The Changing Nature of Work and Lifelong Learning in the New Economy: National and Case Study Perspectives

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Summary of Proposed Research

Lifelong learning is now widely assumed to be essential for everyone and has become a guiding principle for policy initiatives ranging from national economic competitiveness to social cohesion and personal fulfilment. But there is a critical absence of direct evidence on the extent, contents and outcomes of lifelong learning in all countries. Effective implementation of lifelong learning policies, such as those envisioned in the Canadian federal government’s current Innovation Strategy (Government of Canada, 2002, pp. 37-48), urgently requires further research on actual existing adult learning. Similarly, the nature of paid employment appears to be changing rapidly in response to global competition, major new technological innovations and labour supply factors. But theorists differ widely over both the extent of workplace changes and their relations with adult learning. Further empirical research on adult learning in relation to the changing nature of work is required to test leading theories as well as to guide economic and educational policy-making.

Our research team will conduct 2 large-scale national surveys and 12 closely related case studies to provide unprecedented documentation of lifelong learning and work relations in Canada. Our empirical research is based on inclusive conceptions of both learning (including not only formal schooling and further education courses, but informal training and self-taught learning) and work (including housework and community volunteer work as well as paid employment). This research builds on the pioneering studies of the SSHRC network on New Approaches to Lifelong Learning (NALL) which developed this expanded framework and conducted the first national survey of all forms of learning and work and a series of exploratory case studies between 1997 and 2002 (see www.nall.ca).

Our general national survey will be conducted in 2003 in conjunction with several other continuing Statistics Canada surveys which contain much more limited measures of selected dimensions of learning and work but provide reliability tests for some of our
measures. Our national survey will document changes in work conditions over the past five years and will generate the first systematic empirical assessments of changing work conditions in relation to the full array of adult learning practices. Our survey research and related secondary analyses of other employment survey data will provide profiles of workers' perceptions of changes in key dimensions of paid and unpaid work. This evidence will provide specific insights into the extent and rate of emergence of a “new economy”, as well as the impact of such changes on adult learning activities. Our survey will also serve to validate the 1998 NALL survey of informal learning for both Canada as a whole and many regional, sectoral and at-risk social groups, permit the first national trend inferences about changes in patterns of informal learning, supplement the narrower conventional surveys of education and employment with much greater attention to informal learning and unpaid work, and provide fuller understanding of the general dynamics of change in learning and work relations. The first national survey of teachers’ learning practices, conducted by NALL in 1999, will also be validated in 2004 and findings used to document the changing learning and work practices of these major professional transmitters of knowledge.

The 12 closely related case studies will examine learning and work relations in diverse work contexts in much more depth. These studies will focus respectively on: biotechnology; steel/light manufacturing/nursing homes; public sector work; the teaching profession; disabled bank workers; women information technology workers; immigrant workers; housework; volunteer community workers; school-work youth transition; critical transitions through the life course; and labour education programs. In each case study, a linked survey will provide comparative profiles to the national survey and will be supplemented by focus groups and other in-depth research methods. Through both survey and case study methods, we will compare changing learning and work relations across regions and sectors, as well as among “at-risk” and more secure populations.

This cumulative body of research will provide better understanding of actual learning practices in the new economy and more effective guides to training provisions, work innovations and government initiatives.

**Detailed Description of Program of Research**

**Objectives**

The nature of paid employment is changing rapidly in response to global competition, technological innovation and labour supply factors (Commission on Behavioral and Social Sciences and Education, 1999). In Canada, higher education attainment levels of youth cohorts have grown very quickly to lead the world (Statistics Canada, 2000); participation in adult education courses remained more modest and even declined during the past decade after growing continuously since 1960 (Statistics Canada, 2001), and some institutional and situational barriers to participation have increased (Livingstone, Raykov and Stowe, 2001). Other OECD countries have continued to increase their
participation rates in recent years. In spite of increasing academic and policy discussions of lifelong learning and the pertinence of continuing skill acquisition for economic and social life, we currently have very limited knowledge in Canada or elsewhere of the extent, modes and effectiveness of people’s acquisition of new skills and knowledge in relation to the changing nature of work (OECD, 2001). Human capital theorists, knowledge-based economy advocates and other analysts differ widely over whether there is generally an unmet demand for skilled labour, an oversupply of qualified people, or a general correspondence of labour force qualifications with the needs of the new economy.

The proposed research aims to provide a more thorough understanding than any prior study of the learning that adults are doing in relation to the changing nature of work. This research initiative builds on the exploratory studies of the SSHRC-funded research network on New Approaches to Lifelong Learning (NALL) between 1997 and 2002. NALL developed an expanded conception of both institutionally-organized and informal learning as well as paid and unpaid work, and conducted the first national surveys including all these forms of adult learning and work as well as a series of exploratory case studies (see www.nall.ca). The NALL studies established benchmark profiles of the incidence of all these forms of learning and work, their interrelations and their associations with socio-demographic factors. NALL also led to the creation of the Centre for the Study of Education and Work at OISE/UT (CSEW). These studies have prepared the way for the proposed Collaborative Research Initiative (CRI) to provide more definitive systematic and in-depth readings of the relations between the nature of work and learning practices in this period of evident change in both areas. This CRI will permit a core group of NALL academic researchers with outstanding track records, some very strong new Canadian and international academic members and major community partners with keen commitments to this area to extend and deepen the NALL contributions and the continuing CSEW mission through a distinctive and closely integrated combination of further national survey and strategic in-depth case study methods. The cumulative contributions of the NALL network, the collective skills of the CRI research team of co-applicants and collaborators and the shared interests of all members should ensure significant new contributions to knowledge and practice in the field of learning and work issues.

This research will focus on three basic questions:

1. What are the current forms, contents and outcomes of the full array of learning activities of Canadian adults?

2. How have changes in the nature of paid and/or unpaid work and other general social conditions in the past five years been associated with adults learning practices?

