

PROBING THE ICEBERGS OF ADULT LEARNING: COMPARATIVE FINDINGS AND IMPLICATIONS OF THE 1998, 2004, AND 2010 CANADIAN SURVEYS OF FORMAL AND INFORMAL LEARNING PRACTICES

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Abstract:

This paper summarizes the findings of the 2010 Work and Lifelong Learning (WALL) Survey of self-reported further education and intentional informal learning activities of Canadian adults and compares them with the results of the 2004 WALL Survey and the 1998 New Approaches to Lifelong Learning (NALL) Survey on the same subject. Basic profiles of participation in further education courses and intentional informal learning activities related to employment, housework, community volunteer work, and general interests are presented. In addition to being one of the most highly formally educated populations in the world, Canadians quite rapidly increased their participation in further education over the past generation. They continued to devote much more of their time to an array of informal learning activities. However, in light of a growing contradiction between popular demand for knowledge and private enterprises' interest in controlling knowledge for profit maximization, Canadian adults' array of formal and informal learning efforts face relatively diminishing opportunities for application in jobs as they are currently structured.

Résumé:

Ce document est un résumé des résultats obtenus par le sondage « Work and Lifelong Learning (WALL) en 2010 qui a été dévoilé sur le sujet des formations continues et des activités d'apprentissage informels par les adultes au Canada en plus qu'une comparaison avec résultats du sondage « WALL » fait en 2004 ainsi que du sondage « New Approaches to Lifelong Learning (NALL) en 1998. Les profils élémentaires sur la participation à des cours d'enseignement continue ainsi que sur les activités de l'apprentissage informel en cours d'usage reliés à un emploi, travaux ménagers, de la participation à des travaux volontaires dans la communauté, ainsi qu'un intérêt en général sont présentés. En plus d'être parmi la population la plus formellement éduquée dans le monde entier, les Canadiens ont rapidement augmenté leur participation des cours d'enseignement continue

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comparé aux générations antérieures. Ils ont continué à dévouer beaucoup plus de temps à un grand nombre d'activités d'apprentissages informels. Cependant, en vue des contradictions sur ce qui a trait aux exigences requises soit par la popularité ou par les entreprises privées qui ont un intérêt à contrôler les connaissances afin d'augmenter leurs profits, les adultes Canadiens, qui ont un si grand choix d'éducation formel et informel, sont souvent surqualifiés pour les emplois disponible tels qu'ils sont présentement structurés.

Introduction

National surveys of the work and learning activities of adults were conducted in Canada in 1998, 2004, and 2010.¹ These surveys represent the most extensive inquiry to date into the array of intentional formal and informal learning activities as well as their connection with paid and unpaid work activities. Detailed accounts of the design and findings of the respective surveys and related case studies, as well as extensive reviews of relevant literature, are available elsewhere (see Livingstone, 2010; Livingstone & Raykov, 2010). Articles on the findings of the 1998 survey (Livingstone, 1999) and comparing the 1998 and 2004 surveys (Livingstone, 2007a) have previously appeared in this journal. This paper compares the findings of all three surveys on the array of adult learning activities, examines relations between social background (i.e., age, economic class) and adult learning, and probes the extent of correspondence between adult learning and the educational requirements of jobs in the widely assumed knowledge-based economy.

As noted in the preceding report (Livingstone, 2007a), the basic forms of learning distinguished in these surveys are: *formal education*, *further education*, *informal education*, and *self-directed informal learning*. Education involves the presence of a teacher—someone presumed to have greater knowledge—and a learner or learners to be instructed by said teacher. When a teacher has the authority to direct designated learners to learn a curriculum taken from a pre-established body of knowledge, the form of learning is *formal education* or *schooling*. When learners opt to acquire further knowledge or skill

1 The 2010 Work and Lifelong Learning (WALL) Survey was funded through the Canada Research Chair on Lifelong Learning and Work. The prior WALL and New Approaches to Lifelong Learning (NALL) Surveys were funded by the Social Sciences and Humanities Research Council (SSHRC) and reported in this journal previously (Livingstone 1999, 2007a). The Institute for Social Research (ISR) at York University administered all three surveys. I thank David Northrup and John Pollard of ISR for advice on survey design and Milosh Raykov for conducting computer-based data analyses. Further information about all of these national surveys and related case studies may be found at www.wallnetwork.ca. Prior versions of parts of this paper were presented at the 2011 meeting of the Canadian Association for the Study of Adult Education in Kitchener-Waterloo and at the 7th International Conference on Researching Work and Learning in Shanghai, also in 2011. I am grateful to the anonymous reviewers for their comments on a prior version.

beyond schooling by studying voluntarily with a teacher who assists their learning interests by using an organized curriculum, the form of learning is *further education*. When mentors instruct novices in more spontaneous learning situations without sustained reference to a previously organized body of knowledge, such as guiding them in acquiring job skills or in community development activities, the form of learning is *informal education*. Finally, other forms of intentional learning in which we engage either individually or collectively without direct reliance on a teacher/ mentor and an externally organized curriculum can be termed *self-directed* or *collective informal learning*. Such distinctions are still actively debated. Here we assume that formal and intentional informal learning are best understood as a *continuum* with interplay and overlap between different learning activities (Colley, Hodkinson, & Malcolm, 2003).² A pertinent example is popular education. As institutionalized in Sweden since the late 1940s, popular education encompasses both forms of further education and informal education. The central purpose of this research is to include any relevant form of intentional adult learning.

Limitations of survey research on adult learning have been discussed in the prior articles. The main points to underline here are that most prior large-scale surveys have largely ignored informal learning and that surveys can only begin more inclusive exploration of the nature and extent of adult learning by focusing on the sorts of intentional informal learning that people identify for themselves. Many prior surveys of adult education are not comparable because, in addition to ignoring informal learning, they have used different definitions, categories, and target populations. An attempt to establish comprehensive harmonized statistics for adult learning, including further education and informal learning, has been initiated by the European Commission. A 2004 taskforce, with Canada's involvement, proposed the European Adult Education Survey. A pilot study was conducted from 2005 to 2008 and full study is intended to be completed soon (European Commission, 2005, 2011). While a few earlier general national surveys estimated the extent of informal adult learning, the primary motivation of the more inclusive recent government initiatives has been to aid in maximizing skill development of the labour force. The European Commission (2005, p. 14) Strategic Framework on Education and Training declared in 2002: "In a knowledge society, individuals must update and complement their knowledge and skills throughout life to maximize their personal development and to maintain and improve their position in the labour market." There appears to have been an increasing emphasis on regulating participation in lifelong learning to address *assumed* knowledge deficits of the general population (*cf.* Williams, 2012).

These three surveys taken together offer some population-level benchmarks: benchmarks to aid more substantively grounded discussion of dimensions of and trends in adult learning, and benchmarks to assess relations of adult learning to social background and changing social contexts.

2 The notion of *non-formal education* (e.g., Rubenson, Desjardins, & Yoon, 2007, p. 11), which refers to structured, non-certified education outside educational institutions, is similar to further education but ignores both non-certified education inside educational institutions and certified education outside them.

