Widening the Net:
Considerations in Interpreting
"Literacy Skills, Non-Cognitive Skills and Earnings:
An Economist's Perspective"

Jerry Paquette

University of Western Ontario

December 17, 2001

This paper explores critically grounds for interpretation of "Literacy Skills, Non-Cognitive Skills and Earnings: An Economist's Perspective" by David Green , a paper to be presented in Ottawa on November 24, 2001 at the "Empirical Issues in Canadian Education" conference sponsored jointly by the John Deutsch Institute, Statistics Canada and the Western Research Network on Education and Training. The critique and opinions expressed in it are solely those of the author.

1. "Causing" Earnings: A General Cautionary Note

Causality in human affairs is always a complex, contentious, assumption-laden, and contested matter. If social sciences generally have one great theoretical cautionary note to offer to inquiry in educational policy—and broader social policy as it impacts on education—it is surely that social phenomena are rarely susceptible to the type of law-like explanation, independent of time and space, one finds in the "hard sciences." That said, we are all aware that systematic relationships among key educational and social-welfare indicators have always been and will continue to be of enduring interest.

Several other "generic" cautions also seem in order with regard to this study. I will deal with these in the fewest words possible because they are broadly known and understood in the contemporary research community. They do, however, merit mention as part of a useful and pertinent interpretive framework for this study. First, covariance does not necessarily indicate causality. Second, real-word significance may be vastly more complex than and is definitely not synonymous with statistical significance. Third, all predictive statistical models, even the most sophisticated, simplify social reality more or less grossly, frequently concealing more than they reveal. Fourth, historical relationships do not necessarily continue into the future unscarred by social and economic change, especially in times of radical change. What may have been

intimately related to earnings in the past, for example secondary completion, may be far less so in the future for a variety of reasons such as, for example, a radical increase in supply or incidence in the general population.

2. "Causing" Earnings: Ability, Skills, Schooling, Experience and Other Likely Suspects

In my view, a particularly laudable aspect of this study's approach to accounting for earning differentials is its attempt to sort out ability effects from skill effects, or, more precisely, to zero in on skill effects. The IALS, moreover, as described in the study, seems a promising instrument for isolating the effect of general employment and "life" skills. That said, the study, which yields a number of fascinating results notwithstanding, is based on a number of questionable assumptions beyond the generic assumptions endemic to all quantitative analyses of social phenomena discussed above.

In my view, the greatest single leap of faith in this, and similar, studies is that the labour market values mainly "skills" demonstrated in the workplace rather than other qualities or attributes that workers carry with them into the workplace. Without for a moment attempting to trivialize the importance of either cognitive or non-cognitive skills to employers, I would suggest that much more than skills comes into play when employers decide to hire—and retain or promote—an employee, especially when high-income, high-status employment is at stake. This is a point widely recognized in the broader literature on administration (see, for example, Kanter, 1977). In particular, employees and candidates for employment, like students in schools and universities, bring with them "cultural capital" (Bernstein, 1971)—either positive or negative in the eyes of those responsible for teaching or supervising them. This "cultural capital," moreover, is more than just an amalgam of "skills"—cognitive or other.

As Kanter notes with regard to senior administrative positions, teachers and employers seek to reward those who are culturally most similar to themselves. Thus, skills, years of education and other "rational" selection criteria being equal, employers will prefer to hire and advance those with whom they feel culturally most congruent. Those who bear the corporate torch into the future should be, in the view of those responsible for hiring and promotion, similar to those who currently carry it. Thus cultural congruence with potential employers is likely as important as perseverance in schooling or employment-relevant skills.