3. What differences are there in these learning and work relations between social groups and especially between socially disadvantaged groups and others?
In 1998, NALL completed the first extensive national survey of self-reported informal learning practices ever conducted in Canada and the first anywhere in over a quarter century (see Livingstone 1999b; 2002). This survey, a companion national survey of the informal learning of teachers and a wide array of exploratory case studies (see www.nall.ca) came to the following preliminary conclusions: (1) Canadian adults are engaging in a vast array of informal learning activities in relation to their paid employment, housework, community volunteer work and general interests; (2) work-related informal learning is much more extensive than participation in adult education courses and programs; (3) the general incidence of self-reported informal learning appears to have increased over the past quarter century, according to comparison of NALL results with earlier case studies (Tough 1971, 1978) and a 1976 U.S. national survey (Penland, 1977); (4) there is no strong correspondence between informal learning and either formal schooling or participation in adult education courses, and those with little formal schooling or adult course participation are just as likely to devote time to informal learning as are the highly schooled; (5) The major barrier to participation in adult education for poor people is lack of money but lack of money does not prevent participation in informal learning; (6) there is a much stronger association between community volunteer work time and community-related informal learning than there is between paid employment time and job-related informal learning.

But we still have little understanding of how changes in work conditions are related to the changing incidence, forms or effectiveness of either course participation or informal learning. The proposed research will address these relationships at the national, regional, sectoral and specific organizational levels primarily from the standpoints of worker-learners themselves, and provide evidence of continuity and change over the past five years that will inform future employment and learning strategies by individuals, employers, labour unions, governments, vocational counselors and community NGOs.

**Theoretical Perspectives**

This section outlines the basic theoretical perspectives on the changing nature of work, adult learning processes, and learning-work relations which guide research on our three basic questions.

Scientific debate about the changing nature of paid work has become polarized into increasingly popular approaches that emphasize more flexible employment structures which are typically driven by increased global competition and new information technologies to more fully engage the skills of employees (e.g. Sabel, 1982; Hirst and Zeitlin, 1991; Dastmalchian and Blyton, 2001), and opposed perspectives that stress the continuities of mass production and persistent tendencies to routinizing de-skilling in the labour process (e.g. Braverman, 1974; Kumar, 1995). A potentially more fruitful approach is suggested by flexible accumulation theory (Harvey, 1989; Rubin, 1995) which recognizes that integrated internal organizational structures are becoming increasingly destabilized and that the structures of work and employment relations are
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being refashioned in more complex and contradictory ways. Dominant posited tendencies include sharpening divisions between core and peripheral employees, expanded centrality of the formal knowledge of professional employees, further standardization and quantification of work methods of other employees, and growing reliance on subcontracting by core organizations, all of which have been tentatively confirmed by the most thorough empirical assessments to date (Commission on Behavioral and Social Sciences and Education, 1999; Vallas, 1999). Our project will provide extensive evidence to further assess the extent of this duality.

Learning is now commonly understood as an interactive process through which learners socially construct their own understanding of the world they live in, for example by reflecting on their experiences in relation to a variety of mentors, peers and other sources for learning. Studies of learning have generally become increasingly sensitive to the effects of contextual factors on learning processes and outcomes as indicated by research on distinctive modes of thought in different socio-historical settings (e.g. Luria, 1981) and on the hidden curriculum of schooling (Rosenthal and Jacobson, 1992). Vygotsky’s (1986) socio-cultural theory of learning argues that learning is inescapably a historically specific process, whereby learners are socialized into using appropriate cognitive and communicative tools by more capable caretakers, teachers and peers, extend their competencies with the help of others (the zone of proximal development), and become increasingly capable of independent learning. Developments of this perspective in activity theory (Engestrom, 1999,2001) and situated learning theory (Lave and Wenger, 1991) have generated a corpus of related empirical research on work-based learning. However, to date, researchers using this approach have only begun to offer specific arguments about adult learning in relation to the changing nature of work. (e.g. Livingstone and Sawchuk, 2000, forthcoming). The more general literature on adult learning has increasingly emphasized independent and self-directed learning under the impetus of accumulated experience (Knowles, 1980; Cyr, 1999) but not led to any distinctive theory of adult learning (Brookfield, 1995). Our approach to empirical studies of adult learning will therefore be guided by a general notion of the flexible accumulation of knowledge and skills in relation to a widening array of contextual factors within and beyond workplaces.

Theorists also differ widely about the relations between learning activities and paid work requirements in the new economy. Most theories of the relationship between learning and work can be identified as supply-side determined, demand-side determined or supply-demand interactive (see Livingstone, 1999a, pp. 133-225). Supply-side theories basically suggest that the pursuit of more advanced education generates more productive workers and that their “intellectual capital” investment leads to a more prosperous economy. Human capital theories which assume that investment in education necessarily results in increased economic growth are the leading examples (Becker, 1964, 1993). Invest in education and good jobs will follow. Demand-side theories are more diverse. On the one hand are the advocates of either a “post-industrial society” or a “knowledge-based economy” who assume that modern information-based production systems generally require workers with substantially more complex analytic and design skills to operate them, and that education systems must increasingly respond to the need to produce such
knowledge workers (Machlup, 1980; Marshall and Tucker, 1994). On the other hand, there are the prophets of the degradation of paid work who argue that inherent tendencies within modern production systems are leading either to a profound deskilling of job requirements or widespread automation, with consequent proliferation of underemployment and unemployment (Braverman, 1974; Rifkin, 1995). In both optimistic and pessimistic varieties of demand-side theories, the labour force as well as employers are generally regarded as reactive to secular trends rather than influencing these trends through increased learning or other activities. Supply-demand interactive theories emphasize the relational character of education and job connections in terms of the bargaining processes between employers and current or prospective employees as well as state agencies. A real or anticipated oversupply of highly qualified job seekers may lead employers and/or well-organized groups of professional or skilled employees to try either directly or through legislative means to raise entry criteria substantially beyond what is actually required to perform the work. Screening theories suggest that greater formal education serves as an admission ticket to better jobs but is not necessarily related to greater productivity (Stiglitz, 1975). Credential society theories explain job entry processes in terms of the power of these groups to construct restrictive qualification regimes (Collins, 1979). Conversely, either an undersupply of qualified applicants or the prospect of greater productivity from an underutilized workforce could provoke redesign of job performance demands.

