the observation of slack in the skilled trade markets. In some instances, a perceived shortage, which does not appear to match overall labour market shortages, is nevertheless an actual, effective shortage. This is because the barriers to labour mobility are so powerful that they preclude the movement of skilled labour to fill shortages. Some of the most significant barriers are fear of loss of family, friends and community, economic insecurity, and anxiety due the personal trauma associated with major change through relocation. The relative security afforded by the EI and welfare systems may also be discouraging some workers from moving.

Employers who could do more by making it easier and more affordable to move to their locations do not do because they tend to think that making it easier will draw less committed job seekers and poorer quality employees. In a sense, they are allowing the barriers to be an employment screening tool for them: in their perception, the individuals who overcome the barriers on their own are likely to be more resourceful, show more initiative and perseverance, and more likely to stay with them.

Another possibility is that ‘occupational slack’ is masking broader skills problems for the skilled trades. Specifically, individual employers need to be asked why they are unable to fill positions.⁴ Is it because there are no applicants or that the existing applicants are unsuitable, because they lack the latest technical skills, knowledge and qualifications, or because they lack crucial communications, problem solving and teamwork skills? Or is it because they lack positive, work oriented attitudes and behaviours, or a combination of all of these things?

This question is one of several that are currently being considered by the Canadian Trucking Human Resources Council in a large research project on the issue. Other associations that are looking at the issue include the Auto Parts Manufacturers Association’s Human Resource Network,⁵ the Canadian Construction Association, the Ontario Construction Secretariat,⁶ the Canadian Plastics Sector Council,⁷ the Alliance of Canadian Manufacturers and Exporters, the Canada Labour and Business Centre and the Canadian Federation of Independent Business.

Some employers find that job candidates possess qualifications that are so out of date that they do not reach the standards of performance needed to achieve quality and productivity targets required to be profitable in the industry. This problem is compounded in industry sectors that lack universal training standards so that training is delivered inconsistently across the industry. In the skilled trades there is a long-standing tradition of ‘monkey-see, monkey-do’ training, as it is commonly known among tradespeople, that is a mixed blessing. On the positive side, apprentices learn much about their trade from experienced journey people who possess formal qualifications in the trade. On the other hand, journey people, in the absence of consistent training standards, sometimes impart their bad habits by example, as well as the skills of the trade. Typical problems include safety ‘shortcuts’ that put workers at risk, wastage of materials due to poor measuring and estimation practices, and poor quality work due to lack of concern for performance and a tendency to take on more piece work than they can handle properly.

⁴ Yves Gingras and Richard Roy, “Is There a Skill Gap in Canada?”, HRDC Applied Research Branch Paper R98-9E, 2001, p. 21: “one of the principal problems with the employer-based method, especially when it relies exclusively on questionnaires, is that the information gathered may reflect internal hiring problems specific to the firm and not an actual shortage on the labour market. Another problem is the fact that employees are never sufficiently qualified according to their bosses. It is not surprising, then, that we obtain positive responses when we question the latter about shortage of skilled labour. Moreover, since employers take little or no account of the reactions of their competitors or of the impact of their decisions on the markets, they tend to overestimate their needs during periods of sales growth.” Compare Henson, H. and Newton, C., “Tools and Methods for Identifying Skill Shortages: A Cross-Country Comparison”, Applied Research Branch, T-96-3E, HRDC, Hull. 1995, p. 2.

⁵ APMA HR Network (newsletter) Fall 2001 at http://www.apma.ca/apma/HR_Net/hr_main.htm.

⁶ See their study “Aging Construction Workforce and Skills Shortages—Myth or Reality?” (forthcoming, 2002).

⁷ The Council is going ahead with an industry human resources needs study to update its original 1996 sector study: *People in Plastics: Creating the Competitive Advantage*. See the Council’s web site at http://www.cpsc-ccsp.ca/english/news/news_1.htm.

Conclusion: How the Labour Market Is Not Working⁸

Employer demand for skilled tradespeople exceeds the available supply in the country as whole. The reality today is that Canadian firms today are turning down contracts because they lack skilled tradespeople to do the work. The problem will get worse in the future. In addition to job specific and technical skills, Canadian employers need qualified tradespeople who possess a full measure of employability skills.⁹ Like professional and service sector workers, tradespeople require a suit of skills, including personal management, teamwork and other interpersonal skills, to perform their jobs properly and satisfy their customers.

At the same time, Canadian youth do not generally apply to the skilled trades as a first career choice because their expectations and aspirations lead to post-secondary education or short-term rewards in the service sector. As a result, they miss out on significant career and employment opportunities in the skilled trades. Because they rarely make a deliberate choice for the skilled trades they are often unaware of opportunities for advancement in the trades. This, in turn, means that they are not proactive in seeking out these opportunities. In addition, because they are not making a deliberate commitment to the skilled trades they often drop of what prove to be difficult and exacting training regimes. Overall, youth are underrepresented in the skilled trades at every stage and retention is low.

The lack of alignment between youth expectations and employer needs is an issue that directly impacts on Canada's competitiveness and growth. Every year, Canadian Manufacturers & Exporters (CME) polls its member companies about their concerns, priorities and plans. CME's members account for 75% of Canada's manufacturing output and 90% of its exports, and in the past seven years have produced 45% of the new jobs in Canada. In its 2001–2003 Management Issues Survey, CME members reported that they continue to experience their greatest skill gaps in the areas of engineering, manufacturing management, design and machining. Almost a third of survey respondents predicted a further decline in the availability of skilled personnel in 2002. What is more, respondents identified a lack of qualified personnel as one of the top five constraints on measurable performance improvement. Almost 75% of respondents also identified access to skilled labour as one of the five most important factors in selecting a location for expansion.¹⁰

In a recent Canadian Federation of Independent Business (CFIB) study, *Hard Facts*, 46 percent of respondents indicated they had difficulties finding qualified skilled labour to meet their staffing needs in 2000. Respondents in the construction sector voiced the greatest concern when compared with respondents from other sectors. Respondents in the survey conducted in November 2000 reported that 1 out of every 20 jobs goes

⁸ See Richard Roy et. Al., "A Primer On Skills Shortages in Canada", HRDC Applied Research Branch Paper R96-8-E. 1998, p. 3: "real-world decentralized private markets may not always lead to optimal resource allocation."

⁹ See, e.g., *Colloquium Report* relating to a Natural Resources Skills Colloquium prepared by The Conference Board of Canada (Ottawa, December 19, 2001), p. 1: the "lack of skilled professionals, technicians and trades people restricts their capacity to grow in response to market opportunities."