I raise this point not out of perverse desire to minimize the importance or interest of the Green study but as an important caution to constructing or altering significantly social policy based on it. In my view, we would do well to bear in mind here the lesson of the "Coleman Report" (Coleman et al., 1966) about what can happen in public and educational policy when one confuses correlation with causality. In that case the relatively high academic performance of black students in predominantly white (and hence high SES) neighborhoods and schools led to federally mandated bussing of black students to predominantly white neighborhood schools. Only later when bussed black students failed to improve in measures of academic performance did critics belatedly conclude that simply bussing black inner-city students to predominantly white higher-SES neighborhood schools did nothing to change the "cultural capital" such students brought to school—and little to improve their academic performance. The policy error of federally-mandated bussing in the United States was based on the faulty assumption that, because black students in relatively prosperous, predominantly white neighborhood schools performed academically better than their counterparts in poor inner-city school districts, one could improve the academic performance of the latter group of students simply by physically transferring them to higher-SES neighborhood schools. The fallacy of confusing correlation

with causality was particularly striking in this case and the dysfunctional policy legacy lived on until very recently with poor, inner-city black students being bussed to higher-SES suburbs even when their own neighborhood school had been recently rebuilt and endowed with both physical and human resource advantages that their destination school did not have.

My point here is simply the rather pedestrian one that correlation, whatever the causality model employed, is not the same as causality and to construct social policy based on correlation is risky business indeed. Using conventional regression methodology and its assumptions, Professor Green's study does a credible job of linking earning to cognitive skills as measured by the IALS and of distinguishing IALS-measured cognitive skills from years of schooling—although, as he himself recognizes, the overall proportion of earning accounted for by *both* years of schooling and average IALS cognitive skill combined leaves about half the variance in earning unexplained.

I would like to suggest two pitfalls here. First, the endogoneity problem may be more pervasive and broader than I take Professor Green to assume. Perseverance in schooling, for instance, may be very much a function not only of anterior and contemporaneously acquired "cognitive skills;" it may also well be the result of "cultural capital." A student whose culture and values draws praise and reinforcement from teachers, one would suspect, would be far more likely to persevere in schooling than one whose culture, family heritage, and values draw persistent criticism and rebuke. Being culturally congruent with the school, moreover, if critical theorists are right, is intimately related to being culturally congruent with most workplaces. Both require functioning easily in a mainstream business-culture situation. It may well be that the capacity to do so is far more a function of family heritage than of intellectual ability or cognitive skills. I am reminded, in this respect, of the strong powerful correlation psychologists have

found between a sense of "self-efficacy" and academic achievement. Some parents are both able to and *do* offer their children a range of learning and growth experiences that reinforce from earliest childhood the belief that "I can"—can affect my environment, can learn, can socialize, can make a difference. Being born on the right side of the tracks may be more important than any skills set a potential employee brings to an employer—although it is surely not enough because not all parents who can offer their children such experiences do so.

Second, but closely related, some of the variables (such as persistence, "attitude," and communication ability) Professor Green proposes from his examination of the broader literature as likely candidates to explain some of the unexplained earning variance are themselves in all likelihood proxies for mainstream business-culture congruence. To put a fine point on it, people from families with a culture that fosters and reinforces success in a business culture will likely enjoy a marked schooling and earnings advantage over those from families without such cultural capital *irrespective of any specific cognitive or non-cognitive skills*.

Overall then, I would like to argue for broadening the conceptual base here from one limited to cognitive and non-cognitive *skills* to one of cognitive and non-cognitive *assets.* These assets are not limited to skills captured on tests such as the IALS and should specifically take into consideration measures of congruence with contemporary business culture and values—and with the presumably closely related sense of self-efficacy in that culture. In this respect, in my view, parental education is but a very partial proxy. Indeed, the discouraging observation that I must make in this regard is that most available data sets I am familiar with do not appear to offer plausible proxies for cultural congruence with the culture of contemporary Canadian business. Part, but by no means all of such congruence, would be captured by demographic variables related to ethnicity, home language, length of time in country, and so forth but another crucial

part should zero in on access to growth opportunities in all of our multiple intelligences from earliest childhood, particularly on those likely to promote what psychologists call self-efficacy.

Having set out my major cautionary concerns about this study—and about using it as a basis for social and educational policy—let me now turn to what I consider interesting and informative in the study.

