

EXPANDING CONCEPTION OF WORK AND LEARNING: RECENT RESEARCH AND POLICY IMPLICATIONS

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A few generations ago, research and policy thinking about learning and work in the advanced capitalist world focussed on education and employment issues. It still does, but not quite so exclusively. The significance of other forms of learning and work are entering social consciousness.

The main reason for the change in thinking about “work” is that with the expansion of commodity production and wage labour into more and more service areas of life, it becomes harder to ignore or deny that those still performing similar domestic and community services without pay are doing important work. The increasing participation of married women in paid employment puts pressure on them to do less domestic labour, on their partners to do more and on both of them to recognize and renegotiate divisions of this labour. Declining time for and interest in volunteer work beyond the household has also accentuated the centrality of this sort of labour for sustaining community life. So discussions about work now at least sometimes take domestic labour and community volunteer work as well as paid employment into explicit account.

In the post WWII expansionary era, capital intensification in extractive and manufacturing industries has put increasing emphasis on human mediation of expensive machinery. The rise of the service sector has been contingent on the selling of labour-intensive services rather than material goods. During this era, school systems were greatly expanded as presumed determinants of economic growth, while learning was often equated with formal schooling. But in the 1960s, de-schooling critics challenged this assumption as did adult educators who documented substantial adult participation in further education courses, training programs and “self-directed” learning projects. As schooling became more pervasive, its limitations in terms of inclusive forms of knowing became more evident. The more recent proliferation of information technologies has made a wider array of work tasks dependent on the self-monitoring use of workers’ minds. The motives and learning capacities of the workforce now play a more strategic role in the capitalist labour process. The dominant discourse

International Handbook of Educational Policy, 000–000

Nina Bascia, Alister Cumming, Amanda Datnow, Kenneth Leithwood and David Livingstone (eds.)

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of management theory has shifted from extrinsic rewards for investment in schooling to promotion of “learning organizations” designed to enable continuing learning and enhance worker motivation to share their knowledge (see Boud & Garrick, 1999). While actual working conditions in most paid workplaces at the turn of the century may seriously diverge from idealized versions of such learning organizations, there is little doubt that employers, employees and researchers alike are paying more concerted conscious attention to workplace learning activities beyond schooling (e.g., Garrick, 1998).

Two related assumptions pervade current discourses about work and learning. First, a “knowledge-based economy” which requires a much higher proportion of highly skilled workers is widely presumed to be rapidly emerging. Secondly, increased emphasis on lifelong learning, the creation of a “learning society”, is generally seen as imperative in order for people to acquire the additional knowledge and skills needed to survive in this new economy (e.g., OECD, 1998, p. 10). But a great deal of recent empirical evidence suggests that the converse conditions may actually be prevalent. Careful assessments of the changing occupational composition of the employed labour force and of specific vocational preparation requirements for the aggregate array of jobs in countries like Canada and the U.S. have found only gradual net upgrading of the actual skill requirements of jobs over the past few generations (Lavoie & Roy, 1998; Leckie, 1996; Barton, 2000; Handel, 2000). On the other hand, rates of completion of post-compulsory schooling and participation in further education courses have grown exponentially during the same period (Livingstone, 2002). The underutilization or underemployment of the knowledge and skill of the labour force has also grown significantly during this period (Livingstone, 2004). We may already live in a learning society, but not yet in a knowledge-based economy. In any case, neither the forms of work and learning nor their correspondence should be taken for granted in current policy studies in this field.

Forms and Extent of Work

Over the past two generations, most advanced capitalist economies have experienced a substantial shift from goods-producing jobs to service sector jobs, greatly increased female labour force participation, major increases in the polarization of wealth and poverty, growth in the proportion of temporary and part-time jobs, an increasing use of computer-based technologies in work processes and movement away from the traditional linear school-to-employment model to multiple transitions between school and jobs. All of these trends have undergone uneven rather than consistent trends in response to the intensity of enterprise competition, the supply and organizational strength of labour, and the persistent quest for labour-saving work techniques. These persistent tendencies continue to make capitalism far more dynamic and prolific than any prior mode of production. The recent compositional shifts have not led to a radical change in the organizing principles of industrial societies, but rather only to a greater range and intensity of their applications, what I have elsewhere terms the

“accelerated continuity thesis” (Livingstone, 2004). Recent changes in employment conditions have been exceptionally disruptive and challenging for those currently in the labour force. While these changes may not have led to very rapid aggregate increases in required skill levels, they have been associated with extensive modifications of job types and restructuring of job tasks (see Advisory Committee on the Changing Workplace, 1997; Betcherman & Lowe, 1997; Statistics Canada, 1998).

