

Canadian Apprenticeship and Effect of Union Membership Status: Trend Analysis 1991-2002

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Abstract: This study examines structural, organizational and demographic characteristics and union membership status as they affect participation in different types of informal learning and formal training, including a special focus on apprenticeship. Results presented in this study are based on analysis of the data from the Apprenticeship Information System, the 2004 WALL Survey, and the 2003, 1997, and 1993 AETS surveys. This study demonstrates that membership in a trade union has a significant impact on employees' level of participation in both formal education and informal learning. The study also shows that unionized workers are 25% to 89% more likely to participate in registered apprenticeship training than their non-unionized counterparts. The results, based on the most recent data on registered apprenticeship participation in Canada, show significant variation but generally an increased number of employees enrolled in apprenticeship training. This study also shows increased female participation in apprenticeship training but their enrolment is still ten times lower than their male counterparts. This study proposes a number of measures for accurate monitoring and informed decision-making on registered apprenticeship training enrolment, completion and, most importantly, the working and living conditions that trainees encounter throughout their demanding work and learning activities.

Keywords: Apprenticeship training, Unionization, Canada, Demographic; Sociological research.

Background

Vocational education and training represents one of the major sources of highly skilled trades employees. Apprenticeship training plays a chief role in “enabling business and industry in Canada to remain competitive” (CMEC 2003, p. 113). Economic interests and international competitiveness are often major reasons for advocating apprenticeship training in education policy documents. Frequently, national apprenticeship training efforts are compared to the German apprenticeship system, which is widely regarded as highly efficient and productive (Lehmann, 2000; Franz & Soskice, 1995; Casey, 1991; Hilton, 1991; Kane & Harhoff, 1997). In addition to economic interests and labour market supply, recent studies demonstrate that cognitive apprenticeship, learning in a real environment or through real tasks aimed at developing cognitive and metacognitive abilities that experts use for problem solving, has a much wider scope and application than trade certification. This new field of research and educational practice, based mainly on the cultural-historical theory of learning (Brown, Collins & Duguid, 1989; Collins, Brown & Holum, 1991; McLellan, 1995), demonstrates that cognitive apprenticeship plays a significant role in learning throughout a person's entire lifespan as well as in

other forms of education, including apprentice training (Chan, 2004; Aziz, 2003; Bockarie, 2002; Ruggero & Roth, 2001; Cash, Stadt, Behrmann, & Daniels, 1997; Duncan, 1996; Johnson, 1992; Engeström, 1990). Based on such theory, there are a number of interesting proposals aimed at improving conditions, social and pedagogical relationships and at reconceptualization of apprenticeship that offer promising results (Fuller & Unwin, 2003; Fuller & Unwin, 1998).

Besides the above mentioned studies that elaborate on the highly significant aspects of apprenticeship training, there are fewer critical sociological studies on apprenticeship and relatively few comprehensive studies that examine the social determinants which contribute to the cyclical changes, interest or opportunities for this type of training. Existing studies are mainly concerned with training outcomes and graduation from apprenticeship based on cross-sectional data that may show different patterns at different times.

Regardless of declared support for apprenticeship training in major national (HRDC, 2002; Stewart, 2002) and foreign (Leney, 2004; European Commission, 2003; DfES, 2001; Hutton, 2005; NCVER, 2001; GAO, 2001) education policy documents and reports, apprenticeship training practice suffers from numerous difficulties manifested through relatively low enrolment, low completion rates and shortages in skilled labour. Changing social and economic conditions strongly impact apprenticeship training, recruitment, enrolment and completion. For example, the Report of the Pan-Canadian Education Indicators Program 2003 (p. 136) states that between 1991 and 2000 enrolment in registered apprenticeship programs in Canada decreased by 13%. Just two years later enrolment had significantly increased. More recent data indicate that apprenticeship training, after a period of decreased enrolment during the mid 1990's, sharply increased, surpassing the level of enrolment in 1991 by more than 20%. Regardless of increased enrolment, the apprenticeship completion rate is very low and slowly, but consistently, decreasing. Official statistics do not report on apprentice graduation rates because of (CMEC, 2003) trainee age variation and due to the varying duration of the approximately 170 apprenticeship programs in Canada. Despite the absence of this important indicator, raw data on those enrolled versus those who have completed apprenticeship training indicate that the total number of apprentices who graduate every year is less than one-tenth of the number of persons enrolled in apprenticeship programs. This situation causes frequent personnel shortages that impact on the labour market, the vocational education system, and efficient and stable economic production. Most other postsecondary programs in Canada and apprenticeship programs abroad show evidence of significantly higher completion rates.