¹⁰ *Building for Tomorrow: Innovation and Productivity* (Toronto: Canadian Manufacturers & Exporters, 2001).

unfilled. Small businesses are particularly affected. The highest rate of unfilled jobs was found in the construction sector, where 95% of construction companies have fewer than 20 employees. The implications are obvious: “unfilled positions can mean poorer quality, unfilled orders, and a loss of clients. This can have a significant effect on the economy and consumers in general.”¹¹

The next section summarizes barriers and solutions to youth participation in the skilled trades based on based on a review of current knowledge derived from a literature search and first hand interviews conducted by The Conference Board of Canada.

Summary of Barriers and Solutions

One of the patterns that emerges from the research is that governments and employers do not pursue a common objective when trying to meet their labour market needs and correct labour market imbalances. Governments focus on providing a safety net for the at-risk and the unemployed and tend to try to minimize their investments in retraining people so that they can reattach themselves to the labour market more readily. Employers often take their chances in the labour market knowing that there is an overall supply problem but trusting that it will not affect them individually. Employers also tend to rely on the government to improve systemic conditions to enhance the supply of skilled labour. Finally, employers often take their own unilateral investment measures to increase the flow of workers directly to their own workplaces. Syncrude is a classic example of a large company that has successfully pursued this strategy.

There are limits to success for an individual company or consortium. For this reason, it is important for governments and employers to enter into public-private partnerships to split the risks and maximize the benefits of investing in a common skills development goal.

The three models proposed below directly address this strategy.

Barriers and solutions to youth participation in the skilled trades have three different focuses: youth, employers and institutions. Barriers be viewed from a broad sweep of perspectives. The most significant barriers concern how youth make career and labour market choices, employers make hiring decisions and investments, and educational, trades and regulatory institutions define and carry out their mandates. We will look at barriers and solutions under each of these categories in turn.

One overarching consideration in exploring solutions to the barriers to youth in the skilled trades is the fundamental disconnection between government public policy objectives and employer needs and behaviours. By pursuing objectives and behaviours that are not aligned with one another, both governments and employers loses opportunities to accomplish their skills and labour market objectives. This presents an opportunity. Where common ground can be found or *created*, investments made by both can yield significantly greater benefits to both in the future. For this reason, the three models described below each incorporate stakeholder engagement techniques to identify

¹¹ *Skills Shortages & Labour Market Trends in the Construction Industry: Issue 2* (Skills Canada), p. 2.

and reinforce shared interests and objectives, and develop mutually beneficial ways to address common concerns.

Solutions must take into account the existence and interplay of myriad issues, including:

- Teachers' perceptions of careers in skilled trades
- Parents' attitudes
- Youth ambitions and perspectives
- Immigrants' interests and potential
- Financial returns to individuals through careers in the skilled trades
- Provincial regulatory barriers and impediments
- Trades Regulatory bodies barriers and impediments
- Employers' perceptions and biases about trades and potential candidates for jobs
- Impact of stereotypes on decisions of employers and others
- Education systems' capacities to prepare youth for skilled trades careers
- Training opportunities in workplaces and elsewhere
- Licensing processes and restrictions
- Mobility across borders and between education institutions and workplaces
- Standards
- Union attitudes and policies
- Demographics of the overall population and the youth population
- Current and potential channels of communications to youth, parents, employers and target populations including Aboriginals, immigrants and women

These aspects of the skilled trades issue in Canada can be categorized as follows:

Youth Barriers

1. Relative unattractiveness

Employers reported in interviews that youth tend to “go into computers” because they perceive desk jobs to be easier, more lucrative and more consistent with their overall lifestyle choices. This barrier may derive from the fact that skilled trades are relatively unattractive because they lack the cachet of “white collar” jobs. Going into computers is seen as providing more and better avenues to instant gratification than the trades do. Other common youth perceptions are that skilled trades are cold, dirty, outdoor, seasonal, boom and bust occupations, that involve repetitive work, low job satisfaction, and little imagination for even less compensation.

The reality is very different. In many instances, going into the skilled trades also involves going into computers in a sophisticated fashion. For example, in the pipe trades, “Some technologies (e.g., new leak and spill techniques, advanced control valves) require that workers require new and demanding skills that draw on analytical, computer diagnostic capabilities. This sort of skill deepening draws the worker into the process and increases their knowledge of the materials and parameters of operation. There are also many examples of new technologies that simplify tasks

to the point where previously required physical dexterity and strength are simply no longer needed.”¹² These new realities are not generally perceived by youth making career decisions. While there is some truth in the other claims about work conditions in the skilled trades the youth perspective is grossly exaggerated. In reality, many skilled tradespeople work in attractive conditions, involving creative applications of their skills and knowledge for lucrative remuneration – sometimes more than \$100,000 a year. Job satisfaction among tradespeople is often high because they do challenging work and take pride in their craft.

2. Lack of proper information

Youth are often poorly informed about opportunities in the skilled trades, especially regarding working conditions, job satisfaction, salary expectations, and opportunities to learn new things. They are frequently misinformed by parents, teachers and guidance counsellors, who regard the skilled trades as “dead end” or second best jobs, to be pursued only when other avenues are closed. Many parents under the guise of “wanting the best” for their children (i.e., opportunities they never had, like going to university) route them into academic streams. Teachers and guidance counsellors still regard the trades as best suited for students who have difficulty achieving academically and do not recommend them as first choices for students who achieve at relatively higher levels of performance.¹³

3. Rational behaviour

Youth make rational decisions to take arts degrees because they are heavily subsidized by the government and, in aggregate at least, tend to yield relatively greater earning capacity compared with the skilled trades or other occupational categories. This barrier persists because taking an arts degree is a relatively low risk option with a relatively high potential payoff. Going into a trade may seem to close down option and require commitment to a training path that has not fixed end-point. Elusive qualifications can take as long as 9-10 years to achieve, more than most graduate university programs.

4. Lack of awareness of employer expectations

Employers of skilled tradespeople, like employers in general, typically report that new recruits lack basic awareness of employer expectations in the workplace, especially with regard to so-called “soft” or “employability” skills and appropriate attitudes and behaviours. Students who are not properly exposed to the realities of the skilled trades in the modern workplace will not know whether they are suited to particular trades on the basis of previous workplace reality focused career exploration, aptitude testing or the like. For example, students may not realize that the skilled trades like other occupations in today’s customer oriented, just-in-time delivery workplaces require solid information and communications technology skills

¹² ARA Consulting, “Pipe Trades National Human Resources Needs Analysis”, January 1997, p. 8.

