

# Schools and Work: Towards a Research Agenda

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## Abstract

This paper looks at current knowledge, current research capacity, and possibilities for increased capacity and a focused research agenda on the links between schools and work. The focus is primarily though not exclusively on the K-12 system. The paper first describes the political and economic context for thinking about school-work issues, noting the difficulties this issue has presented and continues to present to policy-makers and practitioners. The paper describes research capacity in Canada in light of an ideal-type model, noting both strengths and weaknesses in current arrangements. It provides a brief review of main findings from literature in Canada and other literature which highlight the complexity of the relationships between schools and the labour market. The review of findings gives attention to aspects of change in the labour market, to the importance of students' backgrounds, to aspects of the school system, and to the transition process itself. The paper concludes by defining five issues that would appear to have the highest priority for further research, and suggests some of the arrangements needed to pursue this agenda. The five suggested priorities are: better understanding of the dynamics of labour market experiences; attention to equity groups, examination of what schools have done and can realistically do in this area, better understanding of the actual skills people use at work and the ways in which they obtain those skills, and the possibilities for alternative structures or practices to support the transition to work.

## Some illustrative quotations from the research in Canada

### On overeducation:

“When people’s non-pecuniary tastes for higher learning, the tendency of the market to under reward expertise and the spillover benefits generated by scientists and artists trained in university are taken into account, most societies are chronically undereducated not overeducated.” Bishop, 1993, p. i.

### On the changing nature of the labour market:

“We discovered a disintegration of the traditional boundary between student and worker roles. But changes in the school-to-work transition have not altered the structure of inequality in Canadian society ... young people from higher socio-economic backgrounds are still more likely to stay on in school. Class differences in postsecondary educational attainment persist despite rising education levels. Yet youth continue to value higher education...” Krahn & Lowe, 1990, p. 41

### On students’ views about the value of their schooling:

“What is striking about the students’ talk is the emphasis they put on getting diplomas and marks, and the lack of emphasis that they put on knowing something or learning anything that will actually be useful on the job. This holds for academic as well as vocational courses. While they believe that what is on paper will be used by employers in a way that will make a difference for their changes in the labour market, they rarely believe that what they actually know will make a difference to how well they can do on the job. While they affirm the general value of what they learn in school in an abstract way, its practical uses are few.” Gaskell, 1991, p. 72

### On the role of schooling in the economy:

“We believe that investment in education, and continual improvement in education, is essential for the long-run prosperity of Canadian society, but we do not believe that the short-run problems of the Canadian economy are due to the failures of the educational system, or that educational reform can, in a few years, solve those problems.” Osberg, Wien & Grude, 1995, p. 176

### On change in the workplace in Canada:

“Despite their promise, these high-performance practices have been seriously introduced only by a minority of Canadian employers, typically large organizations that are technologically advanced and operating in sophisticated national or international markets.” Betcherman & Lowe, 1997, p. 36

## Introduction

This paper has been commissioned by the Council of Ministers of Education, Canada (CMEC), as part of the development of a Pan-Canadian Education Research Agenda. Its purpose is to generate discussion among partners in education on the optimal direction for research in Canada on schools and their connection to the labour market. The paper focuses primarily on the public school sector (ages six to 18) but also includes some comment on higher education. As is argued later, these sectors should probably be less distinct from a policy and research point of view than is currently the case.

The paper is in five sections,

1. It describes the political, economic and educational context around labour market issues and their link to schooling;
2. It describes research capacity in Canada in this field, outlining both positive and negative factors;
3. It describes the main findings from the available literature;
4. It recommends five questions as the basis for a research agenda on this issue in Canada
5. It suggests some features that should characterize a strengthened pan-Canadian research capacity.

Given the limits of preparation time and document length, each of these is done quite succinctly.

