Building a future for high school students in the trades

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Abstract

The purpose of this paper is to examine an Ontario high school apprenticeship program in carpentry in terms of the opportunities and limits on learning that are apparent in schools, the training centre, and workplace. Our analysis of interviews with educators, apprenticeship training staff, and students suggests a variety of issues. At the level of schools, there is a need to clarify pathways to the trades and to better prepare students for the transition to apprenticeship. Within the training centre context, a number of features were conducive to the promotion of expansive learning. However, areas where more attention is arguably needed include the articulation of alternative pathways for students who fail, providing opportunities for students to provide feedback on their learning experience, and taking positive action to extend participation to non-traditional groups. However, implementing recommendations related to schools and the training centre will be of little value unless attention is also given to learning constraints in the workplace.

Introduction

A number of Canadian provinces developed high school apprenticeship programs in the 1990s to address the shortage of skilled trades workers and to facilitate the transitions of young people from school to work. For example, programs in Alberta, British Columbia, and Ontario allow high school students to combine their studies with apprenticeship training (Schuetze, 2003). In Ontario, students who have completed grade 10 and are at least 16 years old can register as apprentices (Government of Ontario, 2002; TV Ontario, 2004). Provincial governments have provided funding to promote and deliver these programs although only a small proportion of secondary school students are enrolled (Lehmann & Taylor, 2003; Schuetze, 2003).

Recent attempts to revitalize apprenticeship in the UK through the Modern Apprenticeship initiative are seen as potentially providing a structure in which young people can learn, demonstrate their abilities, and discover their identity (e.g., Fuller & Unwin, 1998). However, a number of writers agree that market approaches to vocational education and training (VET) evident in Canada, the US, and Britain place the workforce learning agenda in the hands of employers whose interests are not necessarily consistent with those of workers (Ashton, 2004; Evans et al., 1997; Spencer, 2001). The purpose of this paper is to examine an Ontario high school apprenticeship program in carpentry in terms of how it works and the opportunities and limits on learning that are apparent in schools, the training centre, and workplace.

Our data for this case study includes 68 focus groups and individual interviews with apprentices, parents, educators, apprenticeship instructors, and employers.

The OYAP carpentry program

The high school apprenticeship program that provided the focus for our case study involved students training to be carpenters in an urban centre in Ontario. The program was designed for students in their final semester of grade 12 who were on track to graduate from high school. The key players include four surrounding school districts, a joint management-union training centre, students, and employers. In the two metropolitan school districts where the program began, the usual process for students was as follows:

- Interested students applied to the carpentry apprenticeship program in the fall of their grade 12 year.
- Candidates participated in an interview process conducted by school and training centre instructors (the acceptance rate was very high).
- All successful students were required to attend a pre-apprenticeship course held in the winter for four weeks at a high school in their district.
- Students travelled to the joint management-union training centre for eight weeks, where they participated in the first level of apprenticeship training (which included a mixture of classroom and hands-on learning). Students had the opportunity to earn high school credits while attaining their Basic level. Students were required to pass the course with 60 percent or better in their practical and theory components overall to obtain their Basic level qualification.
- Instructors at the training centre placed successful students in their first work placement, where they earned the first year apprentice rate of pay and co-operative education credits to fulfill the requirements for their high school diploma (if needed).
- Students were visited in the workplace periodically by work experience coordinators from the school (as required by the Ministry of Education) until the required co-op credit hours were completed.
- Students who become union members can return to the hiring hall to help them find work as required. They were also encouraged to return to the training centre to take the Intermediate and Advanced levels (eight weeks each) to complete their apprenticeship. If apprentices want to obtain their red seal certification, they must pass a written exam set by the government with 70 percent or better.

Since this program is seen as exemplary by participating school districts and organized labour participants in Ontario, it provided a good site for looking at how high school students make sense of learning through apprenticeship. The remainder of this paper draws on data from interviews with school staff and training centre instructors as well as observations and focus group interviews conducted with students from the two metropolitan school boards during the pre-apprenticeship program and toward the end of their eight-week program at the training centre.