In 1998, at the Third National Forum on Education and Life (CMEC, 1998) it was estimated that a relatively small segment, 0.9% of the workforce in Canada, was involved in apprenticeship training; especially when compared to Germany where 4.5% of the workforce was involved in this type of training. A more recent estimate for 2002, based on CANSIM data, of the average number of Canadians in the active labour force and the number of employees enrolled in registered apprenticeship training shows that 1.4% of the labour force is involved in apprenticeship training. This figure reflects a growing trend in apprenticeship training enrolment in Canada, one that has significantly increased since 1999. Still, in comparison to the general level of education attainment, where

Canada leads the world, with regard to apprenticeship training, participation rates in Canada are well behind many leading economically developed countries (Table 1).

Table 1: Working-age Population (15–64 years) in Apprenticeships by Country.

Country	Participation rates in apprenticeship
Switzerland	3.4
Germany	3.0
Austria	2.2
Australia	2.1
Finland	1.1
Norway	1.1
Netherlands	1.1
Canada*	0.9
Denmark	0.9
France	0.8
United Kingdom	0.6
United States	0.2

Source: NCVET, 2001. *CMEC, 1998. More recent data from Statistics Canada for 2002 indicate that participation in registered apprenticeship training increased up to 1.4%.

In addition to a number of earlier studies that document a significant union impact on graduation in apprenticeship in Canada (Sweet & Lin, 1999) and abroad (Braunstein & et al., 1994; Berik & Bilginsoy, 2000; Aidt & Tzannatos, 2002), a recently published study (BCTD, 2005) conducted by the US Department of Labour (DoL), at the request of the American Federation of Labor, shows that in large private companies which offer apprenticeship training, more than twice as many apprentices cancel than complete their apprenticeship programs. This US study also shows that almost three quarters (71.6%) of construction apprentices sponsored by a union complete apprenticeship training, in comparison to 28.4% of non-unionized apprentices. This study further reveals that racial minorities' enrolment in union-sponsored programs was three times higher and women's participation in union-sponsored programs was four times greater, than the levels seen in non-union sponsored programs. The same report shows that graduation rates for both racial minorities and women in union-sponsored programs was more than four times greater (82.2% vs. 17.8%) than in non-union programs.

Another recent study on apprenticeship training in the construction industry in Maryland (Johansson & Feinstein, 2005) shows less dramatic but highly significant differences in graduation rates between union-sponsored and non-union apprenticeship programs. During the 1990-1998 period, 44.1% of trainees in union apprenticeship programs completed their training whereas only 27.6% of trainees in non-union programs completed theirs. This study also shows that in construction trades male apprentices have higher completion rates than the unionized female ones. Unionized women and unionized members of racial minorities have higher graduation rates in comparison to non-unionized workers.

Based on the above reviewed studies and results from a number of recent studies in Canada on the most significant barriers that adult learners encounter (Livingstone, Raykov & Stowe, 2002c) and the impact that union membership has on participation in

adult education (Livingstone & Raykov, 2005b), it may be expected that the stronger bargaining power that unionized workers enjoy through union membership contributes to their higher enrolment in and more favourable working and living conditions during apprenticeship training. It could be also expected that unionized workers are more likely to complete apprenticeship training as a result of greater bargaining power that they enjoy as union members..

Methodology

The main methods of inquiry are primary and secondary analysis of yearly census data on registered apprenticeship in Canada and cross-sectional data from the most recent national surveys on union membership status, participants' basic demographic characteristics and enrolment in registered apprenticeship training programs in Canada. *Statistical analyses* employed in this study include descriptive techniques, trend analysis, and multivariate logistic regression. All findings reported are statistically significant at the usual level of statistical confidence. In order to overcome the lack of available data, this study uses an approach that combines yearly and cross-sectional data, always bearing in mind the limitations that such an approach includes.