¹³ See *Making Career Sense of Labour Market Information* at <http://workinfont.net.bc.ca/lmsi/Making/chapter6/STRUC2.HTM>, which reports University of Guelph researcher John Walsh’s work on young peoples’ attitudes toward and perceptions of apprenticeship..

as well as strong communications, problem solving and teamwork skills and a positive work ethic in addition to job specific technical skills and knowledge. Aptitude for the trade as well as a good mix of job specific and employability skills are required of youth who expect to succeed in the skilled trades.¹⁴

5. **Lack of clear career paths**

Pathways in the skilled trades are neither well sign-posted nor frequently trodden these days, which makes attracting and pulling new entrants through that much more difficult.¹⁵ Lack of clearly defined, well mapped out and thoroughly articulated career paths limits entry in the skilled trades to the relatively small number of people who can navigate a very disjointed system of institutional gateways. The majority will choose, instead, clearer and more direct routes into other professions competing for their attention.

Solutions to Youth Barriers

Youth need to be exposed to more and better information earlier in their education for them to make informed career choices that include frequent choice of careers in the skilled trades. In this context, making informed career choices means making decisions on the basis of having a good understanding of skilled trades, including:

- What they involve, including nature of work and working conditions
- What they pay
- How satisfying they are
- The opportunities they present for reward and advancement
- The importance of being entrepreneurial in the pursuit of continuous employment in their trade¹⁶ [e.g., representing the interests of the firm when doing a job]
- The requirement to relocate to follow labour market demand
- The ability to multitask across craft lines¹⁷

Solutions to youth barriers need to involve multi-pronged strategies:

¹⁴ See Graham S. Lowe, *Report on the National Learning Roundtable* at http://www.cprn.com/docs/work/frnl_e.htm, pp. 2, 7, 11. Compare Perrin Beatty, "Competitive Canada: Partners in Innovation and Skill-Building", speaking notes for The Hon. Perrin Beatty, President and CEO, Canadian Manufacturers & Exporters for a presentation at the Industry-Education Council of Hamilton's Partners in Education Breakfast, Hamilton, October 16, 2001, p. 9.

¹⁵ The Mould Makers Council of the Canadian Plastics Industry Association sponsors pre-apprentice awards, which, in 2001, recognized students at Seneca College, Durham College Skills Training Centre and St. Clair College, institutions which are breaking career paths for youth entering the skilled trades. Seneca College, for example, offers a Precision Machining Techniques Pre-Apprenticeship program that gives students opportunities to use industry equipment (e.g., lathes, milling machines and grinders) to complete progressively more difficult practical projects that enhance students' skills and knowledge with respect to their chosen trade area and thereby enable them to make informed career choices (e.g., about whether the trade they are interested in is really for them and what specialty within the trade may be most appealing to them).

¹⁶ See, e.g., *BC Work Futures 2000* at http://www.workfutures.bc.ca/En/def/doc/car_e1.html.

¹⁷ See Michael R. Bloom, Penny Brady & Kurtis Kitagawa, *Dofasco Inc.'s Apprenticeship Technician Program: Maintaining the New Machines* (The Conference Board of Canada, August 1998), ISSN 1205-1675; Michael R. Bloom, Penny Brady & Kurtis Kitagawa, *Dofasco Inc.'s Trade Assist Program: Multiskilling in the Modern Workplace* (The Conference Board of Canada, August 1998), ISSN 1205-1675.

- Improved communications (getting information to youth in a way that engages them)¹⁸
- Changing attitudes, e.g., perception of the trades as:
 - Dead end career paths
 - An option only for those who fail to be accepted for, fail to complete, or fail to properly exploit a university education¹⁹
 - Dirty, manual labour intensive and not technology driven
 - Poorly paid and unrewarding²⁰
 - Inevitably male dominated
 - Unattractive from a lifestyle point of view (cyclical, boom and bust, cold and outdoor, vagrant)
- Supporting career choices (career paths have to be well marked out, accessible and enticing)
- Building skills and qualifications, e.g., relating to:
 - Retaining talent
 - Trading up qualifications
 - Utilizing full capacity of skilled tradespeople
 - Building capacity/sustainability of skilled tradespeople available to and operating in different industrial sectors into the future

Ideally, youth should have access to “turn key” solutions that help them put all of the pieces in place and move step by step from a decision to apply to the skilled trades through preapprenticeship training and employment to accessible classroom training leading to qualification and a sustainable future in their chosen trade.

¹⁸ <http://www.madewiththetrades.com> tries to entice youth away from their service sector jobs into the construction trades.

¹⁹ In fact, the skilled trades are becoming increasingly knowledge intensive. For example, in the automotive industry, the “gap in the area of electronics is perhaps the most pervasive. It is, in the minds of many, a ‘foundational’ knowledge and skills area on which more advanced skills requirement and training are based. In other words, an individual with a lack of basic knowledge and skills in this area will find difficult to understand—or to be effectively trained—in more complex areas such as diagnostics and emissions” (*Bridging the Gaps: Issues and Challenges Facing the Canadian Automotive Repair and Service Industry* (Richmond Hill: Canadian Automotive Repair and Service (CARS) Council, June 1999), p. 12.

²⁰ See, e.g., Skills Canada, *Skills Shortages & Labour Market Trends in the Machining Industry*, p. 2: “according to Statistics Canada, the average weekly earnings for all industries in Canada for the year 2000 was \$626.45. While the average weekly earnings for individuals employed in manufacturing transportation equipment was \$929.95.”

Employer Barriers

1. Attracting youth

Viable solutions to attracting youth into the skilled trades also need to make youth more attractive to employers in different industrial sectors. Solutions most wanted are those that incorporate orientations relative to current, emerging and long term industry and employer expectations of skilled tradespeople in the workplace and modules designed to help identify, seek feedback on and develop the skills, attitudes and behaviours they will need to succeed in the skilled trades.