Opportunities and limits in schools

Reports have documented barriers to the expansion of apprenticeship, which include the lack of valuing of high school vocational education, a decline in trades facilities and difficulty attracting teachers with trades qualifications to schools, and the low social status of trades in Canada compared to countries like Germany (Canadian Apprenticeship Forum, 2003). In addition, the following comments from interview participants suggest that pathways into the trades tend not to be as transparent as post-secondary pathways for counsellors or students:

> [U]niversity is clear cut, college is clear cut, what's offered out there with OYAP [Ontario Youth Apprenticeship Program] is, it always takes several phone calls [for counsellors] to find out where the best place is to go to access what a student needs. (Guidance counsellor, urban high school, I-41)

> Maybe if students saw that, yes, they are in a definite path…leading to something very tangible rather than a desk and book type of environment, then maybe they could buy into it sooner and be successful that much quicker. (Guidance counsellor, urban high school, I-61)

Parents and students are also aiming high—for example, a 2000 survey found that 61 percent of Canadian 15 year-olds hoped to attain one or more university degrees and 64 percent of their parents held this aspiration for their child (Krahn & Taylor, 2005). Interestingly, this study found that immigrant parents and students had higher than average aspirations, as a guidance counsellor in an urban high school confirms:

> There is the family pressure. [Immigrant parents] have given up everything in a country that is familiar to them to offer their kids a better life, and as far as they're concerned they need to go to university. (Guidance Counsellor, urban high school, I-41)

Our research also suggests that neither students from academically-oriented or technically-oriented schools are well-prepared for apprenticeship training. For example, an instructor from the management-union training centre comments:

> [Apprentices] transfer in from collegiates to a tech school in order to come here. Now those students have an easier time with the theory part and a harder time with the shop part. The students from the tech program have a harder time with the theory and less problem with the actual shop. So it's a trade-off then. (Instructor, training centre, I-19)

Similarly, a student from a technical school comments that there was little theory in the carpentry courses he took at high school and therefore he was ill-prepared for the level of math skills required (F-9). The division within high school curriculum whereby technical courses tend to be seen as primarily "hands on" and for low achieving students while academic courses are seen as primarily "conceptual" and for more academically-able

students is problematic. The fact that most of the students who failed the Basic level of training (17 of 70 in 2004) at the training centre performed poorly on math tests suggests that some students may be set up for failure because of inadequate preparation and also because school staff tend to recommend apprenticeship program to students without realizing the academic requirements. For example, a training centre instructor talks about some of the applicants to the program as follows:

> There's a whole bunch of baggage that comes with a lot of students, and you start finding out, well, [the school] put him here because he's got nowhere else to go. And that's telling me on the high school end, it's the traditional problem. And some students, you can put them in a different environment and they thrive. And that's a real tough call. … More often than not we tend to err on the side of give the person a break. (Instructor training centre, I-1)

However, the high failure rate suggests the need to ensure that students are better prepared and that school staff are informed about the requirements of the program. One step that was taken to address the preparation of students for the carpentry program was to examine the gap between school curriculum (in tech and math courses) and apprenticeship curriculum and to provide a one-month pre-apprenticeship credit aimed to better prepare students. This is the kind of work that needs to be supported and institutionalized by the provincial government if the goal is to provide effective school-work transition (SWT) programs for students.

Opportunities and limits in the training centre

Fuller and Unwin (1998) suggest that a re-conceptualized apprenticeship should include the following aspects:

- Breadth: exposure to authentic tasks and a range of skills and knowledge
- Depth: opportunities to develop and apply their theoretical and conceptual knowledge in the work situation
- Interaction: opportunities to discuss solutions to problems and to make connections between what is learned and its implications for practice
- Attainment and progression: feedback to learners on their progress in terms of knowledge and qualifications
- Communities of practice: partnerships between employers, training providers, and apprentices
- Quality management: process criteria designed to improve the quality of the learning experience and monitor results
- Access and equal opportunities: extending participation to non-traditional groups

A key goal is to foster "expansive" learning environments in which apprentices can learn how work is accomplished but also feel comfortable critiquing given ways of doing things.