The main data sources used in this study are the 2003 Adult Education and Training Survey (AETS), the National Survey on the Changing Nature of Work and Lifelong Learning in Canada (WALL), and official data from the Registered Apprenticeship Information System. The latter is a yearly census on registered apprentice training in Canadian provinces and territories presented through the Statistics Canada CANSIM statistical information system.

The 2003 *Adult Education and Training Survey (AETS)* provides information on participation in apprenticeship training programs, as well as socioeconomic and demographic profiles of participants. For a number of supplementary analyses this study uses the 1997 and 1993 editions of the AETS surveys.

The 2004 survey on the *Changing Nature of Work and Lifelong Learning in Canada (WALL)* includes 9,063 respondents and provides data about apprenticeship training, union membership status, respondents' demographic characteristics and an unprecedented level of information on both formal education and informal learning.

The samples of respondents included in this study represent a 'core labour force', employees aged 25 to 64 who have completed the initial cycle of formal education. Such a sample selection is determined by the latest 2003 AETS survey. The fact that the 2003 survey was limited to people over the age of 25 makes impossible more complete comparability with the previous AETS surveys, considering that the 18 to 24 cohort is excluded. For comparisons that include the 18 to 24 cohort, this study used data from the WALL survey.

Results and Discussion

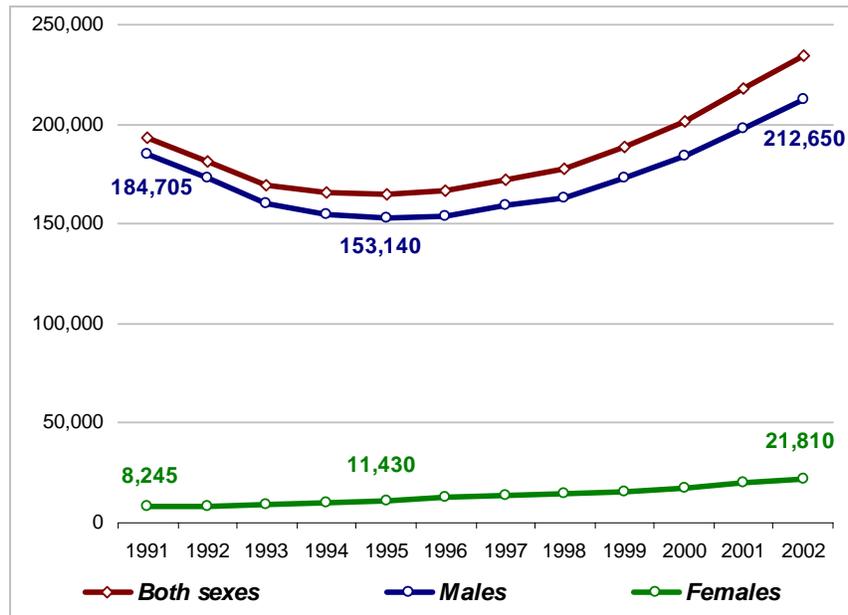
Apprenticeship Training Enrolment

A demographic profile based on the data from the 1993, 1997 and 2003 AETS surveys shows that the overall number of respondents involved in apprenticeship training is smaller than the number of non-unionized employees. All surveys show that

approximately half of the trainees involved in apprentice training are in the 25 to 34 year-old cohort. Men are dominant in self-reported participation in apprenticeship training, but the gap is generally smaller (2.5 to 13.7 times) than census data on apprenticeship show (10 to 22.5 times). It should be noted that over two-thirds of apprentices already possess some postsecondary education, a postsecondary certificate or a diploma.

Analysis of the most recent yearly census data on apprenticeship training shows that the cycle of decreasing enrolment ended in 1995/96 and by 2000 had achieved the level of enrolment seen in 1991. With economic revival, including increased production and a growing demand for skilled trades employees, apprenticeship enrolment began to increase (Chart 1). In 2002, 234,460 people were registered in apprenticeship training programs, an increase of 41,515 (21.5%) over 1991 figures. Regarding gender, in this period there was a noticeable variation in male enrolment that corresponded to economic and labour conditions. Female enrolment remained relatively independent of the economic cycle, increasing from 8,245 enrolled in 1991 to 21,810 in 2002.