Generally speaking, supply-demand interaction theories have been better able to explain observable patterns of education-employment relations than simpler supply-side or demand-side theories. The most notable evidence is the now substantial occurrence of underemployment and under-qualification mismatches between the educational qualifications among the available labour force and aggregate job requirements. The particular version of a supply-demand interaction theory of education-employment relations that guides the proposed research posits specific patterns of the degree of matching of knowledge attainments and job requirements determined by continuing negotiations between specific groups of class, gender, generation, imputed ability and ethnically-based agents with differential power (see Livingstone, 1999a). We expect to find highest levels of underutilization of working knowledge in the jobs held by those in lower occupational class positions, as well as among those job holders whose general subordination in society has put them at a disadvantage in negotiations over working conditions, especially women, younger people, ethnic and racial minorities, recent immigrants and those labelled as “disabled. Similarly, this knowledge-power model predicts single mothers, who are among the most powerless, will tend to have very high levels of underemployment regardless of their prior level of formal education. These negotiations are mediated through previously institutionalized forms of work and learning. We continue to make our own work and learning histories but in constrained contexts not of our own choosing. This interactive theory posits that inter-firm competition, technological innovation, and conflicts between employers and employees over working conditions, benefits and knowledge requirements all lead to incessant shifts in the numbers and types of jobs available. Population growth cycles, modified household needs and new legislative regulations also frequently serve to alter the supply of labour. At the same time, popular demand for general education and specialized training
increases cumulatively as people generally seek more knowledge, different skills and added credentials in order to live and work in such a changing society. So, there are always some "mismatches" between employers' aggregate demand and requirements for employees on one hand, and the aggregate supply and qualifications of job seekers on the other. The accelerating productivity of private enterprises regularly throws workers into unemployment, reproducing the most evident part of a reserve army of labour. In societies like Canada, with liberal democratic state regimes that acclaim the right to equal educational opportunity and with labour markets in which both employers and job seekers make mainly individual employment choices, the dominant historical tendency is posited to have been an excess of supply of educationally qualified job seekers over the demand for any given type of job. These same dynamics are also posited to generate formal underqualification of some workers, particularly older employees who are experienced in their jobs and have had few incentives to upgrade their credentialled skills.

But this interactive theory of education and employment should be extended to the spheres of unpaid work and informal learning that conventional theoretical perspectives on employment and organized education usually ignore. Across all three spheres of work, the correspondence between knowledge attainments and work requirements is posited to differ markedly by social position, with the greatest discrepancies experienced by those with the least economic or political power to define the appropriate requirements for their work. Greater levels of learning-work correspondence should generally be found between unpaid work and informal learning because of less pronounced power hierarchies in these spheres of activity. Household labour is just as necessary as paid employment labour for social reproduction, but time devoted to such domestic labour tends to be inversely related to economic and political power, with women who lack or have relatively little employment-based bargaining power still doing most of unpaid household labour with little recognition but greater control over related learning activities. Since people are not generally compelled to do community volunteer work, we posit that relevant informal learning activities may be more closely associated with involvement in this sort of work than either hierarchically structured employment or necessary domestic labour. This more dynamic and inclusive perspective on work and learning relations has been generated through and informed some of our recent empirical research in this field (see www.nall.ca). This corpus of survey, case study and secondary analyses has found preliminary support for the main posited learning and work relations. Most notably, aggregate educational attainments appear to be generally outpacing skill upgrading of the job structure (Livingstone, 1999a, 2001b).

The further development and testing of this more inclusive, interactive supply-demand model of knowledge-power relations in learning and work through this CRI is likely to provide a better understanding of the distinctiveness of actual learning practices and a more effective guide to social policy making in the new economy than simpler assumptions of human capital theory or a knowledge-based economy perspective. We will have to further specify the arguments of this model of learning-work relations and test it against the rival claims and hypotheses of human capital theory and an extensive knowledge-based economy throughout our study, both in the national survey and the case studies. In sum, the basic phenomena or dependent variables to be explained are the
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respective aspects of organized and informal learning (including extent, contents and effectiveness). The primary explanatory or independent variables are socio-demographic factors and work conditions. More complex interactive models may also be tested but all our studies will be committed to identifying the most important social factors linked to adult learning activities.

Methodologies

The research strategy includes a large-scale national survey of learning and work to generate the reliable data on a representative population basis and 12 closely related case studies to examine key issues in greater detail. The national survey project as well as secondary analyses of complementary survey data bases (as listed in Appendix 1) will be conducted by Doray, Livingstone and Myles all of whom are internationally-recognized leaders in areas of adult education participation, learning and work relations, and occupational analyses, respectively. All three leaders have extensive experience in complementary aspects of survey research. Livingstone (1999a, 1999b) led the first NALL survey of informal learning as well as various other published surveys of learning and work (Livingstone, Hart and Davie, 2001). Doray (1997, 1999) has extensive experience in surveys of participation in adult education and work place training in Canada and internationally. Myles (1988, 1994) has produced benchmark studies of changing occupational class composition and job skill requirements in this country. Collaborators Larry Hubich, President of the Saskatchewan Federation of Labour, and Dorothy Rekman, Vice-President of the Royal Bank of Canada will provide labour and business perspectives for survey development.

Our national survey will include and distinguish the currently employed full-time and part-time, the officially unemployed who are actively seeking employment, discouraged workers who would like employment if it were available, and the remainder of the adult population (including homemakers, retired, full-time students and others). This survey serves a triple function: (1) to provide accounts of current work conditions and changes in the nature of paid and unpaid work over the past five years in terms of key dimensions (e.g. perceived work intensity, task complexity, authority relations and technical control of the labour process); (2) to validate the 1998 NALL survey and document changes in informal learning activities per se and in relation to schooling and further education over a five year period (1998-2003); and (3) to generate statistically representative profiles of changing work and learning conditions in specific regions, industrial sectors and at risk populations.