Theoretical Perspective

The general theoretical perspective that has guided these surveys posits an intimate connection between adults' economic power and recognition of their skills and knowledge. At the societal level, there is a contradiction in advanced market economies between the privatized ownership of large corporations and the increasing socialization of the forces of knowledge production (Adler, 2007). Owners of private corporations strive to control knowledge of specific commodity production techniques for advantage over competitors (e.g., intellectual property claims through patents and licences). Conversely, workers and the general public gain greater access (via public education systems and such forums as the Internet) to knowledge previously restricted for commodity production by private firms, as well as to more diverse sources of knowledge for everyday life. In the context of inter-firm competition and the open character of the labour contract, the expansion of publicly accessible knowledge and popular demand for it are greater than enterprise owners' powers to appropriate such knowledge for private gain. Popular demand for formal education and specialized training grow rapidly as people seek more knowledge, different specific skills, and added credentials to live and qualify for jobs in such a dynamically changing economy. Virtually all jobs in this context require continual problem-solving and informal learning that also increases workers' funds of knowledge in ways that typically exceed formal job requirements. While underqualification for some jobs occurs, lack of recognition and underutilization of the skills and knowledge of qualified workers become more systemic problems in advanced market economies (Livingstone, 2009). At the organizational level, those employed in private enterprises generally have had little workplace power in relationship to owners' prerogatives. Recognition of workers' knowledge/skills and employer support for further formal training will be related to both their *negotiating* power (union/association membership) and *delegated* power from their employers (organizational decision-making role). Comparative studies of professional and managerial employees as well as of industrial workers in the general Canadian labour force have found significant support for these relationships (Livingstone & Antonelli, 2012; Livingstone & Raykov, 2008). At the level of individual workers, there has been a great deal of empirical research in recent decades on the extent of correspondence between educational attainments and job requirements and on the factors influencing effective skill utilization and underutilization (e.g., McKee-Ryan & Harvey, 2011; Scurry & Blenkinsopp, 2011). Workers with higher levels of specialized knowledge and greater job experience have typically been found to have higher levels of correspondence, while recent immigrants and people of colour have higher levels of underutilization (Livingstone, 2009). Much of the theoretical research literature posits a strong relationship between individual workers' perceived job control (in terms of task discretion) and reported extent of skill utilization (e.g., Morrison, Cordery, Girardi, & Payne, 2005).

In sum, then, the general theoretical model guiding this survey project takes account of dominant societal relations between owners of private enterprises and hired employees that entail frequent competitive change of job requirements by employers, continual pursuit of further knowledge by employees, and a secular trend toward skill underutilization. At the same time, recognition and reward of workers' skills will be significantly affected by their collective power in relation to their employment in specific

types of organizations. Thirdly, their individual perceptions of job control will influence their personal sense of skill utilization.

In terms of learning theories, many prominent contemporary social theories focus on relations between knowledge and power (e.g. Bourdieu, 1984; Castells, 1997; Foucault, 1980; Toffler, 1990). However, most of these theories are very limited in their recognition of the actually existing and usable knowledge of subordinated social groups. The development of this survey is informed by contemporary theories of learning that focus on the learning capacities of adults outside teacher-directed classroom settings, particularly Paulo Freire's (1970) accounts of collective learning through dialogue. Freire stressed the active practical engagement of adult learners in the pursuit of knowledge or cultural change. This focus on learning in practical activity has a long lineage in general democratic theories of learning by experience that have emphasized either the development of individual cognitive knowledge (Dewey, 1916) or tacit knowledge (Polanyi, 1966), as well as in the cultural historical activity theory of cognitive development that takes more explicit account of subordinate groups' socio-historical contexts (Vygotsky, 1978). Each of these approaches to adult learning advances a conception of learning practices as situated in the everyday lives of ordinary people. This perspective has been increasingly applied in micro-studies of workplace learning (e.g. Engestrom, Mietinen, & Punamaki, 1999; Evans & Waite, 2010) and documenting greater recognition of an array of learning activities among more organized workers (e.g. Livingstone & Sawchuk, 2004). Most theorists of knowledge-power relations have tended to make simple assumptions about continuity or change in structures of power, paid little attention to relations between employers and employees per se, and underestimated the contradictory dynamic character of change in work and learning processes as well as the importance of workers' knowledge in ensuring effective production processes.

From this general theoretical perspective, the identification of advanced market economies as "learning societies" in the 1960s (e.g., Hutchins, 1968), subsequent increased interest in adults' self-directed learning activities (e.g., Tough, 1979), and the current preoccupation with "lifelong learning" through the life course (e.g., European Commission, 2005; Schuller & Watson, 2009) are at least partly intelligible as responses to the increasingly contradictory relationship between increasing popular demand for various forms of knowledge and the more restrictive interests of private enterprises in controlling knowledge for profit maximization (see Livingstone & Guile, 2012).

Basic Research Design

The development of the research networks that conducted these three surveys and dozens of related case studies was originally inspired by the case studies of my late colleague Allen Tough (1979) on self-directed learning projects. The main conceptual difference is that these research networks have more explicitly examined adult learning in relation to the basic human activities of paid employment, unpaid work (household work, community volunteer work), and leisure (self-care, hobbies) (see Livingstone, 2010). The 1998 NALL survey of adult learning was the first large-scale survey in this country to attend to the array of adults' self-reported learning activities, including formal schooling, further education courses, and informal learning. The 1998 survey included 1,562 Canadian adults. The 2004

WALL survey included 9,063 adults. The 2010 WALL survey included 2,028 adults. The focus of each survey has been on adults over age 18 because this age was a practical selection criterion for national survey samples. The samples were limited to those who speak English or French and reside in a private home (not old age/group homes, or penal or educational institutions) with a telephone. All provinces and households and individuals within households were given an equal chance of selection using random digit dialling. The final response rate for the 2010 survey was 40% including all eligible households, or 45% including only completions plus definite refusals—as many survey organizations now do (Northrup & Pollard, 2011). The comparable response rates for the prior surveys were 52% in 2004 and 60% in 1998. Response rates are increasingly challenged by the proliferation of cell phones and commercial market research. The data presented in these reports are weighted by known population characteristics of age, sex, and educational attainment to ensure profiles are representative for Canada as a whole.³

Findings

The presentation of findings begins with a profile of the general working conditions of Canadian adults. Next, basic adult learning profiles are summarized, including census-based formal educational attainment levels, participation rates in further education, patterns of intentional informal learning, and interrelations of these forms of learning. The relations between adult learning and social background variables (i.e., age, economic class) are then analyzed. The presentation concludes with an assessment of the correspondence between employed adults’ learning attainments and their job requirements.

General Working Conditions⁴

These three surveys have found that around half of the work that Canadian adults do is unpaid. Participation rates in paid employment have reached unprecedented levels of over 60%. But virtually all do some household work and nearly 80% engage in either formal or informal community volunteer work. Although unpaid work continues to be largely unrecognized and unrewarded, it is both essential for the reproduction of social life and requires continued learning. Specific WALL projects have explored the relations of household work and community volunteer work with learning in some depth (Eichler et al., 2010; Schugurensky, Duguid, & Mündel, 2010).

With regard to paid employment, the most notable changes during the period of these surveys are increasing precariousness, with more temporary, involuntarily part-time jobs; greater organizational downsizing; and the rapidly increasing use of computers—now in the vast majority of jobs. Such changing working conditions are likely to have significant effects on adult learning.