## The context for considering education-labour market relationships

Labour market and economic outcomes are affected by a wide range of social and economic factors, of which formal schooling is only one. As the Organisation for Economic Cooperation and Development (OECD) (Bennett, 1995) points out, demographic features such as the relative size of the youth cohort, geographic considerations such as population dispersal, and sociocultural factors such as changing gender roles, immigration patterns, and basic public beliefs about education and work may all have as much impact as any public policy measure on employment patterns. *A critical fact to keep in mind throughout this discussion is that education is only one influence on employment patterns, with technological and macroeconomic factors playing a much larger role.*

Although the attention to economic outcomes of schooling has been particularly high in the last decade or so, preparation for work has always been one important purpose of public schooling (as described well in Krahn, 1996). Much of the expansion of state schooling has been justified by the presumed role of formal education in improving labour market outcomes.

Improved individual outcomes, such as earnings, have always been an important element in this discussion, but in recent years, the need for a skilled labour force because of increased global economic competition has become an especially strong element in government policy thinking around the world. Much of the recent debate about education reform generally is predicated on a view that better education is a necessity to meet labour force challenges (Levin, 1995; Levin & Riffel, 1998). Rapidly changing economic conditions and employment patterns also draw attention to presumed deficiencies in current education and training policies and practices, just as they did in earlier times of economic dislocation (Krahn, 1996). All of these factors have combined to give greater prominence to efforts to strengthen connections between formal education and work.

## **The educational context**

Although governments have been giving increasing priority to the link between education and work, educators as well as many parents have always been ambivalent about an unabashedly instrumental economic purpose for schooling. Most educators see work preparation as being only one of several important purposes for schooling, and many would give direct economic preparation less priority than more general purposes such as the development of broad understanding in many areas and the ability to participate effectively as a citizen. The increasing focus in recent years on economic purposes has been

of great concern to many educators, not because they necessarily reject this purpose, but because they wish to see it balanced more fully by other, less instrumental functions. Students, on the other hand, consistently indicate that preparation for employment is the prime reason they attend school.

These differences in views about the economic role of schooling have been reflected in public policies that also pull schools in both directions. For at least fifty years policy-makers in Canada have lamented the emphasis in secondary schools on academic preparation for university with consequent neglect of the large number of students who were not taking this route. The many efforts to increase the status and importance of vocational education or other forms of work education have, however, been generally unsuccessful. Schools remain places that value traditional academic learning and vocational education is still widely regarded by all parties (teachers, students and parents) as a route for those who cannot succeed in the academic stream. Enrolments in various technical programs in secondary schools remain relatively small. At the postsecondary level, community college enrolment remains much lower than university enrolment, and apprenticeship programs continue to have problems attracting and retaining enough students.

Labour market pressures are, it must be pointed out, only one of the changing pressures affecting schools. Educators are facing many other demands for change as well. Some of these are very direct and importunate, such as changes in governance arrangements, limits on financing, and increased, more public testing of student achievement. Others are less directly visible but just as important, such as high levels of child poverty, changes in family structures, and changes in social values such as less automatic respect for authority. These factors, together with the high levels of political and public criticism of schools and a teaching staff without very much renewal in recent years, place important limits on the capacity of the school system to give sustained attention to any area of policy. Like many institutions, schools are primarily inward-looking (Levin & Riffel, 1997), and often lack the capacity to monitor and respond to changing social and economic conditions.

### **The changing labour market in Canada.**

Much is written about the key role that formal education plays in labour market outcomes, especially employment rates and income. Governments in Canada, provincial/territorial and federal, have issued a number of policy papers on this theme in the last few years. Most commentators agree that the labour market has been changing in important ways over the past two decades. Labour force participation rates in Canada rose sharply for many years until very recently, but average levels of unemployment have also risen in Canada (Gower, 1992), and long-term unemployment, though still lower than in Europe, has grown as a proportion of all unemployment.

The nature of employment has also changed. The shift in employment from manufacturing to services is well known. So is the growth of non-standard employment – part-time or contractual work with few benefits and little if any job security. Insecurity around employment has increased especially in recent years due to recessions that saw a large numbers of layoffs; people of all ages are now less likely to believe that their current employment situation will remain stable. The proportion of the labour force that is unionized has remained roughly stable, but union membership is now largely in white-collar and public sector areas rather than being concentrated in manufacturing (Akyeampong, 1998). Inequality in earned income has increased in Canada; though overall income inequality has been reduced by social programs, these have been curtailed by governments over the last decade (Economic Council, 1992; Rashid, 1998).