Several features of the eight-week program that students undergo at the training centre are consistent with this model. For example, students were in small classes (of around 15) and were given plenty of opportunity to discuss their learning with instructors. Since they worked on "hands on" projects in groups as well as individually, they had opportunities to work collaboratively and learn from one another. Instructors were perceived by students as committed to their craft and as experts because of their range of up-to-date experience in the field. Cooperative education teachers from school districts worked collaboratively with training centre staff to deliver courses and to monitor student progress. Students were exposed to both theoretical and practical knowledge relevant to the trade. In fact, a number of students mentioned understanding connections between theory and practice seemingly for the first time. For example, one apprentice comments, "the thing is, when we took some of the geometry out on the shop floor, it was a lot more visible, like you had a lot more understanding" (F-32). In another focus group, two other students discussed the merits of geometry, as follows:

> A1: I don't know why we need the geometry [at this level].
> A2: No, like remember when we were doing the ellipses? And [name of teacher] took us over into the shop and he showed us how to do that.
> A1: Isn't that for, what, the finishing people?
> A2: It's also for rough work, like say cutting a hole on a roof … if you have like a circle, like, you have to put a pipe through and it's on a slant, it's not going to be a circle, it's going to be an ellipse. And you have to know how to calculate that so it fits nicely.

Further, students appreciated being treated as adult learners as a teacher involved in the program observed:

> [A]pprentices are given three chances, you're not given three and a half. Your homework has to be in at 9. It's at 9, not 9:30. And so this brings a whole new message to them from the world they've lived in, "I was sick, my dog ate it…" And I think many students in our school are begging for this. They're tired of being treated like children. (Teacher, high school, I-5)

In contrast to school where rules are seen as flexible and passing with 50 is good enough, the training centre was perceived by students as a place where expectations were high and consequences were clear. A number of students found themselves shifting from a "high school mentality" where they had been *reluctant learners* to new ways of thinking about themselves as *active learners* as the following quote suggests:

> *Has the way you're feeling about yourself changed in the last eight weeks?*
> A: Actually it brought something out in me I didn't even know, well, I didn't really think about before, and it's being a perfectionist. It's really what I am. I've noticed every detail and I'm really picky too. Which is perfect for the trade. (F-30)

Other students, who described themselves as apathetic and undisciplined students in high school, also spoke about changes in their way of thinking and behaving, which suggests that learning outcomes in this type of program are not restricted to formal qualifications, but may include "self assurance, increased capability, improved attainment, greater

ability to exercise control over their situations and environments, and the development of new attitudes toward learning/ working" (Evans, Kersh, & Sakamoto, 2004, pp. 230-31). Several students began to see a purpose for their learning. As Fuller and Unwin (1998, p. 159) suggest "young people are motivated to learn when a relationship is established between what they learn, its application, and the development of adult identities."

At the same time, the fact that a quarter of students did not pass the Basic level training suggests that more attention to facilitating alternative pathways for these students is needed. Further, students had little opportunity to provide feedback about the program. The need to extend participation to non-traditional groups is also evident since only one of 70 apprentices involved in the program in 2004 was female. Ten of 57 students who completed pre-interview questionnaires (of 70 involved in the program in 2004) reported that they were members of visible minority groups.

If one of the goals is to provide access for young people to participate fully in work practices, the training centre and schools might consider taking positive action to recruit underrepresented groups (e.g., young women) to the apprenticeship and provide additional support for these students (e.g., networking and mentoring opportunities) so that they stay in the trade. In fact, mentoring and networking opportunities would be helpful for all young apprentices who face the challenge of managing their learning in a sometimes hostile environment. But evidence of discrimination in the workplace suggests that they may be particularly important for apprentices from non-traditional groups.