2. Lack of a business case

If employers complain of a lack of skilled tradespeople, they are in part complaining about their own reluctance to taken on apprentices. Employers tend to want the case for apprenticeship articulated to them in business terms before they take the risk—one industry association reported that it requires a \$.25 million investment to train an apprentice, a difficult decision to make if you do not know whether you are going to make any money or increase your productivity as a result of training a new apprentice. In the case of a low margin business, an employer cannot always afford to have workers on staff who are not fully productive (i.e., apprentices). And even when an employer invests appropriately in an apprentice, there are no guarantees that the apprentice will be successful and repay their employer’s sunken training investment. Consequently, skills are typically hired/developed on an as needed basis.

3. Lack of information

Even when employers are inclined to take an apprentice on board, it is difficult for them to gain access to information about how to get involved and proceed. We cannot assume that employers know who to talk to or where to go for assistance. If the appropriate information to make an investment decision is too difficult to be had, employers will not be inclined to take chance or speculate against benefits that may accrue to themselves in the future, all being well.²¹

4. The lack of training standards barrier

Employers may not fully understand the implications of having a dedicated journeyperson on staff or even be aware of up to date or consistent training standards, if they exist at all. If the training standards are not aligned with contemporary business practice, there is a disincentive for employers to adhere to those standards or follow through with an apprentice.²²

²¹ See “Skilled Trades Employers Speak Out”, in *Skilled Trades Source* (January/February 2002), pp. 4–5.

²² See *Making It Work!: On-the-Job Training in Apprenticeship* (Ottawa: Canadian Apprenticeship Forum, 1998). Compare minutes of the International Association of Machinists and Aerospace Workers’ (Transportation District 140) Skilled Trades Conference, Toronto, November 14–16, 2000, where Steve Dick, Executive Director, Canadian Aviation Maintenance Council recommends the creation of a “skilled workforce with national trade standards, training programs, and a national program for the aviation industry” (p. 2) (http://www.iam140.org/english/whats-new/skilled_trades_conference_nov.shtml). See also *Canadians Building Canada: Performance Through Partnership* (National Masonry Human Resources Analysis) (2000).

5. **Mismatch of workplace schedule with training system**

Employers cannot always justify sending apprentices off for classroom training when training providers happen to be offering relevant segments of their apprenticeship course. Such decisions also have to make business sense and correspond troughs in the business cycle related to an apprentice's responsibilities in the workplace.

6. **Stereotyping**

Employers may also have negative stereotypes of their own to overcome in the case of considering young women or aboriginals or other equity groups as potential apprentices.²³

7. **Perceived lack of apprentice loyalty**

Employers fear investing in apprentices if they are not going to reap the benefits of training them in the long haul, e.g., if apprentices move on and take their training with them.²⁴ They

8. **Employer management practices**

The Industry-Education Council of Hamilton, a non-profit organization dedicated to building business–education partnerships recently released a study examining Apprentice Retention in the Skilled Trades. The study asked over 350 apprentices in the New City of Hamilton, “What keeps you in your current workplace?” Among the many important findings were that 85% of apprentices expressed satisfaction with their chosen skilled trade career choice, which tends to indicate that retention is not related to overall career satisfaction as much as it is to satisfaction with a specific employer and place of employment. According to the study, apprentices:

- Want to be appreciated by their employer
- Want to “like the people (they) work with”
- State that loyalty to their employer increases with job satisfaction
- See positive, effective and constructive communication as central to good management
- Want to work in an environment that supports quality work and allows them to be proud of their accomplishments
- Appear to be more likely to remain with employers that give their apprentices a level of responsibility equal to their ability
- Want to work in a safe environment and produce products and services that are not harmful to the consumer
- Want better financial support while attending school [to complete their apprenticeship]

²³ See “Creating Construction Careers from the Street” on the Aboriginal Human Resource Development Council of Canada web site at http://www.ahrdcc.com/showcase_text009.htm.

²⁴ See Morley Gunderson, *Skill Shortages in the Residential Construction Industry* (Report to the Canada Mortgage and Housing Corporation) (Revised January, 2001), p. 19, n. 30.

- Want better access to apprenticeship training [including mentoring arrangements]
- Want to work for an employer that recognises and allows employees to have a life outside of the workplace

Revealingly, when asked to respond to employers who say they cannot afford to train, apprentices surveyed said: “How could they afford not to?” The overwhelming message to employers is: “If you wish to retain your apprentices in an increasingly competitive and dynamic labour market, you must invest the time and energy required into developing some basic human resource management strategies”.²⁵

Solutions to Employer Barriers

Making it easy for employers to take on and cycle apprentices through their apprenticeship is an essential part of any solution to employer focused barriers to youth participation in the skilled trades.

Employers need to be targeted by a communications strategy designed to change their perceptions and behaviours, much in the way that youth do. Witness the apparent contradiction between the need for skilled tradespeople employers themselves have articulated and their relative reluctance to help themselves when support is offered. An example of this may be observed in the Automotive Parts Manufacturers’ Association (APMA) advertisement for a Women in Skilled Trades Pre-Apprenticeship Program. The advertisement reminds the employers it is targeting that “Companies in the automotive industry have told APMA that there is a looming shortage of skilled tradespeople. In fact, 25% of employers were unable to find skilled tradespeople they needed in the year 2000. The average responding company will lose between eight and nine skilled trades employees through retirement over the next three years.” The same advertisement then exhorts employers to participate in a program designed to address their self-proclaimed need for skilled tradespeople in the following terms: “Now is the time to invest in the future! Get involved in this terrific program—targeting our industry needs. Without your support, such programs may not be available in the future.”²⁶

Employers also need a “business case in a box” style decision making kit to help them make an apprenticeship decision and then to help them access the information resources they need to get involved. Beyond that, employers need to have access to “turn key” solutions that help them to put the pieces in place to maximize their training investment.

²⁵ Stephanie Beadle et al., *Apprentice Retention in the Skilled Trades* (Industry-Education Council of Hamilton, July 2001) at www.skilledtrades.ca. Compare Stephen A. Murphy, *What to Do Before the Well Runs Dry: Managing Scarce Skills* (Ottawa: The Conference Board of Canada, 2000), ISBN 0-88763-465-6. Compare comments posted on the Canadian Trucking Human Resources Council web site at <http://www.cthrc.com/website/english/SymposiumFullStory.asp?id=69>, where participants in the Council’s “Roadmap to Retention & Recruitment” symposium reflected on what they have learned that would impact on or improve their labour, training or management practices.

²⁶ http://www.apma.ca/apma/HR_Net/women.htm

Institutional Barriers

1. Lack of institutional connectivity

As a rule, school boards, apprenticeship boards, colleges, universities, employers, unions and industry associations are not closely integrated in the recruitment, development and deployment of apprentices. The apprenticeship system in plural, not singular and in any case is a loosely associated group of institutions who scarcely speak with each other, let alone cooperate in a common purpose, e.g., increasing the supply of apprentices and building up the number of skilled tradespeople in the labour market.