Chart 1: Apprenticeship Training Enrolment and Completion in by Gender.

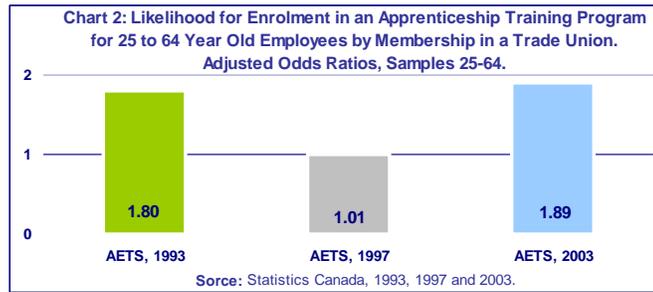


Source: Statistics Canada. 1991-2002.

Regardless of the more than twofold increase in female enrolment, and a continually decreasing gap in the male-female enrolment ratio, female enrolment in apprenticeship training is still approximately one-tenth that of male enrolment (21,810 vs. 212,650).

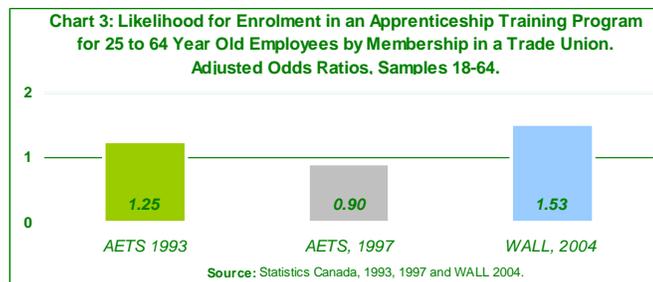
Logistic regression analyses of the data from national surveys give us an opportunity to examine the impact that union membership has on participation in apprenticeship training. Two groups of logistic regression analyses were performed with the AETS and WALL data. These analyses include two different subsamples: the first, which is compatible with the 2003 AETS sample, includes 25 to 64 year old respondents; and the second, which is more comprehensive, includes the 18 to 64 year old cohorts from the 1993 and 1997 AETS and the 2004 WALL data.

Analysis performed with the more restricted sample of respondents, 25 to 64 years old (Chart 2), shows that in 1993 the probability of unionized employees enrolling in apprenticeship training was 80% (95% C.I. 1.765 – 1.835) higher than that seen in non-unionized workers. In 2003, union impact, represented through the odds ratio, shows an 89% higher (95% C.I. 1.859 – 1.928) probability of unionized workers' involvement in apprenticeship



training, compared to non-unionized workers (Chart 2). In contrast, in 1997, during a period of economic recession, membership in a union did not have any significant impact on enrolment in apprenticeship programs (Odds were 1.01, 95% C.I. 1.005 – 1.007).

The analysis performed with the more inclusive sample (18 to 64 year old respondents) showed that in 1993 and 2004, regardless of the lower level of unionization caused by a larger number of younger, non-unionized respondents included in those samples, there was a significantly higher probability for enrolment in apprenticeship training for unionized workers (Chart 3). In 1993 unionized workers were 25% more likely (95% C.I. 1.233 – 1.274) to be involved in apprenticeship training while in 2004 the likelihood for unionized workers to participate in this kind of training was 53% higher (95% C.I. 1.112 – 2.090) than for non-unionized workers. In 1997, during the period when the economic slowdown reached its lowest point, the probability of unionized employees taking apprenticeship training, in comparison to non-unionized workers, was 10% (95% C.I. 0.894 – 0.914) lower.