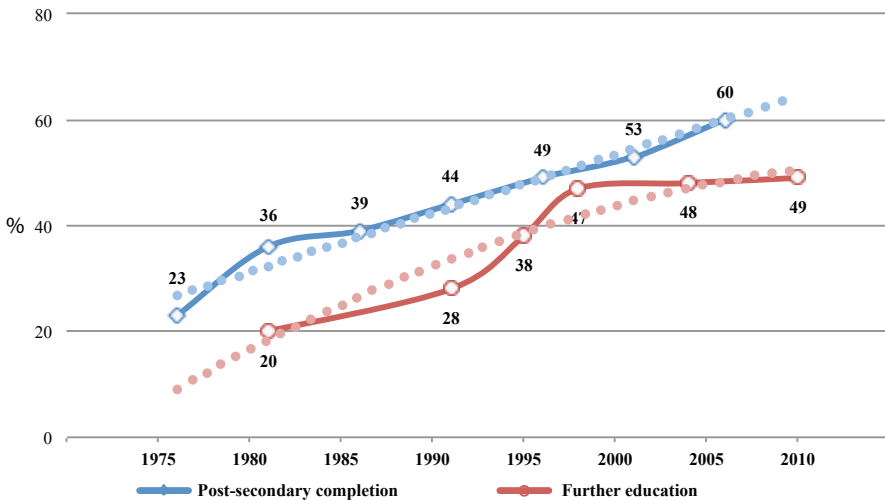
3 The interview schedules, an integrated codebook, and summary reports of all basic findings are available at www.wallnetwork.ca.

4 The survey findings summarized in this section are presented in more detail in Livingstone (2002) and Livingstone and Scholtz (2010) and generally consistent with Statistics Canada findings during this period.

Basic Adult Learning Profiles

Post-secondary formal education. One of the most distinctive educational features of recent generations is the extent to which learning activities have become formally institutionalized and credentialed. Secondary school completion now approaches universality in many member countries of the Organization for Economic Co-operation and Development (OECD). Post-secondary education completion, including universities and post-secondary vocational institutions, was probably achieved by less than 10% of the Canadian adult population in 1961 (Lagace, 1968). As Figure 1 summarizes, post-secondary completions grew to over 20% of the 25- to 64-year-old population in the mid-1970s, over 40% by 1991, and around 60% by 2006. This post-secondary growth rate may appear to be quite rapid; however, several other OECD countries have recently exceeded Canada in *university* graduation rates (Organization for Economic Co-operation and Development [OECD], 2011). In any event, the expansion of advanced formal schooling is a very important contextual feature for understanding the contemporary growth of adult learning, as is the more recent fiscally driven initiative in many countries to limit further expansion.

Figure 1: *Post-secondary Completion and Further Education Participation Rates of Adults Aged 25 to 64, Canada, 1976–2010*



Sources Post-secondary completion: Custom tabulations from Canadian Census public use microdata on individual files, 1976–2006, 25–64 population. *Further education:* 1983, Devereaux (1985); 1991, Statistics Canada and Human Resources Canada (2001); 1998, NALL 1998 Survey (N=1,117); 2004, WALL 2004 Survey (N=6,310); 2010, WALL 2010 Survey (N=1,407). Percentages in further education in 1981 and 1991 refer to the population over 17, excluding full-time students.

Further education. Few Canada-wide surveys have explored participation in further education. Published reports on adult education have usually included adults taking non-credit courses for specific purposes at various locations, including schools and paid workplaces, and through electronic media, as well as adults who have returned to school part-time to complete certification or upgrade through programs of study; they usually have excluded most adults over 17 who are still involved in their initial cycle of schooling (see Devereaux, 1985; Statistics Canada and Human Resources Canada, 2001). In 1960, according to the first government survey (Dominion Bureau of Statistics, 1963), only about 4% of all Canadians over 17 years of age were enrolled in any sort of adult education course. As Figure 1 shows, by the next survey in the early 1980s, about 20% were enrolled annually (Devereaux, 1985). By the 2000s, according to our surveys, the participation rate in further education had grown to around half of the 25- to 64-year-old population. The few other partly comparable surveys show similar increases from the 1990s to the 2000s.⁵ Taken together, these figures indicate a rapid intergenerational increase in the extent of engagement in this form of formal learning. International comparisons of further education remain more difficult because of the diversity and limited nature of available data. According to the most recent roughly comparable data, Canada is now in the middle of the pack among OECD countries on several indicators of participation in further education (OECD, 2011). Our survey data suggest a possible recent stalling of Canadian participation in further education.⁶ It is clear that Canada's participation rates remain significantly lower than the Nordic countries that have more fully developed institutional provisions for adults (Desjardins, Rubenson, & Milana, 2006).

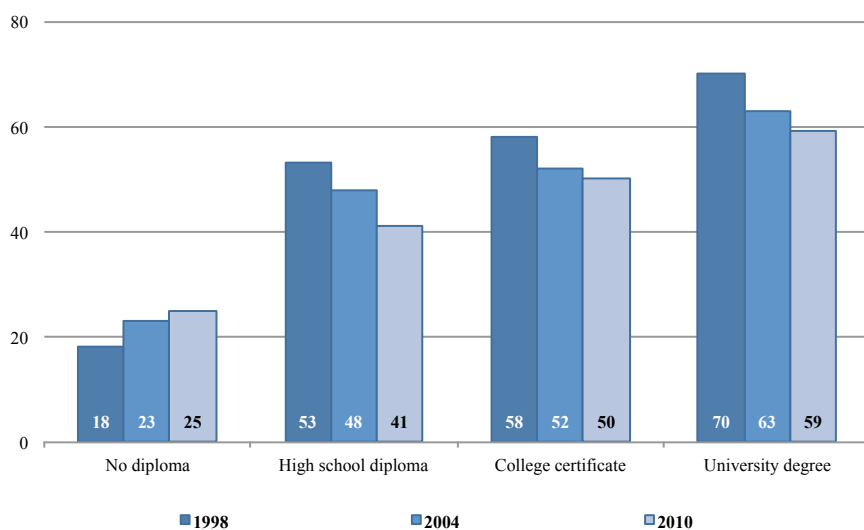
Schooling and further education. The most consistent finding in research on education has been the strong association between formal schooling and participation in further education. Figure 1 confirms this relationship at the aggregate level in Canada in recent generations. Figure 2 shows the incidence of participation in further education by those with different levels of school attainment in all three surveys for the entire adult population. In 1998, 2004, and 2010, the higher the educational attainment, the more likely respondents have been to participate in further education courses. However, as advanced formal schooling has become more common, Figure 2 also suggests relatively greater increase in participation in further education among those with little schooling (*cf.* Knighton et al., 2009, p. 12). Further education in Canada remains beset by accessibility barriers such as high costs and

5 The 2003 Adult Literacy and Life Skills Survey (ALLS), including people as young as 16, found that the general participation rate increased from 36% in the 1994 International Adult Literacy Survey (IALS) to about 49% in 2003 (Rubenson et al., 2007). The proportion of adult Canadians aged 25 to 64 who participated in job-related education or training increased from 30% in 2002 to 36% in 2008 (Knighton, Hujaleh, Iacampo, & Werkneh, 2009).