2. Lack of immediate and compelling reason to cooperate

In a system where risks and benefits to different stakeholders are not aligned with the competitiveness and growth imperative of increasing the supply of skilled tradespeople in the labour market, no one party has an incentive to take on more risk than they currently do against the prospect of deriving uncertain benefits. Only where there is positive incentive to share risks as well as benefits can stakeholders be induced to cooperate towards the achievement of a good that may not always seem to be directly beneficial to themselves.

3. Lack of institutional responsiveness

Training standards, deliverers of training and employers do not currently constitute an effective or efficient feedback loop for state of the art training delivered on a just in time basis. Training standards are often long out of date and inconsistently applied in different workplaces. Training providers typically do not offer their courses on a schedule that suits either working adult learners or small business operators who cannot replace workers to allow them to take lengthy periods of time off for training outside the workplace. It is also difficult for employers to justify leave for apprentice–employees to take apprenticeship training that is not immediately relevant to their workplaces or directly connected to business success.

4. Credentialling

Apprenticeship as it is currently conceived and operated is an all or nothing proposition. One either becomes a skilled tradesperson or disappears into the ether of the apprentice of indeterminate years standing in a given trade. In the skilled trades there are no portable intermediate credentials,²⁷ which affects the retention of apprentices and their journey to skilled tradesperson status. Portable qualifications may also raise retention issues insofar as semiqualfied tradespeople could migrate with more assurance of acceptance elsewhere than were they to travel without any qualification at all.

²⁷ E.g., the practice in the United Kingdom and Scotland of developing and offering National Vocational Qualifications that recognize demonstrated proficiency in competencies required in specific occupations and General National Vocational Qualifications, which recognize broad based, non-job-specific skills. See International Initiatives at <http://www.nssb.org/inter.htm>, pp. 29–36.

5. The “closed shop”

Limiting the supply of skilled tradespeople by restricting the entry of new apprentices into the workplace is in the interests of unionized workers who want to keep their jobs and the relative demand for their services high so as to keep their wages high.²⁸

Neptism, or who you know, rather may have more to do with successful entry into the skilled trades than what your skills and abilities are under this kind of regime.

Solutions to Institutional Barriers

Integration, cooperation, shared risk and benefit are the principles that must govern solutions to the institutional barriers to youth participation in the skilled trades. Only where there is positive incentive to share risks as well as benefits can stakeholders be induced to cooperate towards the achievement of a good that may not always seem to be directly beneficial to themselves.

This needs to be done through a process of open consultation, interest based negotiation among stakeholders and an incremental, empirical demonstration of success where risks are taken and benefits felt very immediately and very directly by all stakeholders. Developing modularized training and generic pre-apprenticeship qualifications may be a good place to start the debate because there would be clear benefits of youth acquiring skilled trades career capital while exploring different trades and gaining a practical understanding of industry/employer expectations in the skilled trades.²⁹

The term “partnership” as defined by the Conference Board refers to mutually beneficial relationships between employers and educators that enhance learning for students and other learners.³⁰ An instructive example of this is Dufferin-Peel Catholic District School Board’s *Way to Go!* project, which builds and utilizes a series of innovative, mutually beneficial business–education partnerships. The *Way to Go!* network combines industry validated labour market profiles of high performers in high demand skilled trades (including skills, aptitudes, opportunities and salary expectations) with employability skill and job satisfaction assessments in a package designed to engage youth.³¹

²⁸ Compare divergent labour and management views regarding the replacement of retirees in the next five years (*Where Did All the Workers Go? The Challenges of the Aging Workforce: Analysis of the Viewpoints 2000 Leadership Survey* (Canadian Labour and Business Centre, April 2001), pp. 1, 9, 28).

²⁹ Compare Morley Gunderson, *Skill Shortages in the Residential Construction Industry* (Report to the Canada Mortgage and Housing Corporation) (Revised January, 2001), p. 27.

³⁰ *Operating Principles for Business–Education Partnerships* (The Conference Board of Canada, April 1997); *Ethical Guidelines for Business–Education Partnerships* (The Conference Board of Canada).

³¹ See *Way to Go!* web site at <http://www.waytogonetwork.com/aboutsmart/index.htm>.

Proposed Pilots to Help Solve the Skilled Trades Shortage in Canada

The methodological framework for the three skilled trades action models outlined below pulls together aspects of the solutions described in the previous section. The three proposed pilots that follow the methodological framework incorporate solution strategies in distinct models that lead next practice (new), replicate best practice (copy) and enhance exemplary practice (improve) respectively. Each of these dimensions (i.e., next practice, best practice, exemplary practice) is significant and deserves further elaboration.

The Conference Board has a longstanding tradition of recognizing excellence in business–education partnerships. Conference Board publications include an ongoing series of full length case studies of *best* practices in developing and assessing employability skills and a series of *IdeaBooks*,³² which feature *exemplary* practices in business–education collaboration. Best practices may be replicated and can be used to benchmark performance, while exemplary practices contain useful that can be elaborated and combined with existing models to enhance performance. *Next* practices are important to seed and showcase as well. Next practices typically build on best and exemplary practices, but fill previously unidentified and unmet market needs. Taking a comprehensive approach to cultivating excellence in practice across these various dimensions helps to ensure that practitioners are not constantly having to reinvent the wheel as they move their initiatives forward and can apply themselves instead to better leveraging their resources to achieve greater impacts. This approach is also effective in spawning new activities off of the momentum and knowledge base developed by pioneers in the field.

Methodological Framework: Skilled Trades Pilot Models

Piloting action models to help youth overcome barriers to participation in the skilled trades involves a number of distinct activities, including:

1. Develop solutions to be achieved within the model in outline form (e.g. create consistent standards, provide timely information about rewards for work)
2. Communicate with stakeholders, outlining model and solutions and invite to consultations
3. Carry out consultations with stakeholders to flesh out the solutions to engage them in plans for implementation. Stakeholders include:
 - Youth
 - Employers from business sector / skilled trades clusters/industry associations/ sector councils in geographical region(s)
 - Unions

³² See, e.g., Linda Scott and Alison Campbell, *1999–2000 Business and Education IdeaBook* (Ottawa: The Conference Board of Canada, April 2000).