In addition to previous studies on union membership and general and work-related participation in education and training in Canada (Livingstone & Raykov, 2005b; Kapsalis, 1996), Sweden (Orrje, 2000), the United States (Lynch, 1992) and the United Kingdom (Green, Machin & Metcalf, 1998; Green, 1993), a number of previous studies show significant union impact on apprenticeship program completion. A Study based on the 1994-1995 National Apprenticed Trades Survey data (Sweet & Lin, 1999) confirmed this among unionized employees in the construction industry, as well as in an analysis that included all trades. This study found a 25% higher likelihood for completion of apprenticeship training among unionized employees in the construction industry and a 65% higher likelihood for completion among all analyzed industries. More recently, Berik and Bilginsoy (2000) found that women, sponsored by both their union and their employer, graduated from apprenticeship training more often than men. The latter were more likely to graduate from their apprenticeship programs without the aid of their union or their employer. In general, unionized workers participate more in adult education courses than non-unionized employees. Available data do not allow reliable, more

sophisticated comparisons between unionized and non-unionized participants in apprenticeship training.

Since participation in formal education and training is strongly related to age, gender and previous educational attainment, this study controls for the effects of these major socio-demographic characteristics on unions' impact on participation in apprenticeship programs. Logistic regression that controls for demographic characteristics shows that union membership status, independently of age, gender and educational attainment, contributes to participation in apprenticeship training.

Raw logistic regressions show that 25 to 64 year-old unionized employees are 80% to 89% more likely to participate in apprenticeship training than non-unionized employees when general economic conditions are favourable. In "tough times", membership in a union has no significant impact on participation in apprenticeship training. The impact that could be attributed to union membership in the wider, 18 to 65 cohort is slightly lower but indicates a 25% to 53% higher probability for union members to be involved in apprenticeship training during economic recovery. The impact during a recession is either non-existent or slightly negative.

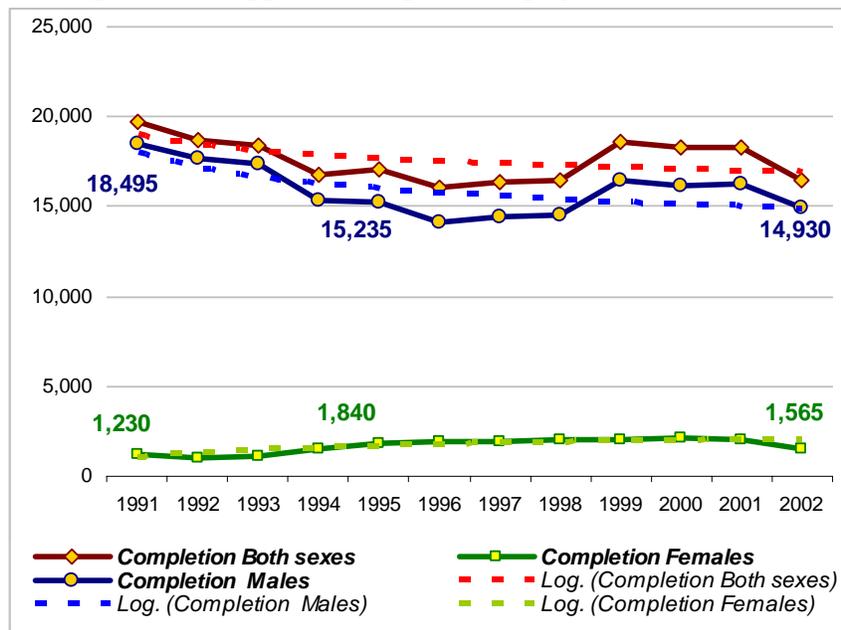
In summary, regression analyses provide a basis for concluding that union membership significantly determines level of enrolment in apprenticeship training programs. There is evidence of a higher impact within 25 to 64 year old respondents for concluding that membership in a union has a greater determining effect on participation in any adult education and training and also, as this study shows, apprenticeship training.