Household work includes such activities as cooking/cleaning, housekeeping, maintenance and repair, shopping for goods and services, and child and elder care. The growing recognition of the value of household work corresponds closely with the entry of married women into the paid labour force. Between 1961 and 1986, one-earner couples dropped extremely rapidly from 65 percent to 12 percent of all Canadian families (Myles, 1991). According to time use surveys by the General Social Survey (GSS) in Canada, the amount of time devoted to household work and paid work are now almost equal (Fredericks, 1993; Status of Women Canada, 1997). Statistics Canada (Jackson, 1996) has estimated that the monetarized value of household work in 1992 was between 31 and 46 percent of Canada’s gross domestic product (GDP). But women still do most of the household work while men have marginally increased their “helping out” activities in the home.

Volunteer community work includes participating in community organizations (through such activities as supervising events, fundraising, serving on a board, or providing numerous other support services) as well as helping and supporting non-household relatives and other people on one’s own (through driving to appointments, babysitting, finding information or assisting sick or elderly people). Recent surveys indicate that while around 70 percent are involved generally in helping others, most people spend little or no time in organized volunteer activities. Around one third of Canadian adults now participate in community organizations and the average time they devote is a few hours per week (Hall, Knighton, Reed, Bussiere, McRae, & Bowen, 1998). This appears to be less time than in past generations and the growing scarcity of this volunteer work has stimulated a burgeoning literature on its centrality for the community sustainability and generation of “social capital” (Putnam, 2001).

The 1998 GSS survey provides the best recent comparative estimates of the time Canadians devote to paid work, household work and volunteer community work. The basic findings for men and women are summarized in Table 1.

Both men and women in Canada today estimate that they put in an average of nearly 50 hours per week of paid and unpaid work. This is very close to current estimates in a U.S. time series survey, which found significant increases from 40 hours in 1973 to 50 hours in 1993, and little change since then in self-reported hours of work (Harris Poll, 1999). In spite of likely underestimates of unpaid work, the GSS survey generally finds that Canadian women work for a slightly greater total of hours than their male counterparts: 3 percent more in 1998 (Status of Women Canada, 1997; Statistics Canada 1999). Similar general

Table 1. Household Work and Community Volunteer Work Time by Sex, Canada, 1998

	<i>Men</i> (hrs/wk)	<i>Women</i> (hrs/wk)	<i>Both</i> (hrs/wk)
Type of work			
Paid work	28.7	17.5	23.1
Household work	16.8	28.7	22.4
Volunteer work	2.1	2.8	2.8
Total work	47.6	49.0	48.3
Total N	4,856	5,893	10,749

Source: 1998 General Social Survey special tabulation (1998) [population 15+].

patterns of time use have been found in recent European surveys (Aliaga & Winqvist, 2003).

In sum, while a knowledge-based economy may be emerging gradually, there have been more rapid changes in the distribution of both paid and unpaid work. Unpaid work certainly warrants some consideration in relation to understanding current efforts to acquire more skill and knowledge.

Forms and Extent of Learning

Learning is a continual process and any identification of forms of learning is a somewhat arbitrary exercise. But several basic forms of learning may be roughly distinguished in terms of the primacy of teachers and the type of organization of the body of knowledge to be learned. The basic forms of learning are formal schooling and further education courses as well as informal education and self-directed learning. *Education*, which derives from the Latin verb (*educere*) meaning “to lead forth”, encompasses the first three forms of learning characterized by the presence of a teacher, someone presumed to have greater knowledge, and a learner or learners presumed to have lesser knowledge and expected to be instructed or led by said teacher.

When a teacher has the authority to determine that people designated as requiring knowledge effectively learn a curriculum taken from a pre-established body of knowledge, the form of learning is *formal education*, whether in the form of age-graded and bureaucratic modern school systems or elders initiating youths into traditional bodies of knowledge.