Methodological Framework: Skilled Trades Pilot Models

- K–12 Educators and guidance counsellors
 - Post-secondary educators
 - Private trainers
 - Parents
 - Community based trainers / employment counsellors
 - Secondary schools and school boards
 - Post-secondary institutions
 - Apprenticeship boards
 - Trades regulatory bodies
4. Design pilots based on stakeholder input/contributions
 5. Implement pilot
 - Communicate with target youth populations and other stakeholders
 - Assess youth needs
 - Build youth cohorts [i.e., engaging youth participants face to face in a group to help them form themselves into a team prepared to share their knowledge and experiences with each other]
 - Clarify youth roles and responsibilities
 - Engage all stakeholders in their agreed upon roles and responsibilities
 6. Evaluate effectiveness/impact of pilot
 - Articulate milestones for different stakeholders
 - Set and measure stakeholder progress against performance outcomes
 - Interview stakeholders
 - Convene stakeholders' meeting to address interim issues and make corrections
 - Review pilot at conclusion based on interviews
 - Write case study
 7. Demonstrate excellence through a communications strategy built on pilot evaluation
 8. Engage stakeholders for second roll-out wave of pilots
 9. Evaluate impact of demonstrated excellence on stakeholders
 - Observing changes in stakeholders' behaviour
 - Observing changes in behaviour of youth
 10. Repeat steps 1–9.

Template: Skilled Trades Pilot Models

The proposed three pilots would be elaborated using the following template headings and structure for detailed planning purposes:

Skilled trades sector

Target youth population(s)

- Equity groups
 - Women
 - Aboriginals
- Other unemployed Canadian youth
- Immigrant youth

Geographical region(s)

Scale

The model in brief

Motivational levers for youth

- Using E-learning
- Giving clients hope / helping them believe in themselves
- Establishing peer support networks
- Creating mentoring relationships
- Making jobs available
- Developing an image (prestige / identity factor)

Youth communications strategy

Raising awareness

- Reaching into the education system
- Reaching out to
 - Young women
 - Aboriginals
 - Unemployed Canadian youth
 - Immigrant youth

Changing

- Perceptions
- Behaviour

Engaging stakeholders

- Youth
- Employers from entire sector / skilled trades cluster in geographical region(s)

Template: Skilled Trades Pilot Models

- Unions
- Educators / guidance counsellors
 - K–12
 - Postsecondary
- Parents
- Community based trainers / employment counsellors
- Institutions
 - Secondary schools
 - Postsecondary institutions
 - Apprenticeship boards

Overcoming structural barriers

- Creating better connectivity between secondary system and workforce
- Aligning secondary school with apprenticeship system
- Articulating school / work / apprenticeship / education linkages
- Creating career paths in the skilled trades
- Prequalifying youth to participate
- Renewing the apprenticeship training system
- Setting new apprenticeship standards
- Creating prestige for institutions supporting effective access to skilled trades
- Synchronizing training with bust cycle in boom and bust oil and gas industry

Operating pilots—setting cohort up for success

- Developing employability skills
- Understanding employer expectations
 - Skills
 - Attitudes
 - Behaviours
- Organizing workplace support activities
 - Newsletter
 - Feedback / mentoring
 - Reflection / sharing

Evaluating pilots

- Understanding challenges
- Highlighting keys to success
- Measuring outcomes and impacts
 - Employers
 - Employees
 - Unions
 - Apprentices
 - Parents

Template: Skilled Trades Pilot Models

- Trainers / postsecondary instructors
- Developing learning / engagement tools

Communicating results

- Case studies
- Ad campaign
- Workshops / presentations
- Employer engagement sessions
- Roundtable for leaders / decision makers

Building sustainability

- Engaging pilot advisory team
- Challenging other communities
- Exchanging knowledge / practice

Skilled Trades Pilot Model 1: Leading Next Practice

Recruiting aboriginal and immigrant youth for skilled trades in the oil and gas sector

Skilled trades sector

Oil and gas

Target youth populations

- Equity group
 - Aboriginals
- Immigrant youth (pre immigration)
- Adults in job/career transition

Geographical regions

- Alberta
- China

Scale

- Provincial; international

The model in brief

This pilot would help to fill skilled trades shortages in Alberta's oil and gas sector. It would do this by developing inviting, customizable e-learning programs that would provide aboriginals, immigrants and youth in job/career transition with an orientation to skilled trades in the oil and gas sector.

E-learning strategies would also be used to assess youth interest in and suitability for specific trades and to develop base skills and knowledge to pre-qualify youth to enter the skilled trades.

This model, which has strong support among Alberta's community colleges, would leverage existing technology infrastructures and learning objects. This would include text based lessons, digital images, video clips, animations, test items and any other digital entity with a demonstrated pedagogical value which can be used, re-used or referenced during technology supported learning). Using learning technologies in this way would enable post-secondary institutions, industry associations and employers to contribute relevant, up to date teaching and learning materials to a program designed to speed the entry of talented youth into the skilled trades.

This pilot would help fill an important unmet need in the labour market by engaging and pre-qualifying aboriginal and immigrant (pre immigration) youth for skilled trades in the oil and gas sector. Aboriginal youth are either available in, or live in close proximity to, regions of intense activity in the oil and gas sector, e.g., Fort MacMurray, Alberta. These

youth are, however, not fully included in the social and economic life of the wider communities in which they live. This pilot would help to include aboriginal youth by actively engaging them on their own terms. Rather than raising a bar they do not yet reach, and, in some cases, do not even see themselves achieving (such as high school completion), the pilot would accept aboriginal youth into a path that will lead to certification in the skilled trades and address barriers they have (including inadequate literacy and numeracy skills) as a step toward their goal while they are being connected with a trade. The trade would not therefore be an elusive goal in front of which are insuperable obstacles, but rather a process that engages them and gives a reason and a meaningful context for gaining skills and knowledge and participating more fully in the workforce.

The pilot would involve extensive consultation with stakeholders to identify structural barriers and develop solutions to enable youth, employer and institutional participation. This process would provide input for the development of communications strategies designed to motivate youth, assess and recognize their prior learning, develop their employability skills and build their skills and knowledge for employment in the oil and gas sector and eventual qualification in skilled trades serving that sector.

Other parts of the pilot would be an interview based evaluation of outcomes and impacts and keys to success leading to the development of learning/engagement tools, case studies, an ad campaign, workshops/presentations, employer engagement sessions and a roundtable for leaders/decision makers.