Apprentice Participation in Formal Education and Self-Directed Learning

The 2003 AETS survey shows that, in addition to a higher level of participation in formal training and informal learning (Livingstone & Raykov, 2005b), apprentice trainees also participate significantly more in self-directed training activities than other 25 to 64 year-old respondents. In comparison to others the same age apprentice trainees 'teach themselves' significantly more often (81.4% vs. 55.8%), consult books and manuals (58.9% vs. 38.5%), learn during work hours (47.8% vs. 30.7%), seek advice (45.7% vs. 27.2%), observe others work (45.6% vs. 24.3%), use the Internet (37.2 vs. 27.5) and more frequently learn outside of work hours (34.0 vs. 20.2). The results indicate, as previous studies of work and learning in Canada (Livingstone, 2002) and as the hidden dimensions of working-class learning have shown (Livingstone & Sawchuk, 2004), besides a higher involvement in employment and formal training activities, apprentices are also highly involved in self-directed learning activities.

Apprenticeship Training Completion

In contrast to enrolment in apprenticeship training in Canada that, with some variation, has increased over the last decade, registered apprentice training completion shows a small but, relatively constant, decreasing trend (Chart 4). In 2002, in Canada, 16,495 apprentices completed training, which is 3,230 (16.4%) less than that seen in 1991. Analysis of completion by gender for the 1991-2002 period shows that the male completion rate decreased by 12.1%, while the number of women who completed registered apprenticeship training during this period increased by 21.4%. Comparison of the overall yearly apprentice completion rate shows that in recent years more than four times more Australians completed apprenticeship training than Canadians.

Chart 4: Completion of Apprenticeship Training by Gender. Canada, 1991-2002.

Source: CANSIM, 1991-2002, Statistics Canada.

Enrolment in apprenticeship training by the major trade groups during the last decade also shows some specific characteristics. Apprenticeship enrolment in building construction, electrical and related trades experienced the greatest reduction during the 1990's economic recession, and the slowest recovery. Also during this period apprentice enrolment levels in metal fabrication and motor vehicle trades experienced some temporary declines but quickly recovered. Enrolment in industrial, food and 'other' trades during this period gradually increased. The number of apprentices who completed training in the building construction trade during the observed period shows a significantly negative trend completions in 2002 decreased by 42.5% when compared to 1991. Significant women's participation in apprenticeship training is evident in food and service industries while changes in other trade groups demonstrate a persistent male domination.

Attitudes toward Apprenticeship Training in Canada

The 1998 International Survey on Health Behaviour in School-Aged Children, which included Canadian children 11, 13 and 15 years-old, regarding students' expectations about education after finishing high school, reveals an extremely low interest among young people for apprenticeship training. As results show, the majority of children are interested in university and college education. Only one percent of youth, all of them males, are interested in apprenticeship training.

This survey also shows that apprenticeship and trade occupations are least popular amongst young Canadians and that, in comparison to other countries, Canadian youth do not prefer this type of education. Another Canadian study, the Survey of Approaches to Educational Planning (Statistics Canada, 2002), shows that apprenticeship is also least popular amongst parents of 13 to 18 year-olds. A great majority of parents (66.7%) hope

that their children complete university education while only 2.3% expect their children to complete apprenticeship, trade or vocational schools.

With respect to educational aspirations, the most recent study, the 2004 WALL survey, shows that almost three quarters of Canadians estimate that young people today need a college diploma or university degree in order to advance in Canadian society. Also according to this survey, approximately 40% of Canadians think that young people today need a college diploma or trade certificate while 35% think that youth need an undergraduate or graduate degree. The results indicate that Canada has become a highly credential society, regardless of the relatively low rewards garnered from attained education.

Barriers to Participation in Apprenticeship Training

As previously noted (Livingstone, Raykov & Stowe, 2001c) participants in adult education, including apprenticeship training, face specific kinds of barriers to participation. The 2001 analysis of the AETS results suggests that perceived material barriers to training participation increased during the 1990's. Among those who were interested in taking training, lower income groups found lack of money to be the main barrier, while higher income groups found lack of time to be the greatest barrier.

This study, based on the 2003 AETS survey, shows that a significant number of respondents do not participate in the training that they want (24.1%) or need (14.0%). Participants in apprenticeship training perceive family responsibilities (25.5%), training costs (20.4%), and other issues such as course availability as the major obstacles to enrolment. . Reported barriers to participation in apprenticeship training could increase attrition, and probably contribute to the low completion of this type of training.