At the same time, despite higher overall levels of education, the labour market situation of young people seems to have deteriorated over the last two decades (Statistics Canada, 1998). Both unemployment and underemployment among young people have remained high. The relative wages of the young have dropped substantially in comparison

with older workers, partly because minimum wages, which affect more young workers, have fallen sharply in real terms. The transition from school to work has become a much longer and more difficult process. It can often take ten years after the completion of high school for people to find a relatively stable niche in the labour market, and the process may involve all sorts of combinations of further education and further schooling. More young people are working part-time on an involuntary basis, or in contract positions with no job security. The rise in cost and decline in public funding for postsecondary education has made financing a greater issue for many would-be students. The decline in public sector employment has also significantly limited a main source of good employment opportunities for young people, especially women.

While schools do not determine overall economic outcomes, formal education does continue to play a key role in fostering or hindering equity in the labour market. Women, for example, appear to have benefited significantly from additional formal education, though gender inequality remains entrenched in the labour market more strongly than in education. For those without any postsecondary education – a rapidly declining share of the labour force, it should be noted (Human Resources Development Canada, 1998) – labour market prospects are especially poor; the work opportunities that used to be available to those with limited formal education have largely vanished. Paradoxically, though, unemployment and underemployment appear to be relatively high even among those with advanced education, especially among some equity target groups.

Economists and other analysts are divided on the question of whether skill demands in the economy are rising very quickly, if at all. It seems likely that overall levels of educational attainment are increasing in Canada at least as quickly as are labour market demands for higher skills, since Canada now has one of the highest rates of postsecondary enrolment in the world. The question of how well formal education matches the skills required in the workplace is, however, largely unknown and it is therefore difficult to know the extent to which changes in education could in fact reduce unemployment levels.

Some analysts (e.g., H. Levin, 1998) point out that school achievement results are only weakly related to labour market success, but others (e.g., Berryman, 1992) argue that the skill sets seen to be increasingly important for work, such as interpersonal and analytic skills, are more closely related than ever before to the traditional values of a general liberal education. Another important question is the extent to which the organization of work actually demands higher-order skills (e.g., Smith & Douglas, 1997). Despite the rhetoric about high skills, empirical evidence on the actual requirements for such skills in workplaces remains quite limited (Osberg et al., 1995). Particular unknowns here are the extent to which jobs increasingly require advanced technological skills in work, and the role of schools in developing technological skills.

In light of these trends, the injunction to young people to get more schooling as a guarantee of economic success is problematic. The aspirations of youth in Canada remain high, but their expectations have been eroded. Indeed, many young people would seem to believe on the one hand that without advanced education their economic future is bleak, and on the other hand that even a postsecondary credential is no guarantee that things will go well for them in the workforce.

A further concern, especially in postsecondary education, has to do with education for specific skills or jobs. Areas of skill shortage do emerge, as is the case today in information technology. However skill shortages tend to be in areas requiring fairly long periods of training, and trying to predict particular skill needs far enough in the future to adjust educational capacity has proved to be very difficult. Calls on postsecondary institutions to be more 'flexible' run up against problems of finding qualified instructors, organizing increased capacity, and attracting students, all of which cannot be done very quickly.

We are left with considerable uncertainty about what policy measures would actually improve the ability of young people to find a meaningful place in the workforce. Macroeconomic conditions are clearly more important to overall employment than are

education policies. No amount of training will compensate for a shortage of jobs, as is clearly illustrated each time the country goes through a recession.

Nonetheless, employment outcomes are an important aspect of schooling that does require attention, which makes dealing with this issue what is known as a ‘wicked problem’ – one that can neither be solved nor avoided. Hence the importance of research in helping educators in Canada determine what can reasonably be done.

One further contextual issue is the tendency to try to solve new problems with old tools. Although work is changing in important ways, education policy remains substantially locked into the existing structure of institutions, roles, curricula, and learning practices. Current reform programs around the world tend to be focused on marginal changes within existing patterns of provision. In particular, secondary education as it exists today was designed for a very different world, in which completion of high school was an important achievement for economic purposes. The change in this situation calls the entire purpose of the secondary school into question. Similarly, the continuing deep separation in policy and organization between secondary education and postsecondary education and training no longer seems productive, especially if ideas about lifelong learning are to be developed.