The successful pilot would then be rolled out in other communities, who would be challenged to participate with the help of knowledge/practices shared by stakeholders participating in the initial pilot. This is a step often left to the free functioning of the marketplace, which is not always the most effective or most appropriate vehicle for sharing the public good that is the knowledge and best practices derived from the pilots when left to its own devices. A test hypothesis of this pilot would be that the exchange of knowledge and practice has to be done deliberately to ensure maximum benefit to the economy as a whole.

Motivational levers for youth

- Using E-learning, which is attractive to aboriginal youth and already used in college sponsored programming in China
- Exposing youth to, and prequalifying them in, skilled trades
- Moving into the workforce as part of a cohort with accompanying peer support and group identity
- Having direct access to jobs
- Having access to English as a Second Language support (Chinese)

Youth communications strategy

Raising awareness

- Reaching into the education system
- Reaching out to

- Aboriginals
- Immigrant youth (pre immigration)
- Adults in job/career transition

Changing perceptions

- Creating an engaging, interactive orientation package to attract youth into, and inform them about, skilled trades in the oil and gas sector
- Highlighting career opportunities in the skilled trades

Changing behaviour

- Making skilled trades a first choice
- Engaging youth to fulfil their potential in rewarding careers

Engaging stakeholders

- Youth
- Employers from entire sector / skilled trades cluster in geographical region
- Unions
- Educators / guidance counsellors
 - K–12
 - Postsecondary
- Parents
- Community based trainers / employment counsellors
- Institutions
 - Secondary schools
 - Postsecondary institutions
 - Apprenticeship boards

Overcoming structural barriers, including elements of some of the following:

- Creating better connectivity between secondary system and workforce
- Aligning secondary school with apprenticeship system
- Articulating school / work / apprenticeship / education linkages
- Creating career paths in the skilled trades
- Pre-qualifying youth to participate
- Renewing the apprenticeship training system
- Setting new apprenticeship standards
- Creating prestige for institutions supporting effective access to skilled trades
- Synchronizing training with bust cycle in boom and bust oil and gas industry

Operating pilots—setting cohort up for success

- Assessing and recognizing prior learning
- Developing employability skills
- Building a skilled trades portfolio using the Conference Board of Canada's *Employability Skills Toolkit*
- Understanding real industry / employer expectations for sustained employment

- Skills that can be identified, targeted and developed
- Attitudes
 - Wanting to work
 - Being prepared to learn
 - Behaviours that support personal and workplace success
- Organizing workplace support activities
 - Newsletter celebrating achievements in their own and in related projects
 - Structured employer-led feedback / mentoring
 - Facilitated peer- and self-led reflection / sharing

Evaluating pilots

- Understanding challenges
- Highlighting keys to success
- Measuring outcomes and impacts
 - Employers
 - Employees
 - Unions
 - Apprentices
 - Parents
 - Trainers / postsecondary instructors
- Developing learning / engagement tools

Communicating results

- Case studies
- Ad campaign
- Workshops / presentations
- Employer engagement sessions
- Roundtable for leaders / decision makers

Building sustainability

- Engaging pilot advisory team
- Challenging other communities
- Exchanging knowledge / practice

Skilled Trades Pilot Model 2: Replicating Best Practice

Bringing Aboriginal Youth into Skilled Trades in The Construction Sector

Skilled trades sector

- Construction

Target youth population

- Equity group
- Aboriginals

Geographical region

- New Brunswick

Scale

- Selected communities

The model in brief

The Saskatchewan Indian Institute of Technologies' Construction Career Development Project breaks Aboriginal youth's cycle of dependency and sets them firmly on a path to self-reliance and empowerment. It does this by finding the youth seasonal construction jobs—even at the most junior level—and then works with them and their employers to help them maintain their jobs. In the winter, the youth train at local the community college for better jobs in the spring. Employment immediately begins to build clients' self-confidence and boosts their training, and subsequently opens doors to more meaningful and lucrative careers in the construction trades.

The proposed pilot would deploy an advisory team drawn from Saskatchewan to advise on replicating their best practices elsewhere in the country, possibly New Brunswick. They would advise a group of New Brunswick stakeholders.

The pilot would involve extensive consultation with stakeholders to identify and weigh the significance of regional structural barriers and develop solutions that would include youth, employer and institutional participation. This process would, among other things, provide input for the development of communications strategies designed to motivate youth, assess and recognize their prior learning, develop their employability skills and build their skills and knowledge for employment in the construction and eventual qualification in skilled trades serving that sector.

Other parts of the pilot would be an interview based evaluation of outcomes and impacts and keys to success leading to the development of learning/engagement tools, case studies, an ad campaign, workshops/presentations, employer engagement sessions and a roundtable for leaders and decision makers.

The successful pilot would then be rolled out in other New Brunswick communities, who would be challenged to participate with the help of knowledge and practices shared by stakeholders from the initial pilot. This is a step often left to the free functioning of the marketplace, which is not always the most effective or most appropriate vehicle for sharing the public good that is the knowledge and best practices derived from the pilots when left to its own devices. A test hypothesis of this pilot would be that the exchange of knowledge/practice has to be done deliberately to ensure maximum benefit to the economy as a whole.

Motivational levers for youth

- Feel included in mainstream society
- Focus on where they want to be as opposed to where they have come from and their barriers to employment, such as
 - Lack of formal education (Grade 12, General Education Development)
 - Lack of skills
 - Lack of training
 - A history of socio-economic exclusion
 - Lack of work experience
 - Lack of confidence
- Get jobs
- Gain entrée into construction sector and apprenticeship training
- Have someone believe in them, which helps them gain heart and start to believe in themselves
- Set personal vocational goals
- Receive coaching to help them develop skills on the job
- Develop a positive self-concept as valued workers in the construction sector and contributors to the local economy

Youth communications strategy

Raising awareness

- Aboriginals and nonaboriginals reaching out to Aboriginals on their own terms
- Emphasizing employment opportunities in paths leading into the skilled trades
- Emphasizing that the purpose of providing employment counselling is attaching Aboriginals to the labour market, not extending welfare or generating statistics

Changing perceptions

- Feeling they can belong
- Feeling they can set and achieve personal vocational goals (self-efficacy)
- Feeling they can make a difference by clearing the way for other aboriginal youth

Changing behaviour

- Working

- Training for better jobs during slow months in the construction sector
- Bettering themselves because they themselves want to

