D.W. Livingstone

# THE LIMITS OF HUMAN CAPITAL THEORY: EXPANDING KNOWLEDGE, INFORMAL LEARNING AND UNDEREMPLOYMENT

*L'auteur critique la conception traditionnelle de l'éducation dans la théorie du capital humain, qu'il considère trop axée sur l'enseignement formel et les connaissances sanctionnées par les diplômes. Il propose une conception élargie des capacités et réalisations qui intègre un élément moins formel. Il examine l'importance des liens entre l'acquisition non structurée des connaissances et le monde du travail à partir d'études de cas et de sondages effectués récemment au Canada, et se penche sur les liens entre ce genre de formation et les programmes d'éducation des adultes et autres.*

The core thesis of human capital theory is that peoples' learning capacities are comparable to other natural resources involved in the production process; when the resource is effectively exploited the results are profitable both for the enterprise and for society as a whole. From its inception in the United States after World War II, human capital theory tended to equate workers' knowledge levels with their levels of formal schooling, to rely on quantitative indices of amount of schooling in estimating individual economic returns to learning and to infer that more schooling would lead to higher productivity and macroeconomic growth. Throughout the post-1945 expansionary era, the simultaneous increase of school participation rates and earned incomes in advanced industrial market economies lent support to this perspective and encouraged the popular view that more schooling would inevitably lead to economic success.

Since the 1970s, however, the applicability of the theory's claims for returns to schooling has been thrown into doubt, as school enrolment rates have continued to increase while average incomes have stagnated, unemployment rates have worsened and underemployment of highly schooled people has been recognized as a social problem. Human capital theory clearly needed to be retooled. There have been at least three sorts of retooling efforts. First, some human capital advocates have suggested that the quality of schooling is now the problem, and that by raising standards, starting earlier or providing more relevant or specialized forms, both human capital creation and economic growth can be rejuvenated. Second, some popular revisionist approaches no longer focus on schooling but on lifelong job-related learning. The dynamic centre of human capital creation is now seen to reside either in highly concentrated urban zones where "symbolic analysts" live, work and continually solve, identify and broker production problems,[1] or in "learning organizations" that create intellectual capital by facilitating collaborative problem solving within their workforces.[2] The central empirical claim of human capital theory — that learning capacity is closely related to earning level — is resuscitated by downplaying schooling and emphasizing that effective employees must be lifelong learners in an increasingly globally competitive enterprise environment. Third, adherents to the original conceptual approach have attempted to defend the theory by focussing more narrowly on documenting the continuing relative economic benefits (*i.e.*, lower unemployment rates, higher earnings if employed) to those with higher formal credentials, while also asserting the more intangible spin-off benefits of schooling.[3]

All of these efforts to repair human capital theory remain in jeopardy because of their failure to account for a growing general gap between peoples' increasing learning efforts and knowledge bases on the one hand, and the diminishing numbers of commensurate jobs to apply their increasing knowledge investments on the other hand. This statement may seem strange to readers who accept the frequently asserted assumptions of human capital theory, or who focus on occasional skill shortages in particular occupational specialties. But consider the following general evidence.

**The continuing expansion of quality education**

In all advanced industrial market economies, people are spending more time in organized educational activities than they ever have before. Primary-secondary enrolment ratios have reached near-universality in most OECD countries in the 1990s and tertiary enrolment ratios have generally doubled since the 1970s. Educational leaders in most of these countries have also been making concerted efforts to expand and sensitize their vocational schooling provisions, particularly

through more extensive partnerships with the business sector. Participation in adult education courses has also grown massively since the 1970s in most of these countries. In Canada, for example, the proportion of adults enrolled annually increased from four percent in 1960 to 28 percent in 1990.

Some human capital advocates suggest that these great increases in learning efforts have not led to commensurate economic gains because of the declining quality of education. With regard to the schooling of young people the claim is typically made in terms of falling performance levels on standardized tests. Such historical comparisons are often fraught with fallacy of composition errors of logic. Either average scores of entire current youth cohorts are compared with those of more restricted earlier enrolments, or specific bits of knowledge are used to argue an increasing general ignorance thesis. While most of these claims have now been systematically refuted,[4] they continue to be recycled in evermore selective forms. Of course the curricula and pedagogies of current educational systems will change, and we can and should continue to try to improve them. But rather than bemoaning decline from an idealized past, or becoming fixated on international league tables of current math scores, we should celebrate the fact that much larger and increasing proportions of today's young people are mastering much larger and increasing bodies of school knowledge.