### Research capacity in Canada

The key elements of a strong policy research capacity in any field of social policy are easily stated:

- a set of skilled and experienced researchers who focus on the issue in question over a long period of time;
- adequate funding to sustain this research on an ongoing basis, including the required infrastructure such as graduate student support;
- high-quality pan-Canadian databases that allow researchers to address important questions without huge additional data-collection efforts (since data collection tends to be much more expensive than data analysis);
- good networks among researchers across disciplines, regions, and internationally that allow mutual learning;
- well-developed connections between researchers, practitioners and policy-makers that allow researchers to be aware of the interests and agendas of policy-makers and also allow policy-makers and practitioners to be knowledgeable about current research
- vehicles that promote synthesis and application of knowledge as well as the creation of new knowledge;
- patience, as the results of good research gradually filter through to the level of policy and practice and vice-versa.

Canada lacks this capacity in almost every area of social science, although the situation has improved considerably in the last few years in relation to education and work. On the negative side, the combined pan-Canadian research effort looking at education, training and employment is at most a tenth of one percent of gross expenditure in these areas, and probably much less than that. As a result, we lack the research infrastructure in terms of trained teams, support for graduate students, and strong ongoing research programs and centers that are required if knowledge is truly to advance. Health research funding as a proportion of overall health spending is much, much greater than education research funding as a proportion of overall education spending.

One result of a small overall research effort is the difficulty in mounting the large-scale and longitudinal studies that are the key to understanding the changing relationship between schooling and work. Until a few years ago Canada had nothing to compare to the kinds of national databases that exist in the United States and a number of European countries. Those who tried to do longitudinal work had difficulties in obtaining the funding to keep the work and the databases going. Much research in Canada was necessarily small scale. While small studies can provide a very useful perspective on particular programs or

elements, they are most valuable when they are complemented by the kinds of large-scale survey work that are now being done through agencies of the Government of Canada, such as the Labour Force Survey (LFS), the School Leavers Study, the National Longitudinal Study of Children and Youth (NLSCY), and the new Canadian Longitudinal Youth in Transition Survey (YITS).

Just as importantly, contact among researchers and research networks in Canada is still generally poorly developed – perhaps more so because of the interdisciplinary nature of the field. It is often easier to find out what is being done in the United States or Europe than in other parts of Canada, and especially so between English-Canada and French-Canada. Moreover, as research becomes increasingly an international phenomenon, it will be steadily more important to build relationships with researchers in other countries.

Although the Social Sciences and Humanities Research Council's (SSHRC) emphasis on dissemination is to be welcomed, Canada still lacks well developed processes for bringing appropriate research to the attention of practitioners and policy-makers. This is a persistent problem in all countries and all fields of knowledge (e.g., the recent UK report on educational research– Hillage et al., 1998), but we now have both increasing knowledge about effective dissemination and new electronic tools to make research more available and more useful. Dissemination needs to be built into research from the beginning, but also is best viewed as a long-term process with multiple routes for research to affect practice and for practice to influence the nature of the research. Connections between researchers and the media are especially important, as media reports are one of the main ways in which research findings reach a general audience.

The problems of impact are exacerbated in education by a decision-making culture that does not give very much credence to the value of research. To continue the earlier comparison, in health care, evidence is often a critical component of policy making, and nobody would suggest that health care practice should be unrelated to the best available evidence. In education, on the other hand, there is still a widespread view that research does not and perhaps cannot inform policy or practice, and that policy and practice are mostly a matter of commonsense.

One result of all these factors is that policy and practice in Canada are too strongly influenced by U.S. research even though there are important differences between the two countries. The Americans do much more research and publicize it more effectively (though they also have the same concerns about the limited value and impact of research). The good news is that the research in Canada on links between education and employment has improved dramatically in the last ten years, thanks in large measure to large-scale data bases created through Human Resources Development Canada (HRDC) and Statistics Canada, and the work on those data sets that has been commissioned or supported by HRDC, SSHRC and other funders. The recent creation by SSHRC of five research networks on education and employment will further improve the research base in Canada in these areas. We are considerably closer to the conditions noted at the beginning of this section than was the case even five years ago.