Objectives for, and Outcomes of, Apprenticeship Training

Analysis suggests that participants in apprenticeship training have a strong motivation to learn. Almost two-thirds of participants undertake learning in order to enhance their job performance. Half of them want to find or change employment, and approximately half take courses in order to increase their income. Comparisons of respondents' objectives for training participation with their perceived outcomes from such training show a high level of correspondence regarding improved work effectiveness. The percentage of those who desire to improve their work performance via training (65.1%) is almost the same as those who perceive that training indeed enhances their job performance (68.2%).

Significant gaps exist between apprentice trainees' expectations of finding a job and actual job attainment attributed to their training (26.3%). While almost half of all apprentices (47.5%) expect to improve their employability, less than half of these (21.2% overall) achieve this goal. Significant differences also exist in relation to financial expectations prior to, and after, training (13.4%). As previous studies (Livingstone, 1999b) on human capital theory show, this study shows that significant imbalances exist between educational attainment and perceived rewards from education and training.

Support for Apprenticeship Training in Canada

Analysis of the annual expenditures on trades and vocational training in Canada shows significant variation over the last ten years and a particularly unfavourable decline in financial support for apprenticeship during the mid 1990's recession. Previously

published results (Livingstone, Raykov & Stowe, 2001c), as well as those from this study on barriers encountered during apprenticeship, demonstrate the strongly negative impact that this financial situation had on participation in adult education.

Analysis of federal expenditures on trade and vocational training shows increased support for private colleges and private trades schools. Considering the results obtained in the United States on private apprenticeship training providers (BCTD, 2005) and low completion rates in such schools, is not likely that increased investment in this area is going to provide for the desired results of higher graduation rates and significantly more skilled trades workers. It is more likely that the reduced federal financial support for apprenticeship during the mid 1990's economic downturn caused a reduction in enrolment and graduation during this period. It seems likely that increased support for private providers has increased enrolment in apprenticeship training through strong recruitment and media campaigns. But at the same time decreased support for students and the financial difficulties that participants encounter have likely had a significant negative impact on graduation from apprenticeship programs.

Apprenticeship and Prior Learning Assessment and Recognition (PLAR)

Data obtained from the 2004 WALL survey on prior learning show that recognition of prior informal learning could contribute to higher involvement in apprenticeship training. Based on this study, more than half of Canadians (59%) would enroll in a form of education if their previous learning was recognized and allowed to reduce the number of mandatory courses needed for a diploma or certificate. It is important to note that more than two-thirds of Canadians aged 25 to 44 would likely enroll in education if their previous learning and experience were recognized.

Based on the results obtained from studies of women, despite a very low enrolment level in apprenticeship training, they demonstrate a high interest (60.6%) in recognition of prior learning and enrolment in education. A significant number of other respondents, who are underrepresented in apprenticeship programs, union members (61.8%) and immigrants (61.1%), also show a higher interest for PLAR. It is interesting that respondents with lower educational attainment, those with elementary (47.1%), incomplete high school and high school diplomas (61.4%), manifest a very strong interest in prior learning recognition and enrolment (47.1%).

The fact that a significant number, more than half of all respondents, demonstrate interest for enrolment in training if their prior learning is recognized may provide a viable solution for the chronic scarcity of skilled trades workers in the labour market. Considering the significant role that PLAR has for many people with wide experience and knowledge, and the results from this study that indicate a significant potential for increased apprenticeship or on-the-job-training, activities related to PLAR require further more specific and more comprehensive research as well as wider support for activities related to prior learning assessment and recognition.

Data Limitations

Similarly to previous studies (Briskin & Klement, 2004; Dea, Fougère & Rainville, 2003; Baran, et. al. 2000; CCDPC, 1999; Lynd, 1994) that report on a lack of data on education, labour and other social issues in Canada, this study has also encountered a data limitation in examining the impact of union membership on participation in apprenticeship training

in Canada. There are insufficient indicators available for successful monitoring and planning of apprenticeship training. Furthermore, complete existing data from the official census on apprenticeship, the Registered Apprenticeship Information System are not available. This is probably one of reasons for the lack of more comprehensive studies on apprenticeship training in Canada. There is also approximately a two year delay between data acquisition and their publication. When the additional time required for report preparation is added, results from studies on apprenticeship may be obsolete at the time they are released. Considering the rapidly changing conditions in this domain, data collected at the beginning of the last decade are valuable largely for comparative and historic studies, but insufficient for timely and informed policy.