6 The National Institute of Adult Continuing Education has conducted annual surveys of adult learning in England and Wales since 1996. Their surveys in the 2010–12 period have found a slightly declining rate of adult participation in learning (Aldridge & Hughes, 2012). However, the measure used in those surveys conflates further education with some aspects of informal education and self-directed learning and is not directly comparable with the current surveys.

inconvenient times and places of courses (Knighton et al., 2009; Myers & de Broucker, 2006). This apparent recent narrowing of the gap in participation in further education may be as much a function of declining participation because of barriers relative to use for the already credentialed in recessionary times, as it is of the necessity of increased participation for the uncredentialed (Livingstone & Myers, 2007). In any case, further education still tends to reproduce prior differences in educational attainments, with university and college graduates twice as likely to participate as high school dropouts.

Figure 2: Participation in Further Education by Level of Schooling, Adults Age 18 and Older, 1998–2010



Sources: NALL 1998 Survey (N=1,548); WALL 2004 Survey (N=8,863); WALL 2010 Survey (N=1,965).

In summary, in this increasingly highly schooled society, around half of adults are now participating in further education courses annually. But many without credentials who would most like to participate face substantial barriers, while many with credentials may face increasing disincentives to continue to participate (Livingstone & Myers, 2007).

Informal learning. These three surveys have drawn heavily on the interview schedules developed by Tough (1979) and his colleagues on general interest-based informal learning. They have also been distinctive in probing informal learning related to different forms of work (i.e., paid employment, housework, community volunteer work). Respondents were asked if they learned informally over the past year about several topics in relation to respective types of work or to general interests. The general interest topics closely paralleled those used by Tough, with the notable addition of computer learning. The work-related learning topics were generated through review of prior case studies of paid and unpaid work as well as by pilot studies. The limited survey administration time allowed only brief responses to general pre-coded topics. The comparative findings for the three surveys are

summarized here, first for general participation rates and average hours involved in these different areas of informal learning, then in terms of the most common topics of learning in these areas.

As Table 1 summarizes, the vast majority of adults who engage in any of these basic activities report related intentional learning activities, ranging from around 80% of those involved in household work to around 90% in other basic activities. Other recent international surveys, without explicitly addressing unpaid work, have also found that intentional informal learning “is more or less a universal activity” (Rubenson et al., 2007, p. 33). Intentional informal learning is such an inherent part of the human condition that we tend to naturalize and ignore it, especially beyond paid workplaces. But in purportedly knowledge-based economies, recognizing or capturing more of such knowledge assumes more value.

Table 1: Participation Rates in Informal Learning Related to Paid and Unpaid Activities, Adults Age 18 and Over, 1998–2010

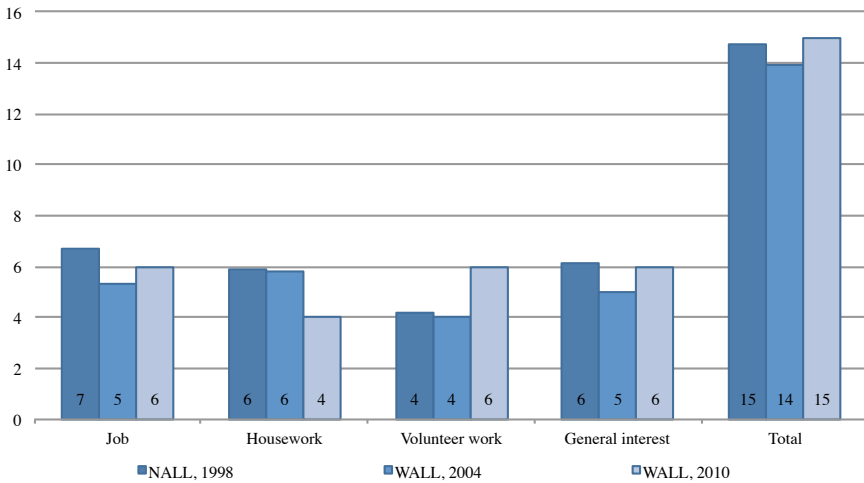
Area of Informal Learning														
Paid work			Volunteer work			Household work			General interest			Any informal learning		
1998	2004	2010	1998	2004	2010	1998	2004	2010	1998	2004	2010	1998	2004	2010
86	87	90	81	76	90	79	82	82	83	82	88	92	91	95
N=962	5,734	1,256	795	3,745	1,914	1,436	8,607	928	1,565	9,024	1,965	1,565	9,024	1,965

Sources: NALL 1998 Survey; WALL 2004 Survey; WALL 2010 Survey

Estimates of the average amount of time devoted to each of these areas of informal learning are summarized in Figure 3. Among those who report that they participate in the respective activities, the average time devoted to each has been consistently around five hours per week for paid work, volunteer work, household work, and general interest activities. Keeping in mind different participation rates in each activity and wide variations in time devoted to each of these areas of learning, estimates for the amount of time devoted to intentional informal learning per week are around 15 hours in all three surveys.

Employment-related informal learning. Most of the recent increase in empirical research on informal learning has been focused on employment-related learning (see Wihak & Hall, 2008). Various surveys have found that the vast majority of initial job training has been done informally and relatively little through formal courses (e.g., Betcherman, McMullen, & Davidman, 1998). Our three surveys find that informal job-related learning is continual for most employees (cf. Peters, 2004). Figure 4 summarizes the proportion of the employed labour force in each survey that reported engaging in learning related to various topics over the previous year. The frequencies were similar in all three years. Over half of all workers reported informal learning about new general knowledge, new job tasks, general problem solving, and health and safety in all three surveys. Incidence of learning about computers may have declined somewhat as their use has become more universal and routinized in some jobs. But overall, in employment-related learning, although further education courses

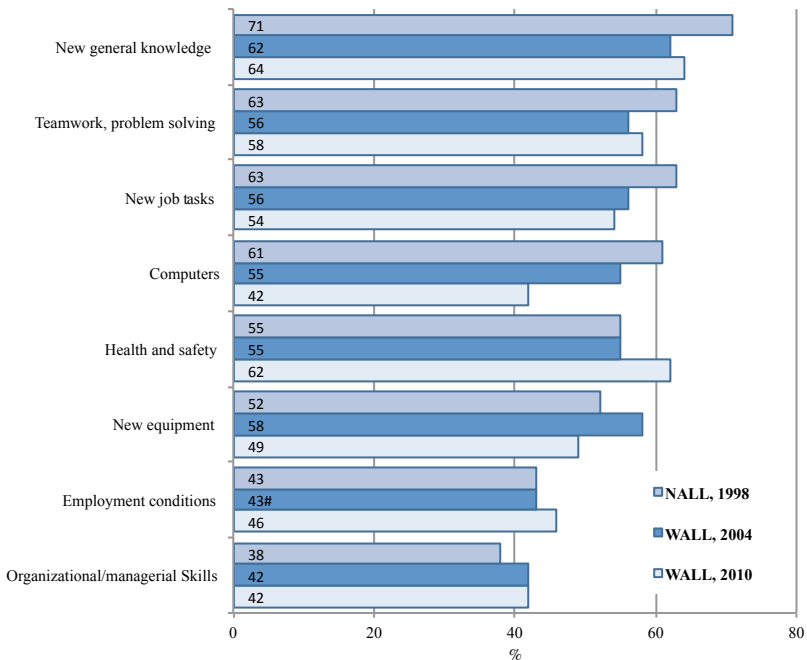
Figure 3 Average Number of Hours per Week Spent Participating in Different Forms of Informal Learning,* 1998–2010



Sources: NALL 1998 Survey; WALL 2004 Survey; WALL 2010 Survey.