Another important strength of the work in this domain is its interdisciplinary flavour. Education and employment are of interest to researchers from diverse fields – education, economics, sociology, social psychology, and management. The SSHRC networks deliberately bring people together from different disciplines, which is very important.

Despite these developments, much remains to be done if we are to have a fruitful pan-Canadian research effort. Provincial and territorial governments, given their responsibility for education and their increasing role in labour market policies, are key to any improvement in these fields. Given the limits of the existing situation, CMEC's Pan-Canadian Education Research Agenda effort is a very welcome initiative.

#### What we believe we know from existing research

The following summary comments are drawn from a careful review of available

evidence in Canada, supplemented by evidence from other countries as appropriate. The review in Canada includes recent work drawn from the World Wide Web and networks of contacts as well as from more traditional literature review sources.

### **The labour market**

- The labour market situation in Canada for young people has deteriorated significantly in the past twenty years in terms of employment rates, availability of full-time work, and especially in terms of relative wages (Green & Beaudry, 1988; Krahn, 1996; Statistics Canada, 1998). Non-standard employment for 22-24 year olds is now at about 40 per cent of total employment (Statistics Canada, 1998).
- Average years of formal education have risen substantially in Canada; the proportion of the labour force with a postsecondary credential has increased dramatically (Betcherman & Lowe, 1997). In fact, education levels appear to be rising as quickly as are higher education demands in the economy (Human Resources Development Canada, 1998). It takes more years of education to enter most occupations, which has the paradoxical effect of making it more difficult to adjust the supply of workers in any field.
- Significant proportions of young workers (20-30 per cent) see themselves as overqualified for their work (Statistics Canada, 1998), but there are also shortages of workers in particular areas (Krahn & Lowe, 1993; Kelly et al., 1997; Livingstone, 1993).
- The labour market in Canada is primarily local or regional, not national (Krahn & Lowe, 1990).
- Skill requirements in the economy may be rising slowly, but this hides enormous variation within and between economic sectors (Gera & Massé, 1996). Higher educational requirements, of course, do not mean that jobs actually have higher skill demands. Limited evidence suggests that employers in Canada have been slow to adopt workplace practices that would either require or reward higher skills (Osberg et al., 1995; Betcherman & Lowe, 1997). Similarly, technology is being used both to increase and to decrease skill requirements and work autonomy (Nickerson, 1992; Rubenson et al., 1994).
- Some analysts have argued that the skills now said to be required in the economy, such as teamwork, analysis and communications, are well suited to development through education if some aspects of formal education were changed (OECD, 1996; H. Levin, 1998). However the actual evidence available, while limited, raises questions about the degree to which this is true (HRDC, 1997; Smith & Douglas, 1997). We simply do not know very much about the skills people actually use at work or how they acquire those skills.
- Although income inequality in Canada has risen (Rashid, 1998), it has done so to a lesser extent than in the United States and Britain, due partly, it appears, to our higher level of postsecondary participation (Riddell et al. 1997).

### **Students' backgrounds**

- Background factors remain the most powerful predictors of economic outcomes for individuals, having more impact than formal education. The most important background factors include family socioeconomic status and education; gender; and ethnicity. All of these are predictive of both schooling and labour market outcomes.
- Parents' education and income continue to be the most powerful predictors of educational attainment and of income (Corack, 1998; DeBroucker & Lavallée, 1998).
- The process of finding work seems to be mainly personal, influenced much more by family background and personal contacts than by counselling services, analysis of labour market data or careful decision-making (Tepperman, 1988).
- Women benefit more than men from formal schooling but are still quite disadvantaged in the labour market in terms of access to training, pay, and promotion. The labour market is more occupationally segregated by sex than are educational programs (Krahn,

- 1996; Myles & Fawcett, 1990).
- Aboriginal young people continue to be badly underrepresented in advanced education as well as suffering from poor labour market outcomes (Canadian Labour Force Development Board, 1994; Sweetman, 1998).