When learners opt to acquire further knowledge or skill by studying voluntarily with a teacher who assists their self-determined interests by using an organized curriculum, as is the case in many adult education courses and workshops, the form of learning is *non-formal education* or *further education*.

When teachers or mentors take responsibility for instructing others without sustained reference to an intentionally-organized body of knowledge in more incidental and spontaneous learning situations, such as guiding them in acquiring

job skills or in community development activities, the form of learning is *informal education* or *informal training*.

Finally, all other forms of intentional or tacit learning in which we engage either individually or collectively without direct reliance on a teacher or an externally-organized curriculum can be termed *self-directed* or *collective informal learning*. In the most expansive conceptions of human learning, self-directed learning may be seen as coterminous with life experience itself. Figure 1 portrays these different forms of learning in terms of primary agency and extent of institutionalization of knowledge.

Participation rates in formal schooling have grown very rapidly in the past two generations in all advanced capitalist societies. The vast majority now complete high school and university or college certification is rapidly approaching a majority status in younger age cohorts. Canadian post-secondary completion rates have increased about sixfold since 1960 and now lead the world with around 60 percent of the 25 to 29 population attaining a diploma or degree (Statistics Canada, 2000). Similarly, over 40 percent of the 25 to 64 Canadian population had completed post-secondary education by 2000, followed closely by the United States, Ireland and Japan (Statistics Canada, 2003).

Adult course participation has also expanded rapidly in most OECD countries, coinciding quite closely with increasing post-secondary completion. The more schooling people have, the more further education they appear to seek. In Canada, the increase has been from 4 percent in 1960 to 35 percent in the early 1990s (Livingstone, 2002). In some European countries with stronger and longer traditions of adult education, trends are less pronounced (OECD, 2003).

Informal learning is now widely declared to be an important dimension of lifelong learning. But empirical studies of the extent of informal education and self-directed learning are less frequent and fraught with methodological problems (see Livingstone, 2001). In particular, these two forms of learning are often conflated. Researchers of “learning organizations” increasingly recognize that continued informal training and untaught learning are important for success in the context of paid workplaces (e.g., Matthews & Candy, 1999). Recent survey

	Primary Agency	
	Learner(s)	Teacher(s)
Pre-established	Non-formal education Further education	Formal schooling Elders' teachings
Knowledge Structure		
Situational	Self-directed learning Collective untaught learning	Informal education Informal training

studies have confirmed that most job-related training is done informally (see Betcherman, Leckie, McMullen, 1997; Center for Workforce Development, 1998). But informal training is not distinguished from non-taught learning in such studies. Conversely, most other studies of informal learning have assumed a learner-centred focus and paid little attention to mentoring activities.

Case studies of the time invested in self-directed learning activities have found that in most social groups – whether distinguished by gender, age, class, race, ableism or nationality – the distribution of the basic amount of time that people were spending on self-directed learning projects was very similar. During the 1970s, the average number of hours devoted to informal learning was generally found to be around 10 hours a week or 500 hours a year in most of these case studies (Tough, 1978). Since the extensive character of informal learning was first indicated by these case studies, there have been very few larger scale surveys to verify and further explore the social relations of informal learning with representative samples (e.g., Johnstone & Rivera, 1965; Penland, 1977). Most of the sample surveys conducted in North America and Europe since the early 1970s on the general frequency of informal learning are summarized in Table 2.

Most of the recent surveys of informal learning (i.e., the Finnish, U.K. and 1998 GSS surveys) very likely produce *serious underestimates* of the actual current extent of intentional informal learning. The questions on informal learning are typically posed immediately after a series of questions about initial schooling, adult credit courses and non-credit courses. This initial emphasis may serve to predispose respondents to think of learning in terms of organized education, especially when only cryptic definitions of informal learning are provided, and no opportunity is usually offered to consider informal learning activities in relation to any other specific learning context besides educational institutions. These survey questions also tend to dichotomize courses and learning on your own, suggesting – explicitly in the case of the GSS survey – that you normally only do one or the other. Virtually all the earlier studies, informed by Tough's case study research, demonstrated this is clearly false. Most course participants also engage in substantial informal learning activities. It is likely that these recent surveys have merely rediscovered the "iceberg" of intentional informal learning rather than plumbing its depths.