* Participants in respective activities only, as indicated in Table 1.

Figure 4: Topics of Employment-Related Informal Learning, Employed Labour Force, 1998–2010

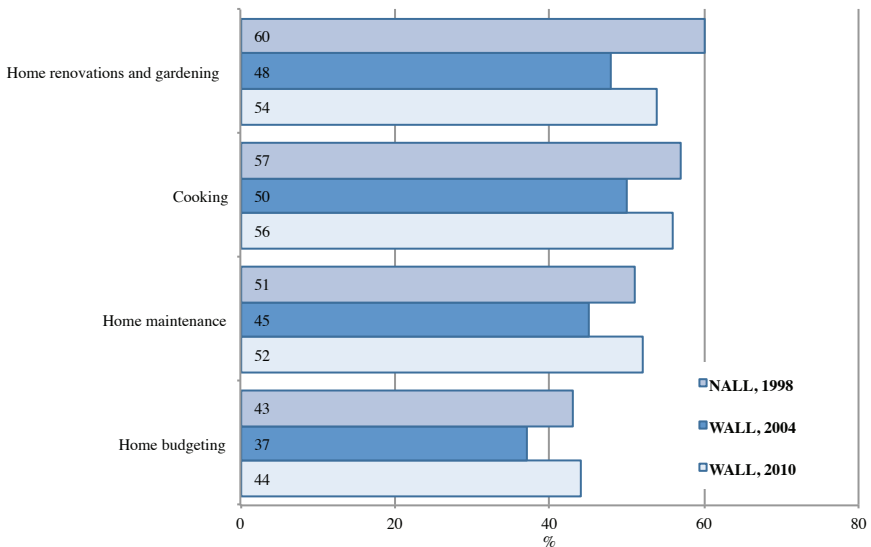


Sources: NALL 1998 Survey (N=940); WALL 2004 Survey (N=5,428); WALL 2010 Survey (N=1,256).

are most widely available in this area, intentional informal learning activities continue to be much more extensive than further education. Also, mentoring by other experienced colleagues may be becoming even more pertinent. In 2004, 39% of employed workers in the WALL survey sought advice within the past month to develop their job skills; in 2010, this figure increased to 49%. These responses suggest the general importance of informal education to employment-related learning.

Informal learning related to unpaid work. Since unpaid work is typically less well-defined than paid work, related learning is even more difficult to estimate and relevant research has barely begun. These three surveys have been the first to examine the incidence and content of informal learning related to housework and volunteer work. Since more people do household work than any other form of work, and since participation rates in informal learning are similar for participants in all forms of work, household work-related informal learning is probably the most widespread type of unpaid work-related learning, albeit the least studied. The findings in Figure 5 suggest that most participants recognize significant intentional learning in at least some of their household work. The more in-depth WALL project on household work and learning has found such learning to be both continual and often complex (Eichler et al., 2010). But research to date merely provides probes for further comparative studies of this massively ignored field of learning.

Figure 5: Housework-related Informal Learning Topics, Participants Only, 1998–2010

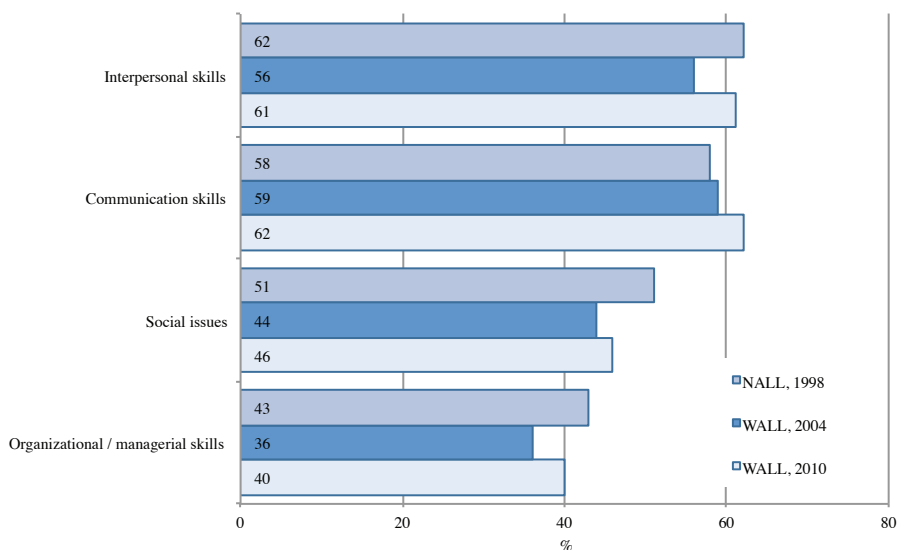


Sources: NALL 1998 Survey (N=1,129); WALL 2004 Survey (N=7,087); WALL 2010 Survey (N=1,914).

Volunteer work is by definition the most discretionary form of work and the most diverse, with people opting to engage in a very wide range of purposes. Those who do it are, therefore, also freer than those who do housework and paid work to engage in related learning.

These surveys have found that there is a closer relation between work time and time spent in learning activities in voluntary work than in either paid work or household work (Livingstone, 2001). The closest relation is presumably with learning related to specific purposes of one's volunteering. Figure 6 summarizes the incidence of learning for general topics. The majority of volunteer learners say they have learned about interpersonal and communication skills in this work more than social issues or organizational skills. But again, these are merely early probes into a largely ignored field of adult learning.

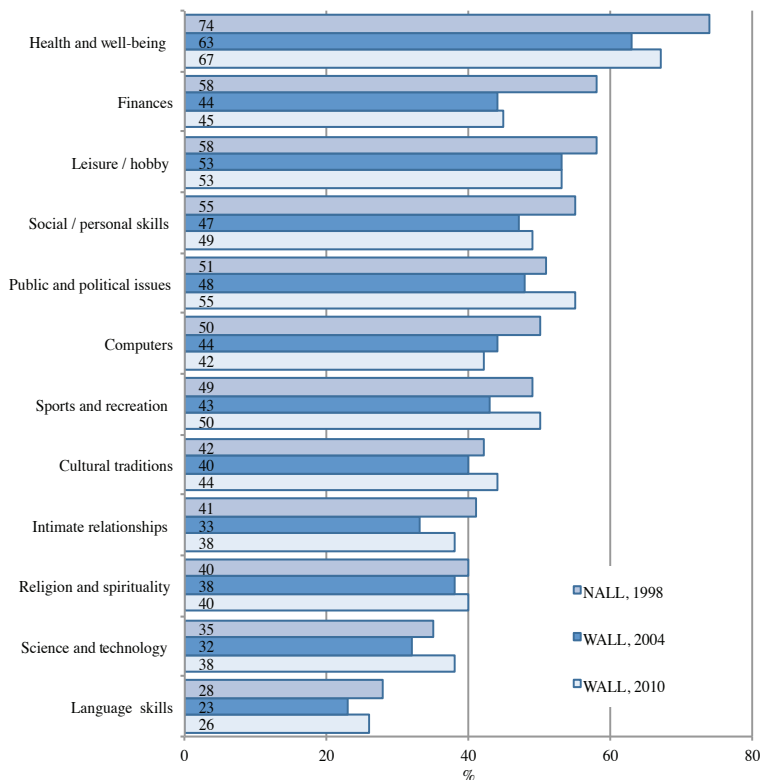
Figure 6: Volunteer Work–related Informal Learning Topics, Participants Only, 1998–2010



Sources: NALL 1998 Survey (N=655); WALL 2004 Survey (N=2,839); WALL 2010 Survey (N=929).