### **The school system**

- High schools have had enormous difficulty moving away from their traditional academic approach. They devote very little attention or energy to teaching and learning about work (Berryman, 1992; Gaskell, 1991). Efforts to extend work-related programming in schools have been very difficult to sustain (Grubb, 1996; Stasz et al., 1994).
- Post-school outcomes are strongly related to tracking in high school, which is itself strongly related to students' socioeconomic status and ethnicity. Students from poor and minority backgrounds are disproportionately in non-academic tracks, and these tracks are consistently related to poorer employment and income results (Krahn & Lowe, 1993).
- Completion of high school alone is of very limited value as a labour market qualification (Canadian Labour Force Development Board, 1994; Frank, 1998). At the same time, recent evidence is the labour market outcomes of those without postsecondary education are holding steady in relation to postsecondary graduates (Human Resources Development Canada, 1998).
- Despite the rhetoric about the importance of technical skills, all the available outcome indicators for university education are more positive than for technical education in colleges or private training institutes (Rubenson et al., 1994; HRDC, 1996; Little & Lapierre, 1996). However this may be at least partly because students from the highest socioeconomic groups are much more likely to go to university.
- Educational institutions at all levels struggle with ways of staying up to date with skill requirements in the workplace and reflecting these in their programs and curricula.

### **The transition process**

- Canada, like the United States, relies on formal education as its main preparation for work rather than using alternative mechanisms based in the workplace or the community (Sturm, 1993).
- The transition from school to work is now a long process, often taking more than a decade, involving varying combinations of schooling, training, and work (Krahn & Lowe, 1993; Donaldson, 1993). It starts in high school in that most high school students are already working (Krahn et al., 1997). The labour force participation rate of 15-19 year olds has dropped in Canada since 1990 (Statistics Canada, 1998).
- The relationship between skills required at work and skill acquired in school is largely unknown, though young people are generally highly critical about the value of high school education in regard to work (Ontario, 1989). Technology skills, for example, appear to be learned primarily on the job rather than through formal training (Rubenson et al., 1994; Tan et al., 1991).
- The role of schooling in obtaining work is not well understood. Young people go to school largely to acquire qualifications rather than to learn particular skills (Gaskell, 1991). Employers, however, say that they are looking for general skills and attitudes rather than specific levels of academic preparation. Various theoretical explanations of these factors have been made, but we do not yet know very well whether finding work depends primarily on formal qualifications, on skills, on personal qualities, on personal contacts, or on some combination of these.
- At the postsecondary level, credentials are vitally important in giving access to particular occupations, especially those with better pay and greater security. Educational institutions are not necessarily in control of such programs, which may be governed in part or in whole by professional or licensing bodies.

- More years of education, and, even more so, having advanced credentials continues to be strongly related to better economic outcomes even though any given level is now less advantageous than it used to be (Krahn, 1996; HRDC, 1996; Little & Lapierre, 1996). School, college and university grades or achievement levels, however, do not predict economic success (Sturm, 1993; H Levin, 1998).

#### Five key research issues

The following are suggested as the key issues for a pan-Canadian research agenda related to schools and work. The issues are, of course, quite interrelated.

#### 1. Understanding the dynamics of labour market experiences.

Although we have quite a bit of aggregate knowledge about the changing nature of the workforce in Canada and about the situation of young people in the labour market, we do not yet understand very well the dynamics of this process. The links between family background, aspirations, school experience, work experience and employment outcomes are not well understood, especially if we want to be able to speak at a level of generality less than the country or a province/territory.

A particular concern is the relative role of skills, qualifications, personal attributes or other factors in affecting entry into and success in the labour market. There appears to be a contradiction between employers' calls for skills and attitudes, students' belief in the value of formal qualifications, and research suggesting that background and personal contacts may be the most important factor.

#### 2. Labour market experiences of equity groups.

The labour market situations of women and Aboriginal people, as well as other equity groups, improved significantly over the last twenty years. Some work has been done on gender and economic outcomes. We need to know much more about the labour market situation of Aboriginal people and its link with education and training, as well as about strategies for improving the economic outcomes of young Aboriginals. The same is true of the disabled, a group whose labour market outcomes also continue to be poor. Improving outcomes for those who are currently 'at the bottom of the pile' should be a very high priority.