The most expansive recent surveys of informal learning have been conducted in Canada. Four surveys conducted in Ontario, Canada between 1996 and 2002 on public attitudes to educational policies have included a few questions which used a similar format to the original Tough studies and the Penland survey. These surveys have found that the vast majority of adults indicate involvement in some form of informal learning during the past year. Estimated time commitments have fluctuated between averages of about 12 and 15 hours per week during this six year period (Livingstone, Hart, & Davie, 2003). In 1998, the research network on New Approaches to Lifelong Learning (NALL) conducted the first national survey in Canada focussed on adults' informal learning practices (NALL, 1998; Livingstone, 1999).¹ The NALL survey respondents were asked

Table 2. Estimated Incidence of Informal Learning Activities, Selected Countries, 1975–2000

<i>Survey*</i>	<i>Sample size</i>	<i>Total hours per year</i>	<i>Informal learners (%)</i>
Hiemstra (1975) [Nebraskans over 55]	256	325	84
Penland (1976) [U.S. national adult population]	1,501	514	76
Tough (1971–78) [Estimate based on 1970s case studies]	N/A	500	98
Leean & Sisco (1981) [Rural Vermont school dropouts]	93	425	98
Blomqvist, Niemi & Ruuskanen (1995) [Finnish adult population]	4,107	20+	22
Livingstone, Hart & Davie (1996) [Ontario adult population]	1,000	600	86
Beinhart & Smith (1994–97) [United Kingdom adult population]	5,653	N/A	57
Statistics Canada (1998) [Canadian national adult population]	10,749	230	30
NALL (1998) [Canadian national adult population]	1,562	750	95
Livingstone, Hart & Davie (1998) [Ontario adult population]	1,007	750	88
Livingstone, Hart & Davie (2000) [Ontario adult population]	1,002	650	86
Livingstone, Hart & David (2002) [Ontario adult population]	1032	600	85

*Years cited refer to period of learning surveyed rather than time of publication.

Sources: Livingstone (2001); Livingstone, Hart and Davie (2003).

to indicate their participation in four aspects of informal learning: employment-related; community volunteer work-related; household work-related; and other general interest-related. In each aspect, respondents were asked about informal learning activities on several specific themes. The most relevant NALL findings are that:

- currently employed respondents (over 60%) estimated that they spent about 6 hours per week in informal learning activities related to their current or future employment during the past year;
- those involved in household work (over 80%) averaged about 5 hours per week in informal learning related to their household work. Given the greater proportion of adults involved in housework than in paid employment and the only slightly higher average hours devoted to informal learning related to employment, it appears that Canadians are now devoting about as much aggregate time to informal learning related to housework as to paid employment.

- those who have been involved in organized community work (around 40%) devote about 3 hours a week on average to community-related informal learning.
- those who engage in some other types of informal learning related to their general interests (around 90%) spend on average about 6 hours a week on these learning activities. These interests range widely from hobbies to religion.
- overall, according to the NALL survey, nearly all Canadian adults (over 95%) are involved in some form of informal learning activities that they can identify as significant. The estimated average number of hours devoted to all forms of informal learning activities by all Canadian adults during 1998 was around 15 hours per person per week. There is considerable variation from the less than 5 percent who insist they are doing no informal learning, to the 25 percent who say they are doing over 20 hours per week. About three-quarters of Canadian adults are now spending 6 hours or more each week in some kind of self-reported intentional informal learning activities, most of this related to paid or unpaid work.

The NALL survey estimate for the amount of time that Canadian adults are spending in organized courses (including time in class and doing homework and class assignments) is about 3 hours per week averaged over the entire adult population, or about 12 hours per week among those who actually participated in courses. The most recent national survey of further education, which focussed in more detail on different types of non-formal course participation but only asked about hours participants took the course rather than explicitly asking them to consider homework time, generated an average of about 1 hour a week for the entire adult population or 4 hours a week per participant (Arrowsmith & Oikawa, 2001, p. 35). Even if the focus is restricted to those who participated in courses, they appear to devote slightly more time to intentional informal learning activities than to course-based learning. If we consider the entire adult population, *Canadian adults are clearly spending vastly more time in intentional informal learning activities than in non-formal education courses, a ratio of about five to one.* The use of the metaphor of the submerged part of an “iceberg” to describe the informal portion of adult learning is fairly apt.