Conclusions

Regardless of the above mentioned limitations related to access and type of available data, this study offers the following conclusions:

Analysis of official yearly statistical data on registered apprenticeship training in Canada indicates an increase in enrolment in apprenticeship training during the six consecutive years between 1997 and 2002. In a wider time frame, from 1991, when data on registered apprenticeship became available, enrolment increased by 21.5%. This study also shows a great gender gap in enrolment in registered apprenticeship training programs, and a low but constantly declining total number of participants who follow apprenticeship training to completion. While a small gain is evident in female completion rates, more noticeable is the decline in completion rates among men.

Results obtained from cross-sectional data, the 1993, 1997 and 2003 AETS, and the 2004 WALL surveys, show a strong union impact on enrolment in apprenticeship training in 1993 and 2003. Logistic regressions show a 25% to 89% higher probability for unionized workers to enroll in apprenticeship training in Canada, as compared to their non-unionized equivalents. This study also shows that during the economic recession, in 1997, union impact on enrolment in apprenticeship training was not significant.

Participants in apprenticeship training have a distinctive demographic profile: they are mainly men between the ages of 25 and 34. The majority of them are married and a significant number have children under six years of age and most live in a dwelling owned by a family member. This study also shows that approximately 80% of apprentices are employed in the private sector and that there is a “U”-shaped distribution concerning firm size and apprentice training: the majority of apprentices work in small (less than 20 employees) and large (more than 500 employees) companies

Participants in apprenticeship training face specific kinds of barriers that, in addition to the relatively long duration of the training, represent strong obstacles to training completion. Participants also perceive a significant imbalance between their training objectives and the outcomes they receive from such training. Based on available, and in many fields limited data, it appears that apprenticeship training programs suffer from inequalities in access with regard to gender, age and race. Some of the findings in this study require further analysis based on more complete data about participants in apprenticeship training and about employers who provide this type of training.

This analysis, as well as previous studies (Livingstone, 2001a, Livingstone, 2001b, Livingstone, 2004b), shows a high level of Canadians’ involvement in all forms of formal education and informal learning. This study further shows that unions play a

significant role in supporting workers to participate in general and in work-related education. Analyses on public opinions toward education (e.g. Livingstone & Hart, 2005a) as well as WALL and this study demonstrate an increasing willingness of Canadians to obtain higher levels of education. In addition, international comparisons indicate a very low level of interest in vocational education and apprenticeship training among Canadian youth. Parents also demonstrate high expectations for their children's educational attainment. But they also rarely perceive apprenticeship as a preferable choice. These findings indicate how the public evaluates skilled trades occupations and workers' socioeconomic conditions and status. The majority of Canadians are aware of the difficulties that apprentices encounter during their training. It seems that the major problems related to attitudes toward apprenticeship are the general living and working conditions of working class people.

Unions, as our study shows, contribute to higher enrolment in apprenticeship training programs and to more favourable conditions for work and learning. Demonstrated attitudes toward education indicate that much more should be done to improve the living conditions of skilled trades workers in order to change public perception, enticing them to more willingly choose such occupations as their careers. As previously mentioned (Livingstone, 1999, Livingstone, 2003a, Livingstone, 2004), unless we have clear visions of the work alternatives that actually exist, that are preferable and that are feasible, we are unlikely to contribute to sustainable, progressive workplace change, including wider involvement in skilled trades and apprenticeship training.

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Unlike the conventional least squares framework that looks at the effect of union membership status on the conditional mean of the log wage distribution, the QR framework allows for differing effects of union membership status on different parts of the distribution, thus enabling us to look at the effect of membership on the location, scale and shape of the log wage distribution. The membership premium is the differential between covered members and covered non-members, whereas the coverage premium is the differential between covered non-members and non-covered non-members.⁵ In the U.K., after a settlement is reached between employers and the union, pay outcomes apply to all workers regardless of whether they are union members or not.