Informal learning related to general interests. All respondents were also asked whether they engaged in any other informal learning in their general interest pursuits (such as sports or leisure) not directly related to either paid or unpaid work. Specific topics were widely varied. As Figure 7 indicates, the most popular general topic was health and well-being. Pursuit of hobbies was the only other area in which a majority consistently engaged in self-reported learning. The areas in which people in general were least likely to engage in independent intentional informal learning were sciences and languages, forms of knowledge that are most likely to require a disciplined approach for effective learning and most easily accomplished with a teacher.

Total informal learning. Tough's (1979) array of studies of self-directed learning conducted in the late 1960s and '70s generally found that the vast majority of adults were engaged in informal learning projects and devoted an average of around 10 hours a week to them. Those who took further education courses spent an average of around one hour per week on them; hence, Tough suggested the metaphor of the "iceberg" of adult learning. The inclusion of additional questions more explicitly on work-related informal learning in

Figure 7: General Interest Informal Learning Topics, Adults Age 18 and Over, 1998–2010

Sources: NALL 1998 Survey (N=1,297); WALL 2004 Survey (N=7,363); WALL 2010 Survey (N=1,725).

the current series of surveys might be expected to elicit higher time estimates, such as the averages of around 15 hours that we have found. Whether or not there has been a significant increase in time devoted to informal learning cannot be inferred given the prior exclusion of specific work-related questions. What is clear is that, while participation rates in further adult education courses have increased greatly since the 1970s, the time devoted to such courses (averaged over a year for all adults) has remained at less than two hours per week (Peters, 2004, p. 12). The iceberg metaphor remains an apt reflection of the massively greater extent of informal adult learning.

The estimates of total time devoted to intentional informal learning in these three surveys are of similar magnitude to those in the few prior, generally comparable country-level surveys.⁷ Conventional studies of overall time use based on detailed diaries of daily activities have not considered informal learning. But such surveys (e.g., Statistics Canada, 2005) have found that adults generally have over 30 hours per week of discretionary time that could be devoted to intentional informal learning, among other activities. In

7 For an overview of other international surveys, including participation rates and time estimates, see Livingstone (2005).

this respect, estimates of informal learning in the recent surveys and Tough's (1979) case studies appear plausible.

Over half of the Canadian labour force has completed a post-secondary education and around half is participating in further education courses each year. The vast majority of adults are spending still more substantial and recognizable amounts of time regularly in intentional informal learning pursuits related to paid and unpaid work as well as general interests. While estimates of such informal learning activities remain approximate given their seamless character, the hidden part of the iceberg should be kept in mind when discussing lifelong learning.

Formal schooling and informal learning. No significant relationship was found between levels of schooling and the incidence of self-directed informal learning in Tough's (1979) earlier case studies. As Table 2 shows, these three surveys have found that respondents at all levels of schooling report 80% or greater participation in (and similar amounts of time devoted to) intentional informal learning. This might be expected, considering that humans inherently cope with their changing environment by learning and that informal learning can be done anytime, anywhere, whereas higher levels of schooling involve both sustained effort and substantial access barriers.

Table 2: *Incidence of Informal Learning by Level of Schooling, Adults Age 18 and Over, 1998–2010*

Level of schooling	Do any informal learning (%)		
	1998	2004	2010
No diploma	81	80	88
High school diploma	97	94	95
Community college	97	96	98
University degree	99	96	98
TOTAL	92	91	95

Sources: NALL 1998 Survey (N=1,548); WALL 2004 Survey, (N=8,861); WALL 2010 Survey (N=1,966).

But the huge hidden, informal part of the iceberg of adult learning likely has some connections with the visible pyramid of formal education that appears to float above it. As Table 2 suggests, early school leavers may tend to be somewhat less involved in general self-reported informal learning. Analyses of recent surveys focused on intentional informal learning activities to develop specific competencies have begun to identify some relations with school attainment. The 2003 Adult Education and Training Survey found an association between higher school attainment and a few specific job-related informal learning activities over a month-long period (Peters, 2004, pp. 17, 44). The 2003 international Adult Literacy and Life Skills Survey (ALLS) (Rubenson et al., 2007, pp. 53–56) found that learning informally by using tools interactively (such as literacy, numeracy, computers, the Internet) was more common among those with higher levels of formal schooling. Longitudinal research with a continuously employed sub-sample from the 1998 NALL survey in 2004 found that those who did not participate in further education courses

tended to reduce their participation in job-related informal learning over time (Livingstone & Stowe, 2007a).

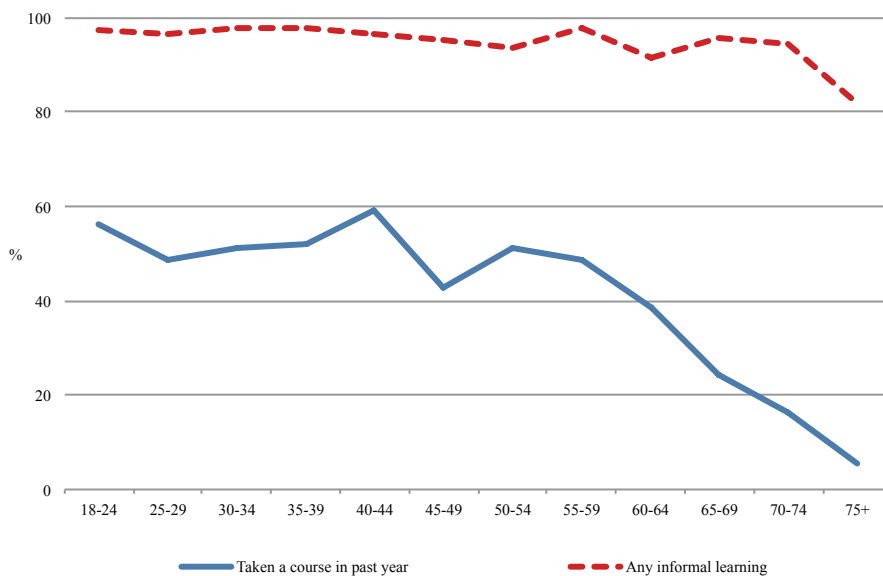
But lower levels of formal schooling do not appear to be barriers to many areas of quite complex learning. Even with low levels of schooling, unionized employees with decision-making roles in their workplaces have also been found to be more involved in informal learning in areas such as keeping up with new knowledge in their job fields (Livingstone & Raykov, 2008). Many workers with limited schooling have achieved high levels of competency through informal education/mentoring and their own informal learning efforts (Livingstone & Sawchuk, 2004). Subsequent research on levels of schooling and different types of informal learning may reveal other significant connections.