This study will provide a more inclusive look at learning and work relations than any prior survey. It will also permit the only possible empirical assessment of changes in the incidence and content of informal learning activities between 1998 and 2003. Our national survey will be conducted shortly after and in consultation with designers (Gilles Berube, HRDC) of the next Adult Education and Training Survey (AETS) by Statistics Canada. The January 2003 AETS supplement to the monthly Labour Force Survey will
provide basic profiles on participation in general types of courses and programs and will begin to estimate participation in informal training. The combination of the AETS survey and our national survey will provide the most extensive profiles in the world on learning and work changes during this five year period. In addition, through the data archive at the University of Toronto and aided by John Myles cross-appointment to Statistics Canada and the advice of the Applied Research Branch of Human Resources Development Canada, we will endeavour to integrate substantial secondary analyses of several other relevant national survey data bases into our study of changing work conditions. These surveys will include the monthly labour force survey (LFS), the annual Workplace and Employee Survey (WES), the periodic Survey of Labour Income Dynamics (SLID) and the General Social Surveys (GSS) on time use, as well as the 2001 Canada Census and the International Adult Literacy and Life Skills Survey.

The general interview schedule will be based in part on the NALL national survey of 1998 which provides the first national profiles of the the incidence and contents of self-reported informal learning in this country, and estimates of participation in a wide array of forms of adult education and paid and unpaid work, as well as standard socio-demographic variables. The NALL survey will be modified and supplemented by questions on changing employment conditions from WES, questions on time use from GSS, questions on adult education participation from AETS, as well as questions on achieved skills from the International Adult Literacy and Life Skills Survey (ALL) and the British Learning Society Skills Survey (BLSS), some relevant items from other recent U.S and European Union surveys, and additional new questions on work orientation and learning outcomes designed by our survey and case study team members. Our survey will generate detailed accounts of the learning activities of adults in relation to paid and unpaid work as well as estimates of the effectiveness of both adult education and informal learning for both paid and unpaid work. It will also permit comparisons and trend inferences with other prior and continuing Canadian national surveys (i.e. NALL, WES, AETS, GSS, ALL). Our analysis should generate unique empirically-grounded insights into the actual pace and extent of development toward a knowledge-based economy and the factors related to engagement in and benefits related to different types of adult learning, both in general and in specific work sectors surveyed. An extensive compendium of Canadian and international surveys on learning and work has been produced under the planning grant and will continue to be developed and disseminated (a selected version is in Ae Appendix III and a fuller version at www.nall.ca).

The sample for the national survey will have a total of 1,050 respondents. There are three basic components: (a) a longitudinal sample from the original 1998 NALL national survey 5 years later (N=about 700 from the original sample of 1565 respondents); (b) a new representative national sample of Canadians over 18 years of age (N=about 8,935); (c) oversampling (N=415) of immigrants arriving in the past 10 years. The opportunity to follow the original NALL national sample five years later is offered by the retention of basic contact information on the 1998 survey by the Institute for Social Research (ISR) at York University. ISR estimates that they should be able to successfully interview between 40 and 50 percent of the initial sample, which will provide sufficient numbers for a basic trend analysis of the only prior national survey of informal learning. The large
additional national sample is required for several reasons. The total sample needs to be large enough to permit comparative analyses of all major regions (Atlantic, Quebec, Ontario, Prairies, Alberta, British Columbia), the largest cities (Toronto, Montreal, Vancouver, Calgary-Edmonton), major industrial sector groupings, and major at risk populations (disabled people, visible minorities, recent immigrants, out-of-school youths 18 to 24, currently unemployed, and single mothers). The sample size has been very substantially reduced from the letter of intent stage. With slight overrepresentation in the Atlantic and Prairie (Manitoba and Saskatchewan) regions, all major groups will contain at least 800 cases, according to the best available Statistics Canada estimates of population. This is the minimal sample size required to permit estimates of learning and work variables for all of these groupings with a generally accepted sampling error of less than 5 percent. A smaller total sample size would jeopardize statistically reliable comparative regional and sectoral analyses and require complex and relatively expensive quota samples to generate sufficient numbers in the at-risk groups. Further sampling details are provided in the attached cost estimate letter from ISR.

The national survey will be administered in the fall of 2003 by ISR. It will be conducted by telephone in English or French. Those without telephones, non-English or French speakers, far north residents and aboriginal people are unlikely to be sampled in large enough numbers for representative analyses.

A national survey of public school teachers (N=1,000) will also be administered around the same time in conjunction with the Smaller case study project discussed below. This survey will serve to validate the 1999 NALL survey of teachers informal learning and provide additional data on the changing nature of teachers work and learning. This survey will again be administered by mail questionnaire with the support of the major teachers federations (Smaller et al, 2000). Since teachers are recognized as major institutional transmitters of knowledge, detection of changes in their learning and work roles should be a pivotal indicator of more general changes in learning and work relations.

Analyses of these surveys will include standard descriptive social statistics (cross-tabulation and correlations), as well as multidimensional analyses of patterns of learning and work and multivariate analyses of social factors conditioning specific learning and work practices where appropriate.

The 12 case studies will all be informed by and closely linked with the general population national survey. Each case study will administer a version of the national survey questionnaire to participants and conduct a comparative analysis of the profiles of its respondents with a similar sectoral or other target group in the national survey. This survey will also include additional questions of particular relevance to specific case studies. Case study designs will be as similar as possible, including semi-structured interviewing, participant observation, focus groups, and participatory action research methods as appropriate. Interviews will generally be at least partially transcribed and analyzed using NU*DIST6. Each case study will rely on key informants and documentary analysis to establish its basic social context. Particular workplaces will be selected in close consultation with and support of community partners. The case studies
will all document current working conditions in terms of continuity and changes over the past 5 years related to work intensity, task complexity, authority and technical control, as well as examining the organized education and informal learning responses of workers. We will generally compare work and learning changes for jobs initially designated as high or low skill, for unionized and non-unionized workers, and for full-time and contingent workers. Each case study will focus on several different bases of social inequity or “at-risk” status. The pertinence of prior learning assessment and recognition (PLAR) will also be assessed in each case.