In summary, the few inclusive and directly comparable surveys on adult informal learning suggest that North Americans were spending around 10 hours per week in intentional informal learning activities in the 1970s, and that the incidence may have been greater in the past decade (see also Candy, 1993). Clearly, the overwhelming majority of Canadian adults are now spending a substantial amount of time regularly in these pursuits and are able to recognize this intentional informal learning as a significant aspect of their daily lives. The recent proliferation of information technologies and exponential increases in the production of information may have created greater opportunities for informal learning beyond their own direct experience for people in all walks of life. Whatever the actual extent and trends over time are found to be through further,

more refined studies, virtually all empirical studies to date that have estimated the extent of adults' intentional informal learning have confirmed that it is a very extensive activity. When the incidence of informal learning is considered in conjunction with the greatly increased participation in advanced schooling and further education, it is reasonable to conclude that the "learning society" has arrived, both in Canada and in other advanced capitalist societies. Given the finite amount of time available for all forms of learning, we might also expect some substitution effects between formal and informal learning activities. It may be that the incidence of informal learning is greater in less credentialed societies. It may also be that informal learning decreases when adult education course participation increases in highly credentialed societies. In any case, informal learning in paid workplaces is now of major strategic interest in the major capitalist societies, as many of the chapters in this section indicate.

Theories of Work and Learning Relations

There is much theoretical dispute about the changing nature of work, adult learning processes, and learning-work relations.

Scientific debate about the changing nature of paid work has become polarized into approaches that emphasize more flexible employment structures which are typically driven by increased global competition as well as new information technologies to more fully engage the skills of employees (e.g., Sabel, 1982; Hirst & Zeitlin, 1991; Dastmalchian & 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 posits that integrated internal organizational structures are becoming increasingly destabilized and that the structures of work and employment relations are being refashioned in more complex and contradictory ways. Dominant predicted 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).

Much learning theory continues to be preoccupied with individual cognition and maturation as reflected in school testing programs. The general literature on adult learning has increasingly emphasized independent and self-directed learning under the impetus of accumulated experience (Knowles, 1980; Cyr, 1999) but these studies have not led to any distinctive theory of adult learning (Brookfield, 1995). Learning is increasingly 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 & 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, Miettinen, & Punamaki, 1999) and situated learning theory (Lave & Wenger, 1991) have generated a corpus of case studies 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 & Sawchuk, 2004). A fruitful approach to further empirical studies of adult learning may 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, 2004). *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, the increasingly dominant advocates of either a "post-industrial society" or a "knowledge-based economy" 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 & Tucker, 1994). On the other hand, the prophets of the degradation of paid work 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 espoused by the current author 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, 2004). 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 the 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 credentialed skills. In addition to unemployment and credential gaps, other dimensions of underemployment (i.e., involuntary temporary employment, performance gaps and subjective underemployment) are also posited to differentially effect subordinated workers (see Livingstone, 2004).

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 the more economically and politically powerful tend to do less of it. Women who lack or have relatively little employment-based bargaining power still do most of the unpaid household labour with little recognition, but they have somewhat greater discretionary control over both the extent and intensity of this work and the 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.

Empirical Research on Work and Learning Relations

This more inclusive and dynamic perspective on work and learning relations has informed some of the most recently completed empirical research in this field (see www.nall.ca). This ongoing corpus of survey, case study and secondary analyses (see www.wall.utoronto.oise.ca) has found preliminary support for the main posited learning and work relations. First, aggregate educational attainments are generally outpacing skill upgrading of the job structure (Livingstone, 2001, 2004). That is, growing proportions of both the currently employed and unemployed appear to have greater knowledge and skill than current jobs require. More specifically, the majority of the labour force who are industrial and service workers are found to have the highest underemployment rates.