Age, Class, and Adult Learning

Besides formal schooling, the other basic social background factors found to be most closely related to further education have been age and economic class. With regard to age, the historical tendency has been for younger workers to have higher participation rates than older workers. We might expect that further education participation declines with aging because older adults would be generally more likely to rely on their cumulative experience than take courses to learn new things. In addition, most further education has been job-oriented and as people approach retirement there would be less motivation to seek further job-oriented education. Numerous prior studies have found a fairly linear decline in further education with age. However, as documented above, as a higher proportion of the population has completed post-secondary education, more people have opted to participate in further education. Therefore, the participation of older age groups in further education has increased since the 1980s. As Figure 8 shows for 2010, the differences between age groups in further education participation have narrowed, with a majority or near majority up to age 55 now participating. The recent Canadian national survey of participation in job-related education or training has found a similar narrowing among younger and middle-aged groups (Knighton et al., 2009, pp. 11–12). This finding is consistent with the increased level of schooling of these cohorts compared to prior generations. However, most further education remains job-oriented, so as adults leave the active labour force, further education drops off rapidly, to around 15% of those over 65.

The basic pattern of participation in informal learning by age is much different. As Figure 8 also shows, the participation rate remains over 90% until the mid-50s and then only gradually begins to drop. A more detailed analysis of older age groups with the larger 2004 sample has found that two-thirds of those over 80 years of age are actively engaged in informal learning activities for an average of around 10 hours per week (Livingstone, 2007c). Aging is not very significantly associated with a decline in the incidence of adult learning activities. Older adults spend nearly as much time on informal learning activities as middle-aged adults. More highly schooled people may continue to rely on further education longer, but the older we are, the more we rely on our own prior learning experiences rather than courses.

Family economic class origins and formal school attainment have been closely related (e.g., Curtis, Livingstone, & Smaller, 1992). Economic class positions in credential-

Figure 8: Age by Participation in Further Education and Any Informal Learning, All Adults

Source: WALL 2010 Survey (N=1,965).

based labour markets have also been intimately linked to levels of schooling. It follows that further education participation has likely exhibited a similar association with class positions.

Table 3 summarizes the patterns of post-secondary completion and further education for the 1998, 2004, and 2010 samples, focusing on different economic classes of employees: professional employees, managerial and supervisory employees, service workers, and industrial workers.⁸ All economic classes in all three surveys exhibit similarly high rates of participation in both job-related and general informal learning.

Post-secondary completion has been high for professional employees throughout this period and has increased to near universality; these employees are the most dependent on certified specialized knowledge for job entry. Post-secondary completion rates have remained somewhat lower and stable for managerial and supervisory employees, who are likely to enter their jobs based on additional criteria including experience and loyalty. Service workers and industrial workers had notably lower post-secondary completion rates in 1998 but these rates appear to have increased since then to be comparable with those of supervisory employees. There has also been an intergenerational trend for the gap to narrow between university completion rates for those from professional employee and industrial worker families (Livingstone & Stowe, 2007b). These relatively greater increases in the

8 For definitions of and empirically grounded discussions of the differences between these economic classes and proprietary classes of large and small employers and the self-employed in Canadian society, see Livingstone and Mangan (1996).

Table 3: *Economic Class by Post-secondary Completion and Participation in Further Education, Employees Only, 1998–2010*

Employee economic class	Post-secondary completion (%)			Taken further education course in past year (%)		
	1998	2004	2010	1998	2004	2010
Professional employees	73	83	91	75	67	72
Managers	66	72	67	71	68	63
Supervisors	45	56	46	37	54	60
Service workers	31	50	56	63	52	48
Industrial workers	23	34	39	45	41	44
Total labour force	41	56	60	61	53	54
N	948	5,365	1,243	945	5,436	1,241

Sources: NALL 1998 Survey; WALL 2004 Survey; WALL 2010 Survey

post-secondary completion rates for service and industrial working-class employees and for those from working-class family origins are significant for our later discussion of the matching of qualifications and job requirements.

Further education participation rates of these economic classes generally have remained similar to post-secondary completion rates throughout this period, as has the differential between the greater further education participation of professional employees and lower rates of industrial workers. It may be significant that service workers—who exhibited the greatest relative gains in post-secondary completion—seem to have decreased somewhat their further education participation. Conversely, supervisors—whose post-secondary rates remained stable—appear to have increased somewhat their participation in further education. In any case, working-class employees do not appear to have been increasing their further education participation commensurate with their increasing post-secondary completion rates during this period. This may suggest some working-class disenchantment with further education in absence of recognition of increasing post-secondary credentials. It also may be related to the fact that employer support for the further education of professional and managerial employees continues to be much greater than support for working-class employees (Livingstone & Scholtz, 2010).

Other important social background factors related to formal education include race and family income. Over the past two decades, the educational gap between Aboriginal and non-Aboriginal peoples in Canada has also been shrinking. However, according to the most recent census figures, only 42% of Aboriginal young adults (aged 25 to 34) held a post-secondary credential in 2006, compared to 68% of non-Aboriginal young adults. Low high school completion persists as a key barrier to post-secondary access among Aboriginal students, as well as low family income and experience of racism (Canadian Council on Learning, 2009). Low family income is re-emerging as a major general barrier to post-secondary education, especially for those in the lowest quintile of family income for whom tuition fees and related expenses are becoming an impossible burden to participation (Macdonald & Shaker, 2011).

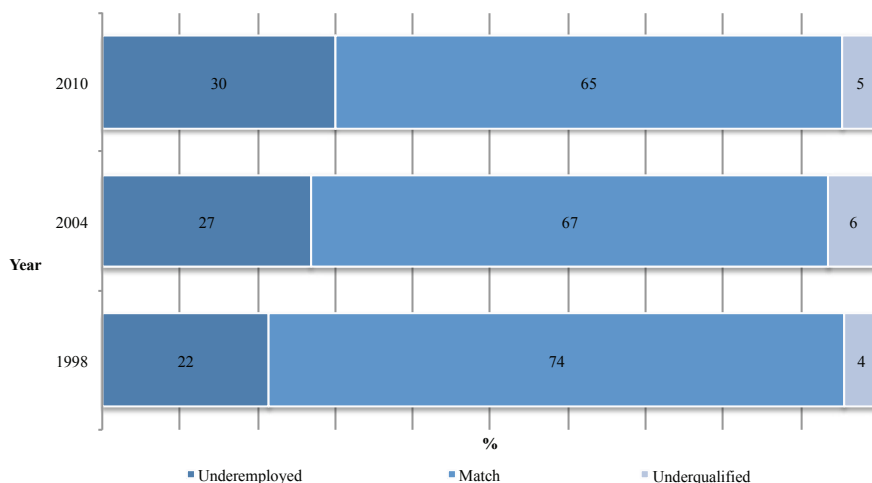
In sum, while very substantial systemic barriers to equal educational opportunity remain in Canada, our survey findings are consistent with the significant trend of narrowing age and class differences in formal adult learning. In the final section, we turn to the question of the extent to which Canadian adults have been able to utilize these increasing educational qualifications in paid employment.