The 12 case studies include five interrelated foci:

1. **Sectoral Focus:** (a) new industrial sectors, including biotechnology which has continued to experience rapid employment growth and information technology which has begun to witness downsizing; (b) established manufacturing industries, including steel and light manufacturing which have seen major downsizing; and (c) the large service sector, including public administration and public education which have been downsizing, the banking industry which has been undergoing the most extensive technological and retraining changes, and nursing homes as a rapidly expanding part of the health sector.

2. **At Risk Worker Focus:** people who have apparently experienced systemic forms of exclusion from equitable participation in employment, including disabled workers, immigrant workers, visible minority workers, women workers, older workers, younger workers with limited formal schooling.

3. **Unpaid Work Focus:** housework and community volunteer work which have their own distinctive and little examined relations with adult learning.

4. **Transitions Focus:** transitions between education and work, including the initial transition from school to employment for young people and critical transitions between work and education throughout the remainder of the life course

5. **Labour Education Focus:** developing new learning tools and relevant programs to prepare prospective workers for inclusion in the new economy and current workers to cope with changing economic conditions.

All case study projects have conducted planning studies as part of the planning grant and submitted to the CRI leader detailed research plans, including statements of focus, literature reviews and preliminary bibliographies, specific research objectives, research strategies and methods, roles of team members, training processes, and dissemination plans. Copies of the detailed case study proposals are available on request. The integrated bibliography is attached. Brief descriptions of each of the 12 case studies follow, including titles (followed by an indicator of the primary foci), leaders, and abstracts:
1. Organizational Change and Worker Learning in Biotechnology and Pharmaceuticals (1,2)

Principal Investigator: Paul Bélanger, University of Quebec at Montreal
Co-investigators: Pharmabio Developpement

Building on a current exploratory study of adult learning in firms in this new sector characterized by continual technological innovation, comparative case-studies will be conducted at two large biotech and pharmaceutical enterprises in Montreal area. This study will document the ways high tech employees produce, acquire, transfer and use new knowledge and skills. The changing organizational policies of these firms on lifelong learning will be studied (Doray, 1999; OECD 2000), as well as the micro-mediation processes taking place between external production related learning demand and the subjective learning experience and aspirations of employees (Belanger, 2000; Chatigny 2001). The research design includes direct observation, semi-structured preliminary interviews (N=100), focus groups, and selected follow-up interviews. Special attention will be given to aging and immigrants workers, as well as to the participation of women.

2. Skill Acquisition and Labour Market Experience of At Risk Workers in Steel, Light Manufacturing and Nursing Homes (1,2)

Principal Investigator: Anil Verma, Professor, University of Toronto
Co-investigators: Jorge Garcia-Orgales, United Steel Workers of America Canada

Building on Verma’s (1992; 1998) extensive case study and survey research in both the steel industry and comparative sectoral terms, this study will focus on little-studied workers with limited formal education in manual and low-skill occupations who are most vulnerable in terms of wages and employment. Primary interest is in their skill upgrading experiences and consequent labour market outcomes. There are three target groups: steelworkers from the USWA Local 1005 in Hamilton; workers from mid-size light manufacturing plants in the Toronto; and Nursing Home/ Retirement Home workers. Research methods include interviews with employers and union leaders to obtain basic organizational information on the changing nature of work, technology and markets in their industries, focus groups with workers, and a large-scale survey (N=2000) administered in each of these sites. Special attention will be paid to women, recent immigrants, ethnic minorities, first nation peoples, and disabled people.
3. Technological Change and Worker Learning in the Public Sector (1,2,5).

**Principal Investigator:** Peter H. Sawchuk, OISE/UT  
**Partner:** Canadian Union of Public Employees

The study addresses the lack of careful attention to everyday communication and interaction within work/learning/information technology design processes, particularly in public sector organizations. Building on prior broader studies of workplace learning (Sawchuk, 2003; Livingstone and Sawchuk, 2000, 2003), the main focus here is on a massive current technological change, the introduction of Service Delivery Model Technology (SDMT) a web-based management/delivery software system for social assistance (i.e. welfare). The study explores activities at three inter-related organizational levels of the design and implementation process: 1) 3 front-line service delivery sites; 2) 1 technical and training support services site; 3) 1 IT design activity site. Semi-structured interviews (N=75) and direct observation of key organizational activities in each research site will be conducted. A survey of a representative sample of Ontario front-line service delivery workers will be administered (N=500). Special attention will be given to organizational size, urban-rural region, gender, educational level, union activism and disability.

4. The Effects of Changing Working Conditions and Government Policy on Canadian Teachers Formal and Informal Learning Practices. (1,2,3)

**Principal Investigators:**  
- Harry Smaller, York University  
- Rosemary Clark, Ontario Secondary School Teachers Federation  
- David Livingstone, OISE/UT

**Partners:**  
- Nova Scotia Teachers Union  
- Alberta Teachers Association  
- Canadian Teachers Federation

This project builds on the first national study of the formal and informal learning activities of Canadian school teachers undertaken by NALL in 1999 (Smaller et al. 2000). It will provide further and more in-depth documentation of the ways teacher engage in their own informal and formal learning, and the ways in which recent government policies and changes in working conditions have influenced these learning patterns and their views of professional knowledge. The first stage will again involve a national survey (N=2000) of randomly sampled teachers drawn from the lists of the Canadian Teachers' Federation, in the spring of 2004. The second, qualitative part of this study will involve semi-structured interviews and focus groups with teachers from three provinces in which governments have mandated distinctly contrasting professional learning regimes for publicly employed teachers since 1999. Ontario’s government-imposed mandatory recertification regime; Alberta’s employer-managed annual professional growth plans, and Nova Scotia’s teacher union-administered model with a
minimum criterion of formal and informal learning time. Special attention will be devoted to gender, age, race, ethnicity, family status, dis/ability, and region.