Engaging stakeholders

- Youth
- Employers from entire sector / skilled trades cluster in geographical region(s)
- Unions
- Educators / guidance counsellors
 - K–12
 - Postsecondary
- Parents
- Community based trainers / employment counsellors
- Institutions
 - Secondary schools
 - Postsecondary institutions
 - Apprenticeship boards

Overcoming structural barriers

- Creating better connectivity between secondary system and workforce
- Aligning secondary school with apprenticeship system
- Articulating school / work / apprenticeship / education linkages
- Creating career paths in the skilled trades
- Prequalifying youth to participate
- Renewing the apprenticeship training system
- Setting new apprenticeship standards
- Creating prestige for institutions supporting effective access to skilled trades
- Synchronizing training with troughs in construction industry

Operating pilots—setting cohort up for success

- Assessing and recognizing prior learning
- Developing employability skills
- Building a skilled trades portfolio using the Conference Board of Canada's *Employability Skills Toolkit*
- Understanding real industry / employer expectations for sustained employment
 - Skills that can be identified, targeted and developed
 - Attitudes
 - Wanting to work
 - Being prepared to learn
 - Behaviours that conduce to personal and workplace success
- Organizing workplace support activities
 - Newsletter celebrating achievements in their own and in related projects
 - Structured employer-led feedback / mentoring
 - Facilitated peer- and self-led reflection / sharing

Evaluating pilots

- Understanding challenges
- Highlighting keys to success
 - Techniques for effectively engaging employers
 - Strategies for reaching out to aboriginals
- Measuring outcomes and impacts
 - Employers
 - Employees
 - Unions
 - Apprentices
 - Parents
 - Trainers / postsecondary instructors
- Developing learning / engagement tools for subsequent projects

Communicating results

- Case studies
- Ad campaign
- Workshops / presentations
- Employer engagement sessions
- Roundtable for leaders / decision makers

Building sustainability

- Engaging pilot advisory team
- Challenging other communities
- Exchanging knowledge / practice

Skilled Trades Pilot Model 3: Enhancing Exemplary Practice

Providing Pre-Apprenticeship Training For Young Women Entering Skilled Trades In The Manufacturing Industry

Skilled trades sector

- Manufacturing

Target youth population

- Equity group
- Women

Geographical region

- Ontario

Scale

- Golden Horseshoe region

The Model in Brief

This pilot will focus on creating “turn key” paths for young women entering skilled trades specific to the manufacturing industry, including industrial electricians, general machinists, millwrights, mould makers and tool & die makers. Turn key refers to a comprehensive package that would include recruitment, pre-apprenticeship training, workplace placement and coaching or mentoring leading to formal qualification.

The pilot would involve the augmentation of an existing pre-apprenticeship training model by the addition of a combination of push factors to increase the supply of young women applying to the trades and pull factors to engage larger numbers of employers to welcome women apprentices into their workplaces. The existing model, Women in Skilled Trades Pre-Apprenticeship Program, involves 50 weeks of preparation, including 30 weeks of intense, in class instruction and 20 weeks of paid work experience in the workplace. The main focus of the existing program is to produce qualified women and match them with employers who require skilled tradespeople.

Push factors to be added in the proposed pilot may include enhanced communication into the schools, using face to face communication and targeting young women with Internet ads. Pull factors to be applied to the existing model will include bringing more employers to the table and engaging them directly with the design and delivery of pre-apprenticeship training and the placement of young women apprentices.

The proposed pilot would also introduce women role models and female mentors and coaches. Another key feature would be the establishment of ongoing young-women-only reflection and sharing networks in the workplace and outside (styled on the British New Deal welfare to work model established in the mid 1990s).

The pilot would involve extensive consultation with stakeholders to identify and weigh structural barriers in the manufacturing sector and develop solutions to enable female

youth, employer and institutional participation. This process would, among other things, provide input for the development of communications strategies designed to motivate young women, assess and recognize their prior learning, develop their employability skills and build their skills and knowledge for employment in the manufacturing sector and eventual qualification in skilled trades serving that sector.

Other parts of the pilot would be an interview based evaluation of outcomes and impacts and keys to success leading to the development of learning/engagement tools, case studies, an ad campaign, workshops/presentations, employer engagement sessions and a roundtable for leaders and decision makers.

The successful pilot would then be rolled out in other communities, and possibly involving other industrial sectors. New communities would be challenged to participate with the help of knowledge and practices shared by stakeholders from the initial pilot. This is a step often left to the free functioning of the marketplace, which is not always the most effective or most appropriate vehicle for sharing the public good that is the knowledge and best practices derived from the pilots when left to its own devices. A test hypothesis of this pilot would be that the exchange of knowledge/practice has to be done deliberately to ensure maximum benefit to the economy as a whole.

Motivational levers for youth

- Providing positive women role models
- Establishing peer support networks
- Creating mentoring relationships
- Making jobs available
- Developing a group identity for women in the skilled manufacturing trades

Youth communications strategy

Raising awareness

- Reaching into the education system
- Reaching out to
 - Young women

Changing perceptions

- Feeling welcome in the skilled trades as young women
- Having female allies in a male dominated workplace

Changing behaviour

- Selecting skilled trades as a path of choice

Engaging stakeholders

- Youth
- Employers from entire sector / skilled trades cluster in geographical region
- Unions
- Educators / guidance counsellors
 - K-12

- Postsecondary
- Parents
- Community based trainers / employment counsellors
- Institutions
 - Secondary schools
 - Postsecondary institutions
 - Apprenticeship boards

Overcoming structural barriers

- Creating better connectivity between secondary system and workforce
- Aligning secondary school with apprenticeship system
- Articulating school / work / apprenticeship / education linkages
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- Prequalifying young women to participate
- Renewing the apprenticeship training system
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Operating pilots—setting cohort up for success

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 - Organizing workplace support activities
 - Newsletter celebrating own achievements and related projects
 - Structured employer-led feedback / mentoring
 - Facilitated peer- and self-led reflection / sharing

Evaluating pilots

- Understanding challenges
- Highlighting keys to success
- Measuring outcomes and impacts
 - Employers
 - Employees
 - Unions
 - Apprentices
 - Parents

- Trainers postsecondary instructors
- Developing learning / engagement tools

Communicating results

- Case studies
- Ad campaign
- Workshops / presentations
- Employer engagement sessions
- Roundtable for leaders / decision makers

Building sustainability

- Engaging pilot advisory team
- Challenging other communities
- Exchanging knowledge / practice

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