Secondly, the possibility of substitution effects between formal education and informal learning is supported by survey evidence which suggests that the levels of participation in adult education courses declined during the mid-1990s (Arrowsmith & Oikawa, 2001; Livingstone, Hart, & Davie, 1999), while perceived

material barriers to adult education course participation and the incidence of informal learning both increased (Livingstone, Raykov, & Stowe, 2001; Livingstone, Hart, & Davie, 1999). More recent evidence suggests that adult course participation may have again increased and that the incidence of informal learning may have declined somewhat (Livingstone, Hart, & Davie, 2001, 2003). The possibility of such an inverse relationship, with increased incidence of informal learning substituting for diminished access to further education courses and vice versa, should be examined by additional longitudinal surveys. But any examination of such an inverse relationship should not lose sight of the dominant trend of increasing formal course participation in the post WWII era, the fact that informal self-directed learning and informal training remain far more pervasive than course participation and the practical complementarity of all four types of learning through the life course. With further reliable estimates of informal learning over time and in different jurisdictions, it should be possible to estimate effectively the relationships between organized schooling and non-formal education on the one hand and informal learning and training on the other.

Thirdly, nearly all prior studies of employment-related further education have found that managerial and professional employees receive more of it than lower level employees (e.g., Statistics Canada, 2001). But there has been virtually no prior systematic research beyond scattered ethnographic studies on the relations between informal learning and training and different types of paid and unpaid work. Correlation analysis of the association between the time devoted to different types of work (employment, housework and community volunteer work) and informal learning specifically-related to these three types of work in the 1998 NALL survey found that association is highest between community volunteer work and community-based informal learning and lowest between paid employment and job-related informal learning (Livingstone, 2002). This supports the prediction that the greater discretion one has to engage in the work, the stronger the association between the hours of such work and the related incidence of informal learning. Prior research on relations between degrees of autonomy in paid employment and personality characteristics is of some relevance (e.g., Kohn & Schooler, 1983), but no other empirical studies have addressed these relations between types of informal learning and work inclusively to date.

Fourthly, all empirical studies of informal learning that have included different social groups have found few significant differences in the distribution of time devoted to this learning across groups, and consequently no strong relations with success in formal schooling. Two aspects are most notable. Prior research on aging and learning has focussed on declining speed and efficiency of skill acquisition. No comparable decline has been found in the incidence of informal learning. Case studies and experimental research examining the actual informal learning practices, topical foci and skill outcomes of older adults are much needed to get beyond stereotypes of decline and to understand the interaction of cumulative experience and new skill acquisition. Similarly, youth in the transition to adulthood appear to devote somewhat more time to informal

learning than all older adults. This includes school dropouts; discouraged students are not discouraged learners. More attention needs to be paid to the distinctively high incidence of both organized education activities and informal learning among those making the transition to adulthood. The general finding of no significant differences in incidence of informal learning activity between most socio-demographic groups also needs to be tested much more thoroughly against reliable measures of informal learning over time. Further more sensitive case studies may also discover significant content differences in the informal learning practices of socially disadvantaged groups.

The further development and testing of more inclusive, interactive supply-demand models of knowledge-power relations in learning and work is likely to provide a better understanding of the distinctiveness of actual learning practices and a more effective guide to social policy making in current capitalist economies than simpler assumptions of human capital theory or a knowledge-based economy perspective.

Policy Implications and Concluding Remarks

More comprehensive documentation of organized and informal learning activities in relation to the existing job structure and patterns of unpaid work should provide a more adequate basis for developing employment policies that are more responsive to the actual employability of the current and prospective labour force. For example, the issues of whether there are skill surpluses or shortages in specific sectors and whether training or economic policy priorities are most appropriate really require such intelligence to aid effective, sustained government decision-making. There is mounting evidence, based on measures of occupational structures and organized education and training, that there is now no general skill shortage in many advanced industrial societies (see Lavoie & Roy, 1998). This is in addition to the large body of empirical evidence indicating that aggregate educational attainments have increased much quicker than aggregate educational requirements to perform existing jobs, particularly in Canada and the U.S. (see Livingstone, 2004). The increasing documentation of informal self-learning and training relevant to actual job performance and to unpaid work activities tends to accentuate the growing gap. Aside from the small but important proportion of adults with low literacy and increasing marginalization from the credential-based labour market, the most basic problem now may not be skill supply shortages but underemployment of people's available skills and knowledge in our current job structure. In any event, neither researchers nor public policy makers can afford to ignore the growing problem of training-employment gaps. More comprehensive ongoing surveys of adult learning are clearly needed to inform employment and training policies. As the OECD (1997) *Manual for Better Training Statistics* suggest, the temptation to focus narrowly on the most easily identifiable and immediately applicable aspects of vocational learning in such research and ignore more extensive informal workplace learning activities should be resisted.