5. Doing Disability at the Bank: Discovering the Work and Informal Learning/Teaching Done by Disabled Bank Employees (1,2,5)

Principal Investigator:
- Kathryn Church, Ryerson University
- Melanie Panitch, Ryerson University
- Catherine Frazee, Ryerson University

Co-investigators:
Royal Bank of Canada

The study will explore the work-learning relations that shape and are shaped by “disabled” employees within a major Canadian bank, one of the most rapidly changing organizational and training environments (Livingstone and Mitchell, 1999). We know virtually nothing about work-learning relations as lived out by disabled people in the unmediated world of regular jobs, and particularly within a bank. There may be particular challenges for disabled employees to become competent in this sector in terms of informal acculturation into social networks (Church, 2001; Church et al, forthcoming). On the bases of feminist standpoint theory (Smith, 1987) and a social model of disability (Barnes et al, 1999), this project will investigate the work of informal learning that people with disabilities do in order to get and keep a job. We will make use of individual semi-structured interviews (N=100), focus groups and participant observation in the context of bank environments in three regions, speaking to both disabled and non-disabled employees. In addition, we will draw on the general analysis of self-reported disabled workers in the general national survey (N=about 1000) to compare the learning and work relations of disabled bank employees.

6. Women’s Alternative and Informal Learning Pathways to Jobs in Information Technology (1,2,3,4,5)

Principal Investigators:
- Karen Lior, Advocates for Community-Based Training and Education for Women (ACTEW)
- Shauna Butterwick, University of British Columbia

We know that women are relatively absent in the information technology (IT) sector, in distinct minorities in formal educational access routes (engineering, mathematics and computer sciences, and that many women have misconceptions regarding the industry (AAUW 2000; Moran, 2002). We have little understanding of how women in the IT sector learn skills and knowledge about and subsequently access careers through alternative educational pathways and informal or nonformal learning, including on-the-job learning, self-directed learning, and formal education in other fields such as graphic arts. This study will conduct a critical analysis of key state IT policy documents, secondary analyses of Statistics Canada data bases, semi-structured interviews in B.C.
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and Ontario with key informants in the IT sector and informal IT networks, focus groups in both provinces, and an online survey (N=200), as well as online discussion groups. Our participatory action research approach is grounded in attention to the operation of gender, race, class and “disability” differences within learning and work regimes.

7. Immigrant Workers Learning to Labour in Canada: Rights and organizing Strategies (1,2,4,5)

Principal Investigator: Eric Shragge, Concordia University
Partner: Immigrant Workers Centre, Montreal

This project will examine the work and learning experience of recent immigrants to Canada. Four representative groups will be examined: a textile factory with workers from many different countries; a support group of women laid-off from a factory; live-in care givers; and highly accredited, underemployed Filipino nurses. The approach used, growing out of a similar NALL project (Church, Shragge and Bascia, forthcoming), understands learning as growing out of the very specific social experiences of immigrant workers. Special attention is given to exploring how immigrant workers learn to organize themselves and respond to the pressures of the economy to negotiate means of self-protection in the current economy. Research methods include in-depth interviews with key informants and those active in each specific sector (N=30 in each of the 4 groups). A team of community researchers and activists will be formed through the Immigrant Workers’ Centre to assist in conducting the interviews, analyzing the results and comparing the situations of different immigrant workers. Since these groups include a very high proportion of women workers, the study will especially focus on questions of gender in relation to immigrants’ work-related learning processes.

8. Housework and Care Work: Sites for Lifelong Learning (2,3,4)

Principal Investigator: Margrit Eichler, OISE/UT
Partner: Mothers Are Women (MAW))

There are no well-grounded prior studies of the relations between housework and learning. This study will focus on household work and the learning that occurs through performing it. We will explore what counts as work and why (Esterik 2002; Knaak 2002), and how the nature of paid and unpaid household work and the learning associated with each shifts over time. Informed by Eichler’s (1997) prior policy research, a new, expanded definition of household work will be developed by a grounded empirical analysis with members of different organizations concerned with household work. The major objective is to examine the learning associated with the performance of household work by women, men and teenaged children in different circumstances. We will explore how household work has changed (a) over the past five years, and (b) over the life course of individuals, and how these changes have affected learning practices. We will examine
the household work and the learning attached to it of several vulnerable groups, including single mothers and recently separated people. We will use focus groups to develop the expanded definition of housework. We will analyze the data from the national survey on learning in relation to types of households and incidence of housework. A sub-sample of people (N=100) in different types of households will be drawn from the Toronto respondents to the national survey and an additional semi-structured interview will be administered. Further focus groups and analysis of related discussion on the MAW website may also be used.

9. The Informal Learning of Volunteer Workers (2,3,4)

**Principal Investigator:**
Daniel Schugurensky, OISE/UT

**Partners:**
- Advocates for Community-Based Training and Education for Women (ACTEW)
- Ontario Healthy Communities Coalition (OHCC)
- Ontario Region of the Cooperative Housing Federation of Canada (OCHFC)

This study will look at the connections between informal learning and volunteer work among those who volunteer to improve access to the labour market, and those who volunteer for other reasons, with a focus on immigrants and women. We will explore in more depth the original general finding in the 1998 NALL survey of a much stronger association between informal learning and community volunteer work time than between informal learning and paid employment time (Livingstone 1999). Although there are many studies on voluntary work in Canada (e.g. Hall, McKeown and Roberts 2001), little is known yet about the extent, modes and effectiveness of volunteers’ acquisition of new skills, knowledge, attitudes and values, and the relationship between formal, nonformal and informal learning in this process. The case of recent immigrants is particularly relevant for this study, given analyses suggesting that lack of recognition of their credentials and prior learning now costs Canadian society about $15 billion annually (Reitz 2001). This study will suggest policies and programs to improve the connection between volunteering and relevant job acquisition. The methodology includes a survey questionnaire similar to the national survey (N=200), semi-structured interviews with 30 volunteers in each of the three organizations, and six focus groups (6-8 participants per group).