1. a) Cognitive Skills and Schooling

Literacy as measured by the IALS, and as distinct from but likely contributory to years of schooling, is significantly and positively related to earning. This is, as Professor Green signals near the beginning of his paper, an entirely intuitive and plausible finding but should nonetheless be viewed critically as an educational policy lynchpin. On the face of it, we would conclude that higher levels of literacy in the working public should ensure higher levels of more remunerative work. The pitfall here, however, is directly parallel to the conundrum of increasing educational attainments with decreasing price value in the labour market. To the extent that current corporate restructuring efforts use literacy, as they clearly have years of schooling, to "filter" desirable from undesirable employees irrespective of the relationship of literacy (or schooling) to the task performed (what cognitive skills does checking out groceries require in an age of bar-code readers), one would expect that the price of literacy in the labour market (like that of a secondary diploma) would decline if and when higher levels of literacy were the norm in society. Like the credentialism spiral in educational attainment where continually higher levels of attainment are used as hiring criteria simply because they indicated perseverance and dependability (see, for example, Green, 1983), a similar literacy spiral might also occur. In short, one ought to be cautious about extrapolating into the future any current "price" of education or literacy, especially given the dramatic restructuring the labour market is currently

experiencing. Nonetheless, the transition to a "knowledge economy" is entirely congruent with the increasing literacy price to date Green notes—for knowledge workers, that is. Particularly suggestive is Green's finding that "non-cognitive skills do not interact with cognitive skills in production" (Green, 2001, p. 29). Especially if we broaden the idea of "non-cognitive skills" to that of non-cognitive *assets* this finding has, in my view, a potentially powerful message when view from a critical-theory stance. If non-cognitive assets (non-cognitive skills of the sort Professor Green has in mind as well as family social and economic assets actually made available to children as growth opportunities—and I think an interesting and promising thread to be picked up by future research here in this era of radical restructuring and workplace displacement is the distinction between prior social and current economic status) are not directly linked to cognitive skills, labour price may be significantly skewed by qualities and attributes that have only limited or even in some cases no rational connection to productivity (e.g., family connections, cultural capital valued in business environments, and so forth). In such a case, policies aimed at increasing overall literacy levels would likely not contribute greatly either to increased productivity or increased equity of access in the labour market.

One of the most intriguing divergences from trends well established in the literature in Professor Green's data is the finding that being a university-educated father is negatively related to earnings. How, in the face of overwhelming evidence that high levels of educational attainment (especially on the part of mothers) are associated with higher incomes and earnings, could this be? This peculiar finding is an open invitation to wander far out on a speculative limb and I cannot resist the temptation to do so. Specifically, I cannot avoid wondering whether highly-educated "driven" fathers might, on average, be less successful in promoting among their children the kind of self-assurance and development of cognitive and non-cognitive assets that

are valued by schools and employers. If so, that would be a rather stunning discovery. Whatever the explanation, it's hard to imagine one that would be anodyne, uncontroversial, and uninteresting.

Overall, then, Professor Green's study is a useful preliminary step in sorting out cognitive skills from other "factors," particularly schooling, contributing to observed earnings. In my view, however, there remain many tantalizing and unanswered question in this line of inquiry, most particularly, the nature and significance, both statistical and real-world, of non-cognitive assets that would help explain more of the variance in observed earnings—and perhaps greatly change the observed earning prices of both schooling and literacy.

References

Bernstein, B. (1971). *Class, codes and control.* (Vol. I). London: Routledge & Kegan Paul.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, D.C.: U.S. Government Printing Office.

Green, D. A. (2001). *Literacy skills, non-cognitive skills and earnings: An economist's perspective.* Paper presented at the Empirical Issues in Canadian Education, Ottawa.

Green, T. (1983). Excellence, equity, and equality. In L. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 318-341). New York: Longman.

Kanter, E. M. (1977). *Men and women of the corporation*. New York: Basic Books.