Similarly, the recent purported crisis in adult illiteracy has found little evidentiary basis. Younger cohorts of adults have much lower illiteracy levels than older adults. In 1991, only seven percent of 25-34 year old Canadians had rudimentary reading skills, compared to 35 percent of those over 55, while the proportions reading at the most advanced levels has continued to increase significantly in younger cohorts.[5] Fallacy of composition errors have also been made in trying to save the growing illiteracy argument. But given that adults are spending massively increased amounts of time in continuing education programs and their general learning skills also appear to be increasing, these claims also have little warrant.

In sum, the evidence does not show any cumulative general decline in the quality of education. What it does show is that people in advanced industrial market economies are increasingly using their learning capacities more effectively through the institutions of organized education to gain greater amounts of knowledge. Blaming the educational system for the breakdown of the learning-earning connection is unjustified.

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**The iceberg of informal work-related learning**

The "learning organization" arguments of human capital revisionists like Reich and Senge, although largely rhetorical to date, begin to draw greater attention to aspects of learning previously ignored or taken for granted by human capital theory's fixation on schooling and credentialled knowledge, namely the informal work-related learning of workers and their cumulative bodies of tacit knowledge. In some sense, every adult knows that substantial informal learning is essential to master a new job. There is a significant body of ethnographic research on the development of "knowhow" on the job that documents this.[6] Most employers rely heavily on informal on-the-job training. However, more extensive surveys of work-related learning threaten to undermine learning organization revisions of human capital theory entirely, by exposing the lack of sustained relations between continued learning and earning for most workers.

Adult educators generally recognize that formal schooling is merely the tip of the learning iceberg that includes not only organized schooling and continuing education courses but both deliberate and incidental types of informal learning that people voluntarily engage in either individually or collectively. Until recently, there has generally been a high correlation between people's level of formal schooling and their participation in continuing education courses. Human capital analysts could take this strong association as a warrant to rely on school attainments as a sufficient indicator of adult learning efforts. But this relation now appears to be weakening as less-schooled adults increasingly participate in continuing education courses to upgrade their credentials in order to contend for better jobs[7].

In any case, surveys of informal learning have actually found it to be much more evenly distributed, regardless of schooling level. Consider the results of the most recent Ontario surveys.[8] In general, Ontario adults report that they are now spending about 12 hours a week, or over 600 hours per year, on deliberate informal learning projects. While such self-reports only represent rough estimates, they do suggest some increase in the incidence of informal learning efforts since the first empirical studies discovered an average of about 500 hours per year in the early 1970s.[9] The most notable differences between social groups are, as might be expected, in the work-related learning of youths and seniors. Youths between 18 and 24 now spend about eight hours a week learning informally about their new or prospective jobs, while those over 65 devote only three hours per week to informal learning related to their post-retirement careers. But most other adults spend between five and six hours in work-related informal learning projects, whatever their school attainments. As Table 1 summarizes, corporate executives, professional employees and service and industrial workers all now spend about the same amount of time

in work-related informal learning.

Human capital theory assumes that those who are more highly compensated are exercising greater learning capacities. But these results suggest that, at least in terms of informal learning time, the most poorly paid employees are devoting just as much effort to work-related learning in general as the most highly paid employers.

There do appear to be striking occupational class differences in the extent to which people get to use this acquired knowledge in their actual jobs. As Table 1 also indicates, there is a fairly close correspondence between the amount of *job-specific* unpaid learning and the *general work-related* informal learning of employers and professional-managerial employees. While service and industrial workers devote as much time to work-related informal learning projects, they have much less inclination to focus these learning projects on their specific jobs. This suggests that a great deal of working class employees' current learning capacity is being wasted in their present jobs.