10. The School-to-Work Youth Transition Process (2,4,5)

**Principal Investigator:**
Alison Taylor, University of Alberta

**Co-investigators:**
- Sandra Clifford, Ontario Federation of Labour
- David Livingstone, OISE/UT
- Ontario Secondary School Teachers Federation
- Alberta Teachers Association
- Alberta Federation of Labour

Our objective is to learn more about how school-work transition (SWT) programs work through comparative examination of relevant policies and practices within the K-12 education systems in Ontario and Alberta. Using our expanded conception of work and
learning should deepen debate in this area. For example, a focus on work experience courses should raise questions about the extent to which schools and employers recognize and value informal learning and unpaid work experience. Similarly, more attention should be paid to the actual learning processes in work experience to help students relate formal and informal learning, promote the valuing of such knowledge, and promote the radical educative possibilities of work experience (Guile and Griffiths, 2001; Kincheloe, 1999). We specifically address the lack of information in research literature about the transition experiences of historically disadvantaged students (cf. Levin, 1999) and the perspectives of organized labour and community groups (Taylor, 2002). We first examine why and how SWT policies developed, how they are conceptualized, and how they are evaluated through an analysis of policy documents and interviews with government representatives. Then we will explore different interpretations of labour market “realities” through focus groups with representatives from employer organizations, organized labour, and business-education foundations. The most intensive part of the research involves an in-depth analysis of work experience programs (cooperative education, work study, apprenticeship) through observations, and interviews (N=80) with students, parents, educators, employers, labour representatives, and other relevant participants within 4 different communities.

11. Critical Transitions Between Work and Learning Projects throughout the Life Course

Principal Investigators:  
- Pierre Doray, University of Quebec in Montreal  
- Paul Bélanger, University of Quebec in Montreal

This biographical study examines how the relation between perceptions of working situations and learning practices changes throughout the occupational life course of employees. Changes in economic structures and techniques of production, linked to the new economy, are posited to generate critical transition points in both the occupational life-course and in the learning biography of individuals. These transition moments are heuristic periods (Alheit, 1994) to grasp meanings that people give to different learning practices, and to understand how people, according to their cultural backgrounds and conditions of living tend to resort to learning in order to cope with these changes. The central issue is to see how individuals in different social conditions and in a segmented labour market, cope with the “incertitude” (Beck and al., 1994) of these transition periods and what meanings (Street, 1995) they give to these learning experiences in their life projects. To document relationships between changing work conditions and learning activities (formal and informal) in life course perspective, we will select 96 male and female respondents from the general survey according to the following criteria: reported significant transition in the last five years of their working life and residence in two areas, Greater Toronto and Greater Montreal. General learning and work profiles will be generated from the national survey data followed by more detailed biographical analysis (Lahire, 2002). A short event-centred questionnaire will be used to establish a biographical sequence of work and learning practices and events. Semi-structured
interviews then will be used to probe the meanings given by the subject to the way s/he has coped with the last transition in relation to his or her work and learning history, previous critical transitions and general accessibility to learning resources.

12. Labour Education: Action Research from an Equality Perspective

**Principal Investigator:** Nancy Jackson, OISE/UT  
**Co-investigator:** Winnie Ng, Canadian Labour Congress

Changing employment conditions and growing social diversity of the labour force are having a profound impact on unions, with vast implications for both formal and informal elements of union-based education. This case study explores how diversity and equality issues are being addressed by labour education in the Canadian Labour Congress, the national labour body with the leading role for labour education across English Canada. While equality goals have had a growing place in CLC labour education policy and practice (CLC 2002), major gaps remain in overcoming the marginalisation of many groups on the basis of colour, ethnicity, language, region of origin, sexual orientation, ability issues, age, etc. (see Ng, 2002; Martin, 1995; Briskin and McDermott, 1993). This program-oriented project will draw on data from the national survey and other case studies to identify current best practices to address equality issues in Ontario and nationally, explore their adaptation for wider use, and develop labour education for equality and inclusiveness more fully. This study uses a participatory action research methodology. Methods of data collection include direct observation, key informant interviews, focus groups, and administration of portions of the national survey instrument (N=200). Five key groups will be central to this process: union leadership, labour educators, members of equality-seeking groups, adult education researchers specialized in labour education and participants in CLC courses generally. Year 1 will focus on gathering and evaluating data on current practices relating to equality in both formal and informal aspects of CLC labour education. Year 2 will focus on development, administration and evaluation of two pilot initiatives in the Ontario Region. Year 3 will focus on a second round of pilots (implementation and evaluation) in another region of Canada. Year 4 will focus on hosting a seminar to present outcomes of this research as well as producing written products for dissemination in labour and academic publications and for use in ongoing labour education.

**Schedule of Research Activities**

The first few months of funded activity will focus on further development of more detailed integrative design. This will involve close consultations between the survey leaders and case study leaders to ensure that the proposed forms of thematic evidence on learning and work practices in both types of research is inclusive of all major issues and as comparable as possible. The first annual conference, to be held in mid-2003, will focus on this agenda. Our large-scale national survey of the labour force (N=10,050) will be conducted in fall 2003, and the national survey of teachers (N=2000) in the spring of
2004. Most case studies will complete literature reviews and exploratory field work in the 2002-3 period. Preliminary data analysis of the national survey will be completed and shared with all case studies early in the second year. All case studies will commence sustained field work in the second year. The second annual conference in mid 2004 will focus on preliminary survey findings and their relevance to furthering the case study data gathering. The third year will be devoted to completing the data gathering for most case studies, completing detailed analyses of the national survey including trend analyses of the NALL data as well as comparative secondary analyses of the other relevant national and international surveys. The third annual conference will focus on presentation of case study findings and their consistency with survey results. The final year will be primarily devoted to integrative analyses and writing of major scholarly outputs, as well as development of more popular forms of dissemination of the results of our work. The final conference and associated workshops will provide major opportunities to present all completed studies, assess the practical implications of the research and offer recommendations for further research and program development in the field of learning and work.