Efforts to measure returns to informal learning and training should proceed very cautiously given the elusive character of these activities, and the differential interests of employers and employees and other citizens in controlling access to working knowledge. Further case studies and comparative sectoral studies should address the relative and complementary effectiveness of informal learning and training and organized education programs/courses in relation to a wide range of indicators of social benefit, including productivity and sustainable employment. But future rate of return estimates should beware of the “most immediately tangible measures bias”. A pragmatic fixation on monetary rates of return for the employed labour force alone excludes consideration of benefits of education and training for the unemployed and non-employed (about 40% of adult population in most countries), other non-monetary benefits for all people including the employed (consumption effectiveness, informed citizenship, familial health), and macro-societal benefits (besides Gross Domestic Product, these should include Quality of Life measures). While both the extent and rates of return to informal learning and training are much less well documented than either schooling or non-formal training, informal learning and training could well turn out to be the most productive investments in terms of a more inclusive cost-benefit analysis of lifelong learning.

While there are continuing conceptual difficulties in distinguishing informal self-directed learning, informal training, non-formal education and formal education, as well as methodological challenges in generating reliable readings of informal learning and training, the empirical research to date has at least established that adults’ intentional informal learning activities are very extensive and warrant continuing documentation and assessment in relation to other economic and social activities. The insights generated by the early adult education research on self-directed learning should be taken into fuller account in future large-scale surveys of informal learning activities. Most pertinent in social justice terms is the consistent finding of virtually all prior studies that the basic incidence of adult informal learning is not closely related to either prior formal educational participation or most socio-demographic differences. This suggests that the more effective recognition of prior informal learning in both work settings and educational institutions – through further research and fuller use of prior learning recognition mechanisms – could stimulate greater educational accessibility and enhanced workplace utilization of knowledge. Enhanced policies and programs to recognize and reward relevant prior informal learning should be developed for most educational institutions and places of employment.

The recognition of the extent and economic value of household work and community volunteer work should also lead to fuller understanding and appreciation of the relevance of related informal learning and to policies and programs to facilitate the lateral transfer of acquired knowledge and skills into the sphere of employment (see the Eichler and Schugurensky and Mundel papers in this section).

Perhaps the exposure of the large and increasing extent of underemployment, a gap which is only increased by inclusion of informal learning, has the most

significant policy implication of all the recent research on learning and work relations. Given the irreversibility of knowledge acquisition, the most plausible conclusion is that current job structures should be reformed to accommodate such cumulative knowledge through measures including further democratization of many paid workplaces, creation of new environmentally sustainable forms of paid work (“green jobs”), and redistribution of paid work through reduced normal work weeks (see Livingstone, 2004).

Those committed to the principles of lifelong learning and the democratic provision of work in these changing times (see OECD, 1998) should seriously consider incorporating three largely ignored dimensions into their current studies and policy formation on learning and work issues. These dimensions are the still largely hidden informal mass of the iceberg of adult learning, the still widely underestimated import of essential unpaid work, as well as the growing social problem of underemployment.

Notes

1. In addition to the first national survey of informal learning practices, NALL also conducted a parallel national survey of teachers’ informal learning practices, and completed follow-up surveys, as well as over 30 related case studies. Most of these studies examine the relations between informal learning, schooling and further education, as well as their relations with paid and unpaid work and other socio-demographic characteristics. For further information, see the NALL website: www.nall.ca. This research is continuing under a new national research network on “The Changing Nature of Work and Lifelong Learning” (WALL). The WALL website is: www.wall-loise.utoronto.ca. Both of these research networks have been funded by the Social Sciences and Humanities Research Council of Canada.

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