Opportunities and limits in the workplace

Interview participants spoke about several aspects of the apprenticeship system in Canada and the organization of work and employment practices within construction trades that are likely to affect learning opportunities for apprentices. These include the existence of joint management-union training centres, the fact that carpentry is a non-compulsory trade, insecurity of employment, difficulties in gaining a range of experience, competition between union and non-union companies, and questions around whether the red seal qualification is an appropriate measure of skill.

Students involved in the carpentry apprenticeship in the urban centre where we conducted our case study were trained in a joint management-union training centre that was supported by a trust fund. This centre was recognized as the training delivery agent for the in-school portion (24 weeks) of apprenticeship training in this city and also offered ongoing short courses for members. Instructors were qualified journeypersons with a range of expertise. Therefore, opportunities for skill development were accessible.

However, the fact that carpentry is a voluntary trade in Ontario means that workers are not required to have their journey ticket or to be registered as apprentices to work on job sites (Tradeability.ca, 2003) and tends to have an adverse effect on apprenticeship completion rates, as an instructor suggests:

> "[I]t's a non-mandatory certification. … Now the piece of paper [trade certification], the apprentices will be told on site by carpenters, "What do you want that for? They're not going to pay you any more money."

In addition to the lack of financial reward, the majority of employers do not use the Certificate of Qualification (required to be a certified carpenter) as a criterion for hiring (Personal communication, Training centre Director, May 2005). Therefore there is a lack of incentive to complete the four years of apprenticeship. Further, job insecurity related to the volatility of the construction industry tends to encourage caution on the part of apprentices. As a director at the training centre comments:

> With respect to the schooling challenges, it's the same old saga of "I can't afford to leave work when I do have work because I don't know if I'm going to have work when I come back," you know, even for an eight week period. (I-29)

First-year apprentices are even more likely to be security-minded since they usually find it difficult to gain sustained employment because of their lack of experience and networks. Therefore, mobility is usually much higher for new apprentices who often become discouraged. And although ideally, apprentices will gain a range of experience in different parts of the trade, the hiring and apprenticeship structures mitigate against this since the in-school proportion does not provide the depth needed to claim expertise in an area and employers prefer to hire experienced workers (Personal communication, director, training centre, May 2005). The trade-off between *job security* and gaining a *range of experience* is therefore difficult for many apprentices. Further, work in the trade is becoming more specialized so that it is difficult to find employment that provides a variety of learning opportunities.

Competition between union and non-union sectors also affects training opportunities. As a director from the training centre comments:

> [T]here's one very important fact that exists and that is that the non-union [companies] make no contribution to apprenticeship [e.g., through the trust fund]. … They expect somebody else to train them and they pick them up off the street, and that's the sad part about it. (Director, training centre, I-29)

That said, the rate of unionization in the carpentry trade in Ontario is quite high. Fifty-eight percent of companies with 500 or more employees were unionized in 1997 compared to only 12 percent of firms employing less than 20 people (Akyeampong, 1997). In the unionized sector in carpentry in Ontario, members are more likely to be certified, older than their non-union counterparts, more apt to access upgrade training, and generally work in the civil and Industrial, Commercial and Institutional (ICI) sectors as opposed to residential construction (Prism Economics and Analysis, 2000a). However, because of a desire to gain a broader range of experience or because of inability to find work in the unionized sector, apprentices may move between union and non-union sectors. The disadvantage for apprentices indentured to the union is then the challenge of gaining recognition for work hours completed.