**Communication of Results**

The results will be widely disseminated through publications, conference and media presentations to assist in putting current discussion and policy making about learning and work relations on firmer ground. Dissemination will be aided by continuing development of the NALL website (www.nall.ca) which is becoming linked to a variety of research disseminating networks, such as the largest educational research dissemination network in the world (ERIC), and the Canadian Association for Prior Learning Assessment (CAPLA) (letter attached). We also have letters of support to publish our findings in The Journal of Workplace Learning and proceedings of the International Conference on Researching Work and Learning (see attached). Books will be produced by each of the 13 projects, as well as various scholarly articles, op ed pieces, conference papers and press releases. In addition, we will produce audio-visual materials and programming to put the findings before the wider public in more deliberative forums using public television (TVO) and major interest groups (see Fishkin, 1995) and hold a major public conference on the changing relations of work and learning in year 4.

**Description of Team**

The academic project leaders include senior scholars with international reputations and younger colleagues with outstanding track records to date. In addition to the widely recognized scholarship of the survey team leaders (Livingstone, Myles and Doray), other senior scholars bring complementary achievements. Belanger is one of the most widely published researchers in the field of adult education and has coordinated several major international studies. Eichler is one of the leading international scholars in the field of
family studies. Verma is a leading figure in industrial relations studies. Shragge has published many relevant works on work marginalization and social change and previously collaborated with Church and others in one of the most fruitful NALL team projects on informal learning. Smaller has successfully led some of the most original studies of teachers’ working conditions and professional concerns in this country. Church has been an extremely productive independent scholar focussing on the work and learning of at risk groups and promises to be even more productive in her new post in Disability Studies, in conjunction with Panitch and Frazee who have already done pioneering work in this field. Jackson has an outstanding track record in labour education and workplace literacy studies. The most junior scholars (Sawchuk, Butterwick, Schugurensky and Taylor) have superior publications records for their career stage and add vital areas of specialized knowledge to the research team. This team contains academics with diverse multi-disciplinary backgrounds, including sociology, demography, political economy, history, social psychology, law, economics, industrial relations, labour studies, management studies, womens’ studies, political science and cultural studies.

The international academic advisory board (Bernard, Billett, Coffield, Engestrom, Forrester, Hull, McGivney and Rubenson) includes leading researchers in the field of adult learning and work studies who are actively engaged in related studies in their own countries, as their attached cv’s attest. The international members will provide advice on research design questions, review project reports, contribute to network conferences to discuss comparative findings and international developments in the field, and possibly engage in further joint projects.

The community partners include some of the major labour union organizations, corporations, teachers’ federations, and other organizations with vital links to the sectors and social groups we are committed to study. The community partners are mainly organizations that have worked previously with the NALL research network. All are committed to aid in matters of research design, ensuring access to appropriate specific research sites, providing feedback on research results and aiding in dissemination efforts to their memberships and the public at large. In particular, Garcia-Orgales, Clark, Lior and Clifford all served as co-investigators on successful NALL research projects and bring invaluable experience in this closely-related collaborative research to the CRI team. The newer community members typically have previously established relations with the researchers with whom they will work most closely.

NALL became greater than the sum of its parts through extensive early dialogue, conferences and continuing consultation among its working groups. The CRI will be much easier to manage with a much smaller membership and much greater resources per project than NALL. The experience in and continuity from NALL of many CRI members will also facilitate effective co-operation. All projects will work from the same general framework of basic research questions about learning and work relations from the outset of the funded period and share information frequently through conferences, workshops, and other network exchanges. In particular, the commitment of team members to go beyond the NALL experience in using both qualitative and quantitative research methods.
interactively and to engage in sustained dialogue drawing on both types of evidence promises unique insights in a field that has been characterized by a great divide between these methods.

Regular operation of the network will be handled by the network leader and the research coordinator who will be responsible for controlling the overall budget, ensuring regular project reporting and arranging collective network activities. The network leader, Livingstone, has extensive experience in leading successful team research projects, including NALL. The management structure of the CRI will also involve a Steering Committee made up of the network leader, the research co-ordinator, six academic leaders and six community partner representatives. It will meet at least twice per year to assess progress and decide on future directions for the collaborative work of the network. All projects will present reports to the full network by the annual meeting each year and will be subject to reduction of funding for lack of productivity. Representatives of the international advisory committee will meet with the Steering Committee on an annual basis during the period of the annual network conference, to provide external reviews of project outputs and advise on network progress in relation to relevant research in other countries. Each of the network’s 13 projects will be responsible for managing its own budget, with rigorous annual reviews by the Business Officer in the Department of Sociology and Equity Studies at OISE/UT. The case study projects will have an academic leader who will assume ultimate responsibility for completion of the scholarly products, and either one or more community partner collaborators who will assist in guiding the design, implementation and dissemination of the field research or contact persons who will serve as facilitators of research and program development activities in respective community partner organizations.

**Student Training**

Over 50 graduate students, including those funded by the CRI, others funded by our universities and several funded by graduate scholarships, will be intensively trained in research methods related to learning and work issues during the course of this CRI, including advanced interviewing techniques, use of relevant social statistics, use of NUD*IST software, academic conference presentations and report writing for different audiences. These students will work closely with respective project leaders, be intimately involved in all stages of the research and will be encouraged to do their own thesis research under the supervision of project leaders using the extensive data files generated by the proposed projects and the prior NALL studies. We will actively recruit students from the growing graduate programs in learning and work at OISE/UT as well from cognate departments of sociology, anthropology, industrial relations, women’s studies, political science and economics. In addition, several of the projects (e.g. Verma, Sawchuk, Shragge, Jackson) will use participatory action research methods to train members of community partner organizations in similar research methods, thereby enabling these organizations to continue to conduct related research on their own.
Preliminary Bibliography on the Changing Nature of Work and Lifelong Learning in the New Economy


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