Table 1
**Work-Related Learning by Occupational Class, Ontario Labour Force, 1994-96**

| Occupational Class | Informal work-related learning (ave.hrs/week) 1996 | Unpaid job-related learning (ave. hrs/week) 1994 | Difference |
|---|---|---|---|
| Corporate executive | 6 | 7 | –1 |
| Small employer | 5 | 6 | –1 |
| Self-employed | 7 | 6 | +1 |
| Manager | 5 | 5 | 0 |
| Professional employee | 6 | 5 | +1 |
| Supervisor | 6 | 4 | +2 |
| Service worker | 6 | 3 | +3 |
| Industrial worker | 6 | 1 | +5 |
| Total | 6 | 4 | +2 |

Sources: Livingstone, Hart and Davie (1995,1997).

Take computer literacy as a pertinent illustration. Many commentators express concern that workers are not becoming conversant with computers quickly enough to respond to the computerization demands of the workplace. In fact, surveys indicate that workers are learning computer languages much faster than employers are implementing related technologies, and that the gap in computer literacy between those with more or less schooling is closing fast among younger generations.[10] Recent worker-centred studies have documented extensive informal computer learning networks among workers who have virtually no opportunity to apply their computer literacy in their present jobs.[11]

The fact is that large and growing numbers of people do substantial amounts of work-related informal learning throughout their working lives. But many either do not have the opportunity to apply this acquired knowledge in their paid workplaces or, if they can apply it informally, to be recognized and rewarded for doing so. The promoters of learning organizations have got it backwards. The challenge is not to facilitate more collaborative learning but to establish fair incentive structures, especially among service and industrial workers, to use and compensate the extensive amount of informal learning that is already occurring.

**Underemployment**

But the biggest challenge to human capital theory is underemployment of credentialled knowledge. Growing proportions of people who have invested many years of their lives in acquiring advanced formal educational qualifications are unable to obtain commensurate jobs. I have discussed and documented the many dimensions of underemployment in detail elsewhere.[12] Here I will just cite two, the credential gap and the performance gap.

The credential gap refers to discrepancies between the formal educational qualifications of job entrants and the qualifications required by their employers. Canadian studies based on self-reports indicate that, despite the fact that employers have inflated the entry requirements for many jobs since the early 1980s, over 20 percent of all job holders have continued to have higher credentials than their jobs required. Among those with post-secondary credentials, the rates of credential underemployment are often much higher. Recent surveys of food-bank users in Toronto have found that nearly a third of food-bank users have some post-secondary education and around 10 percent are university graduates.

The performance gap is the difference between job holders' knowledge and the actual knowledge needed to do the job. Objective estimates based on General Educational Development (GED) measures indicate that job performance requirements have increased much more slowly than employers' entry requirements over the past two generations. Therefore, in light of the very large knowledge gains generated by the expansion of both organized education and informal learning, the aggregate underemployment of workers' actual knowledge is likely to have increased greatly. Recent GED-based analyses suggest that as many as half of current employees in North America may now be underemployed in these terms. While such findings may fly in the face of the apparent growth of "high performance, high tech" firms, close empirical studies have found that even in such firms the performance requirements for most employees are quite modest.[13]

Our indepth interviews with recent university graduates who have experienced both credential and performance aspects of underemployment discover general sentiments of deep disappointment and confusion that their educational investments have not paid off, as well as continuing hope that further education may yet do so.[14]

The growing proportions of unemployed and underemployed youths generally continue to try to realize their extensive educational educational investments in the job market, and even continue to make more such investments. But most find diminishing credibility in human capital advocates' arguments that those with the most formal education are still the most likely to get good jobs, when they see so few of these to go around.

**Prospects for human capital theory: reversing the education-jobs optic**

Recent attempts to revise human capital theory have failed empirically to re-establish a generally applicable correspondence between our investments in learning and economic rewards. In practical policy terms, the growing gap between the increasing knowledge of the workforce and the declining numbers of commensurate jobs has provoked a variety of "stopgap" solutions mainly focussed on education and training programs. The most drastic response, motivated more directly by state fiscal crises, has been to cut public education funding and consequently limit the number of places in advanced education programs. While such negative measures can indeed narrow the education-jobs gap, few politicians would be prepared to campaign explicitly for enrolment limits because of strong continuing public demand for accessibility. Numerous initiatives to make more strategic investments in education and training programs, while worthy in themselves, are unlikely to close the education-jobs gap in light of the "surplus" of human capital already widely available. Both human capital advocates and policy makers appear to be drawn toward promoting some version of lowering most people's economic expectations: "study hard to get all the knowledge credentials you can and you may have a better chance at a decent job, but don't bet on it." In effect, this mind-set contemplates the development of an intellectual reserve army of labour and the continuing wastage of a massive amount of investment in work-related learning.