Another important equity group is those whose current level of education is low and who are thereby highly disadvantaged in the labour force. This category would include young school leavers, displaced older workers, and others who, for whatever reasons, have not obtained sufficient formal education.

#### 3. The role schools can realistically play in assisting labour market adjustment.

Schools have made many attempts to strengthen their links with work, such as career advice, work experience, and cooperative education. Many of these initiatives have been funded by governments. However we have little more than short-term data on the impact of these programs on young people's aspirations, ideas about work, or subsequent education and employment. What programs in schools, if any, actually help young people in their transition to the labour market?

Similarly, although a majority of high school students do work part-time, we have very little knowledge about the ways in which this work affects their subsequent education and work, or the extent, if any, to which students' work is integrated with their formal education.

Both these sub-issues are also applicable to postsecondary institutions.

4. The actual skills that people use at work, and the ways in which they obtain those skills.

There is a general assumption that formal education develops the skills that are required in the contemporary workplace, but only limited supporting evidence. We need to learn more about the real skills people use at work, and we need to understand much more fully the respective role of formal education, non-formal education, on-the-job training and other sources in equipping people with work skills. A particular aspect of this question concerns the degree to which advanced skills in language, mathematics, technology and science, so often touted as essential requirements for workforce success, are in fact widely used in workplaces in Canada.

5. Alternative structures or practices that might be desirable for assisting young people in the transition to work.

Policy-making in this area often begins with the assumption that the answer lies in adjustments within the existing structure of educational provision. Given the unsuccessful history of our endeavours in this field, it is necessary to look more carefully at initiatives that lie partly or wholly outside the school system, such as various forms of on-the-job training, apprenticeship, or community-based training. Comparative work, looking at other sorts of structures in other countries, would be helpful – if it can be done without assuming that the policies of other countries can always be imported and applied in Canada. More careful evaluation and dissemination of current alternative programming within Canada would also be valuable. For example, knowledge generation and dissemination capacities in the field of adult education are even weaker than those in other educational sectors even though this sector is in some respects very innovative (B. Levin, 1997).

### Creating research capacity

The requirements for developing research capacity in Canada on school and work issues parallel those described earlier in this paper.

- We need more research in total on these issues. There is no substitute for an adequate ongoing research effort if useful knowledge is to be produced. The federal government has been by far the largest funder and supporter of research in this area; provinces and territories also need to play a larger role.
- Research needs to be targeted and coordinated. Important results come from teams of researchers working on issues over a period of years. Small, one-time projects yield less. Provinces and territories could coordinate their research efforts by choosing the particular kinds of issues they would want to investigate. Many other partners, such as employers and educational providers, are interested in these issues but do not normally participate in a structured research strategy. The issues listed in the previous section would provide a useful starting point for developing an agenda of focused, collaborative effort.
- At the same time, given the broad range of issues around schools and employment, the research program must not be too narrow. In particular, the importance of factors such as economic status, gender and ethnicity needs to be kept constantly in mind so that we do not assume that education is the only avenue for improvement.
- Efforts should continue to support interdisciplinary approaches to these issues, which means incentives for research teams to include people from several disciplines as well as to build, from the beginning, links with employers, educational institutions, and policy-makers.

- Some component of the research effort should be based in schools, workplaces, and other institutions with a direct interest in the results. Capacities for action research on the part of employers and educational institutions should be developed as a way of building the impact of research on policy and practice.
- Effective dissemination of research requires just as much care and planning as does the research itself. SSHRC has moved in this direction through its emphasis on dissemination and its support of research networks. However dissemination is still often treated as an afterthought. The research networks on womens' health, funded by Health Canada, provide another example with even more emphasis on dissemination and an explicit mandate to affect policy. Vehicles such as pan-Canadian conferences, publications, and extensive use of the World Wide Web are all important for connecting researchers with each other and with practitioners. Thoughtful and ongoing links with the media are important as well.
- The process through which research affects policy and practice is typically long-term and gradual. Given good quality studies with effective dissemination programs, impact will occur over time. In addition to all of the above, patience is required.

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