Underemployment of Adult Learning

There has been a special focus in these three surveys and related research (see Livingstone, 2004, 2009) on the degree of correspondence between workers' educational qualifications and the requirements of their paid work. The frequent assertions that a knowledge-based economy has emerged and that workers must make greater learning efforts to keep up with changing job requirements is now widely taken as an article of faith, although critical scholars have raised serious doubts about both assertions (e.g., Livingstone & Guile, 2012). Our survey data provide assessments of several dimensions of the match between qualifications and requirements for the employed labour force. First, the increase in educational qualifications of the employed labour force has increasingly exceeded their job requirements so that, in 2010, 64% had completed a post-secondary education while only 53% were required to have this for their jobs. Furthermore, an educational credential may be required to get jobs but not be utilized in the job, a process of credential inflation. There has been a tendency for workers' perceptions of underemployment in—or overqualification for—their jobs to increase in recent years. As Figure 9 shows, those who believe they are underemployed in their current jobs increased from 22% in 1998 to 30% in 2010.

Numerous other measures of workers' abilities with job requirements are available in the survey data set (see Livingstone, 2009). The basic conclusions for virtually all measures are that underemployment is increasing, underqualification is decreasing, and underemployment is consistently greater for those in working-class jobs for which workers'

Figure 9: Subjective Match between Qualifications and Job Requirements, Wage and Salary Earners, 1998–2010



Sources: NALL 1998 Survey (N=747); WALL 2004 Survey (N=4,179); WALL 2010 Survey (N=966).

qualifications increasingly exceed established requirements. These conclusions may appear to fly in the face of the concern expressed by the Canadian Council on Learning (2010, p. 24) and others that over 40% of Canadian adults in a literacy survey performed below an “internationally accepted minimum considered necessary to succeed in today’s economy and society.”⁹ However, this is an arbitrary standard. Less than a quarter of adults in our surveys rate their reading skills as only moderate or poor. Most pertinently, the vast majority of these people rate themselves as at least adequately qualified to perform available jobs. Underqualification certainly remains a serious problem for some marginalized groups. But, in the employed labour force, underqualification is a *relatively* minor condition that usually can be overcome by continuing formal and informal learning. Underemployment is a more enduring and growing issue.

Various studies suggest that formal educational attainments have been increasing faster than the education required to get or to perform jobs in many countries (e.g., Felstead, Gallie, & Green, 2002; Vaisey, 2006). But comparative evidence suggests that underemployment may now be greater in Canada than in most other advanced market economies. For example, in our 2010 surveys, about half of all Canadian workers describe themselves as having the skills to cope with more demanding duties. This is a higher proportion than in any European country besides Albania (Eurofound, 2012),¹⁰ and may represent a serious indictment of the waste of talent, or human capital, in Canada’s economy as currently structured.

Another pertinent measure of the relations of qualifications and requirements is computer literacy, a central assumed skill for the knowledge-based economy. There has been a very rapid increase in computer use by the employed labour force in Canada, from under 40% in 1989 to 85% in 2004 and almost the entire labour force in 2010 (Livingstone & Scholtz, 2010).

However, in 2010, about *half* of all workers in the survey report that they have *higher* computer skills than they are able to use in their current jobs. In spite of the exceptionally quick diffusion of computer literacy requirements, popular demand for knowledge has exceeded it. Even here, Canadian adults’ learning activities in formal schooling, further education, informal education, and informal learning generally appear to be keeping ahead of employers’ job requirements.

9 A series of international surveys including Canada that have attempted to measure adult skills have found wide variations in such skill levels both within and between countries and in the extent of both skill surplus and skill deficit in relation to job requirements. While detailed comparisons are beyond the scope of this paper, relevant findings for Canada are that skill surplus (or underemployment) exceeds skill deficit and that this surplus is concentrated mainly among those in unskilled and semi-skilled jobs (see Desjardins, 2011).

10 Based on custom tabulations of the data in this Eurofound report and comparable data in the WALL 2010 Survey.

Concluding Remarks

Canada continues to have one of the most highly schooled populations in the world, and these surveys confirm that Canadian adults' participation in further education no longer trails that in most advanced market economies. At the same time, the underemployment of qualifications in the existing job structure is a growing problem. Recent student-led demonstrations over prohibitive tuition fees and debt loads and diminishing prospects for decent jobs are partly a reaction to these conditions.

These surveys demonstrate that most adults extensively pursue intentional informal learning activities related to paid and unpaid work and general interests throughout their lives and that these activities continue to dwarf formal learning. A movement for prior learning assessment and recognition emerged a generation ago in Canada.¹¹ So far, it has mainly provided a means for those who have already entered post-secondary institutions to complete advanced programs faster, with little educational or employment benefit for the vast numbers who may have achieved advanced knowledge and competency through informal learning directly related to their jobs, and no recognition at all for learning related to housework and volunteer work. In spite of pervasive rhetoric about the importance of lifelong learning, there is still vast unmet demand for recognition of prior informal learning (Livingstone & Myers, 2007).

The supply of qualified workers generally may tend to exceed demand in competitive labour market economies. But underemployment of the formal and informal learning and knowledge among the employed labour force is now chronic and growing, particularly in Canada. Contrary to knowledge economy advocates and incessant assertions in mass media, the key problem is very evidently *not* a lack of relevant formal schooling and further education, nor is it a failure to engage in continual job-related informal learning. Whatever improvements are made in the form and content of formal education, increasing numbers with advanced formal education cannot find commensurate jobs. Continuing escalation of the educational arms race will continue to produce greater underemployment of learning and knowledge.

More coherent education and training initiatives are always welcome, but the increasingly evident alternative is economic reforms to redistribute work and design more decent fulfilling jobs for an increasingly knowledgeable labour force (Livingstone, 2004, 2009). The underlying contradiction between increasing popular demand for knowledge and the more restrictive fixation on maximizing private profit is being actively negotiated in virtually all spheres of society. Hopefully, further surveys and case studies will generate new knowledge about ways of organizing work processes, training provisions, and more effective utilization of qualified workers' skills in different sectors and enterprises of the economy. Specific comparative analyses of working conditions in relation to formal and informal training provisions and workers' use of their skills can suggest optimal forms of innovative work organization and workplace learning to enhance sustainability in the economy and society of the 21st century.

11 For useful information on this movement, see the website of the Canadian Association for Prior Learning Assessment: www.capla.ca.

As noted at the outset, these three surveys are primarily intended to provide general benchmarks for continuing studies of adult learning and work.¹² Probing of the massive icebergs of intentional informal adult learning has begun. Further critical inquiry into the full array of adult learning in relation to changing social and economic conditions remains necessary as an antidote to the fallacious but still widely asserted notion that the knowledge deficit among the common masses is the biggest obstacle to the full emergence of a knowledge-based economy.

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12 Readers are encouraged to use the survey findings in conjunction with NALL and WALL network case studies, all of which can be found, along with the WALL Resource Base (Livingstone 2007b), at www.wallnetwork.ca.

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