Ultimately, we need to recognize that it is not improved learning practices but *economic reforms* that hold the solution to the education-jobs gap. We can and should reorganize our workplaces to apply more of the labour force's currently wasted knowledge and work skills. But this will require going far beyond collaborative learning organization rhetoric. The basic elements are: redistribution of current paid work; democratization of workplaces; and recognition of new forms of compensable work.

The *redistribution of current paid work* could address the worst aspects of the education-jobs gap, the existence of chronic unemployment of qualified people while a core of employees work excessive overtime. Relevant measures include a shorter normal paid workweek, reduction of overtime, more flexible working conditions including earlier voluntary retirement with adequate pensions, "time banks" that permit people to accumulate waged time to use for sabbatical leaves, job sharing for those with wages high enough to afford it, time off for child and elder care, and time off allowances for on-the-job training programs, as well as more equitable sharing of unpaid domestic labour by men to enable women to participate more fully in paid employment.

*Workplace democratization* could permit underemployed members in any given organization, notably service and industrial workers, to utilize their knowledge and skills more fully in the design and control of the work process. Relevant measures would include the participatory team-based approaches promoted by learning organization advocates, but with substantially increased worker autonomy, reductions in unequal compensation between higher management and workers, human-centred work designs that enable worker-machine interactions rather than reducing the human knowledge component, and opportunities for worker ownership and control of enterprises.

The *recognition of new forms of compensable work* would legitimate various types of socially useful labour that are already necessary for any community to reproduce itself, as well as the generally invisible knowledge and skills exercised in such work. This includes many forms of community volunteer work, such as environmental cleanup, consumer co-ops and activism in numerous other types of needed community services.

All of the above economic alternatives have some potential to improve the connection between most people's investments in learning and their workplace compensation. Virtually all measures have been implemented successfully somewhere already. Widespread implementation of many of these alternatives could lead to the effective closing of the education-jobs gap as well as a plausible revision of human capital theory along more inclusive and equitable lines. But at the moment this statement is little more than "pie in the sky."

The major obstacle is that many people currently perceive further movement toward such economic alternatives as against their personal interests, most notably private employers and highly paid professional-managerial employees, as well as others who depend directly on company profits for their income. Of these alternatives, variants of workplace democratization have been most widely implemented and found profitable, as in the case of Sweden. With the growing premium being placed on specialized workers' intellectual

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capital, further steps in this direction are likely. But, by itself, workplace democratization has very limited potential to address the education-jobs gap. In market-driven societies, productivity gains associated with democratization eventually lead to layoffs in the name of enterprise competitiveness. Only if democratization of current paid workplaces is coupled with redistribution measures and recognition of new forms of compensable work is there much hope for meaningful work for the growing numbers of unemployed and temporary employees. In order for such an economic future to become politically feasible, both shareholders and stakeholders in private enterprises will have to see beyond short-term bottom lines to seriously consider community and ecological sustainability.

The more likely prospect is an economic future of greater global competitivity of private enterprises, along with the degradation of most communities. Human capital advocates like Robert Reich are rightly concerned about decreasing social allegiances of the increasingly highly compensated symbolic analysts who float between enterprises and communities. What they generally ignore is the even larger problem that the current human capital of most citizens is depreciating from underuse. Ironically, current versions of human capital theory serve to quicken this process.

We should probably discard the entire analogy between private enterprise assets and human learning capacities. Human learning is a much more complex, versatile, creative and resistant phenomenon than any other means of production. As we have seen, the human capital concept has generally served to narrow our comprehension of work-related learning rather than enrich it. The general welfare of knowledge-based societies would be much better served by recognizing the multi-faceted character of learning, and concentrating research and policy efforts on reorganizing work to effectively use and fairly compensate the vast array of organized and informal learning.

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**D.W. Livingstone** is Chair of the Department of Sociology and Equity Studies in Education at the Ontario Institute for Studies in Education at the University of Toronto and the leader of the SSHRC Research Network on New Approaches to Lifelong Learning.