Several of the factors described above arguably combine to make apprenticeship completion rates (calculated as the number of completions of apprenticeship programs divided by the total registrations in a year) quite low. For example, one would expect a completion rate of approximately 25 percent for a four-year apprenticeship program but the actual rate was only 9.8 percent in Canada in 1999 (Sharpe, 2003) and 5.8 percent for the building and construction trades (Statistics Canada, CANSIM, 477-0051, 477-0052). This was lower than completion rates for undergraduate programs in universities (20 percent) and for community college programs (23 percent) in 1998/99. Further, Sharpe (2003) presents data indicating that the completion rate for the carpentry trade in Canada declined from 7.2 percent in 1991 to 3.8 percent in 2002.[1]

In addition, although carpentry is a red seal occupation, which is part of the national Inter-provincial standards program (ISP), a 1998/99 workers' survey noted that just under a quarter of certified Ontario carpenters had attained their red seal certification (Prism Economic and Analysis, 2000b). Directors from the training centre (Personal communication, May 2005) suggest that although they are unable to obtain statistics from the government, their sense is that the proportion of candidates who pass the red seal exam is low. To pass, candidates are required to score 70 percent or better on a three-hour written exam. Training centre directors are concerned about the high failure rate and have been lobbying the government for some time to increase the total hours required for the in-school component of the apprenticeship and to include a practical component as part of the red seal exam. However, the province has not yet taken these steps. The fact that learning in the workplace is social and collective and often tacit while the exam is individual, written and addresses codified knowledge is also problematic in our view. As a director of the training centre notes, something is wrong when carpenters who have done very well in the field and in the theoretical part of the in-school component are failing the exam.

A final aspect of the construction field, which is likely to affect learning opportunities for apprentices, concerns the dominant workplace culture. For example, a director of the training centre acknowledges the need to educate some employers as well as young apprentices, as follows:

> How do we get them to, you know, have a little bit more understanding for a first term apprentices going out there, instead of shouting and screaming at them the first day, give them a bit of encouragement. …[W]e try to acclimatize, for the lack of a better word, apprentices, and I think the instructors do a super job in that respect, to construction culture… [W]ith respect to the employers, they are that much more difficult to educate just because we don't have the kind of, not authority, but the kind of access to do that. (I-29)

Training centre staff are also aware of discriminatory practices by employers, particularly with respect to female apprentices who are often given limited opportunities to gain needed experience or are given tasks which are more challenging than those given to male apprentices. Existing hierarchy in the workplace and the subordination of particular groups will clearly have an adverse effect on their learning experiences.

Summary

The preceding discussion suggests a variety of issues related to the nexus between schools, formal apprenticeship training, and the construction workplace related to this high school carpentry program. At the level of schools, there is still a need to clarify pathways to the trades and to prepare students for their transition to apprenticeship training. This requires more attention to how vocational knowledge is conceptualized and presented and greater communication between schools and training delivery agents to ensure that groups are aware of the requirements of the trade. This does not mean that apprenticeship curriculum should not also be scrutinized and adapted, where necessary, to ensure that apprentices are exposed to broad theoretical and practical knowledge.

Within the training centre context, it was striking to observe the transformation in a number of young people from reluctant to active learners, suggesting that schools may benefit from looking at the education process and pedagogical strategies within such programs. However, areas where more attention is arguably needed include the articulation of alternative pathways for students who fail, providing more opportunity to students to provide feedback on their learning experience, and taking positive action to extend participation to non-traditional groups.

Finally, implementing recommendations related to schools and the training centre will be of little value unless attention is also given to learning opportunities and constraints in the workplace (cf. Billet, 2001). For example, while the joint management-union training centre provides an excellent vehicle for delivering compulsory and non-compulsory apprenticeship training, there are a number of disincentives to completing the apprenticeship and writing the red seal exam including:

- the fact that carpentry is a non-compulsory trade,
- insecurity of employment and difficulties in gaining a range of experience,
- the lack of support for training by non-union companies, and
- questions around whether the red seal qualification is an appropriate measure of skill.

Finally, as acknowledged by staff at the training centre, there is a need for education of employers as well as students in order that more expansive and inclusive learning environments are constructed in the workplace.

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Endnotes

[1] These figures are based on calculations by the Centre for the Study of Living Standards and unpublished data from the Statistics Canada/HRSDC Registered Apprenticeship Information System database. We would like to thank Jeremy Smith for providing this information.