Motivating Learning and the Development of Human Capital

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Introduction

The origin of the idea of human capital goes back to at least Adam Smith who, in the *Wealth of Nations*, suggested that investment in physical capital through expenditure on machines might have parallels in investment in human capital through expenditures on education and training.

Theodore Schultz and Howard Becker, among others, were to revive this idea and develop it considerably from the early 1960s. Schultz was under no illusion about the unpalatability of the idea of regarding human beings as a potential form of capital, and of learning and education as the means of investment in that capital. In his address to the American Economists Association in 1960 he urged fellow economists to reconsider the idea of education as a form of investment in human capital, rather than simply a good for consumption

> Economists have long known that people are an important part of the wealth of nations. Measured by what labor contributes to output, the productive capacity of human beings is now vastly larger than all other forms of wealth taken together. What economists have not stressed is the simple truth that people invest in themselves and that these investments are very large. Although economists are seldom timid in entering on abstract analysis and are often proud of being impractical, they have not been bold in coming to terms with this form of investment (Schultz 1961: 313)

The idea of education as a form of investment became the missing piece in the jigsaw of the puzzle of the sources of economic growth that were not accounted for by increases in land, labour (man-hours) and physical capital. The propositions of human capital theory were that the skills that people acquire are a form of capital, human capital; that these are acquired through deliberate investments in education; that skills are the capacities that contribute to economic production; and that earnings in the labour market are the means by which a person's productivity is rewarded. This form of capital had grown in Western societies at a rate faster than "conventional" (nonhuman) capital and that its growth has been the most distinctive feature of the economic system of the mid 20th century (Schultz, 1961).

As Woodhall (2001) has pointed out, the idea that education represents investment in human capital is much than a simple analogy with physical capital.

> …it implies that it is possible to measure the returns to investment in education, and to apply cost benefit analysis to decisions about education expenditure, in the same way as rates of return are used to analyse the profitability of investment in conventional physical capital (Woodhall, 2001: 6952).

Woodhall also points out that while the idea of human capital may be traced to writers in the eighteenth and nineteenth century, the first serious attempts to measure the economic costs and benefits of education and compute rates of return were made, for the United States by Schultz (1961) and Becker (1964). Throughout the 1970s and 1980s studies of cost-benefit and rates of return were undertaken in a range of industrialised and developing countries by Psacharopulos (1973, 1994) and others. Woodhall (2001) summarises four general patterns revealed by these studies; (i) social returns are consistently lower than the private rate of return (ii) social and private rates of return to primary education tend to be higher than rates of return to secondary or higher education; (iii) the rate of return to education is higher in developing countries than in developed countries; and (iv) the rate of return to investment in education is higher than the average rate of return to physical capital in developing countries, though not necessarily in developed countries.

The Adoption of Human Capital by policy-makers

Political and policy statements reflecting the notion that investment in education produces economic growth appeared with increasing regularity throughout the second half of the twentieth century. Figure 1 presents just five such statements selected at random from countries of Asia, Latin America and Africa from the 1960s, 1970s and 1980s.

Figure 1 The adoption of Human Capital by politicians and policy-makers

The destiny of India is now being shaped in her classrooms. This, we believe, is no mere rhetoric…. It is education that determines the level of prosperity, welfare and security of the people *(Report of the Indian Education Commission, early 1960s)*

When it is considered how much more competently any job could be done with a little more education than a little less, educated youth are a national asset in whatever numbers they exist *(J.E. Jayasuriya, Professor of Education, University of Colombo, Sri Lanka, 1964*

The contribution of education to development is obvious. It shows itself in the formation of qualified individuals; in the ability of a people to absorb and produce technological innovations and raise the level of productivity on the job *(Luis Echeverria, President of Mexico, 1973)*

Education is the principal instrument for providing the skills required by the economy and also for improving the overall levels of efficiency, productivity, technological and managerial performance of the labour force *(Republic of Ghana, Five Year Development Plan, 1977)*

The economy of our country may approach the level of the developed countries at its 100th anniversary. One of the reasons we say so is that we possess the power to develop education well, to increase the scientific and technological level and to train hundreds of millions of all kinds of qualified manpower at all levels in the time before the 2040s. Our country, its power and the potential of economic development depend increasingly on the quality of labour and on the quantity and quality of the intellectuals *(Deng Xiaoping's speech at the National Conference on Education, People's Daily, Beijing, 20 May 1985)*

Sources: Dore 1976, Little 1984, Lewin, Little, Xu and Zheng, 1994

By contrast, the political and policy communities in industrialised countries appeared to be surprisingly late adopters of the notion of education as investment in human capital. In their introduction to *Education, Training and the Global Economy*, David Ashton and Francis Green (1996), assert

> At no time in the history of capitalism has the education and training of the workforce assumed such widespread importance as at the present conjuncture. Whenever and wherever capitalism has made its great leaps forward in human productivity, it has

> done so on the basis of the primitive accumulation of riches, of devastating exploitation of human labour, or revolutionary technological changes and alterations in the accepted patterns of work, or through the appropriation of vast accumulations of raw material wealth. Rarely if ever has the education of the large majority of the workforce been seen as the central lever of economic growth (Ashton and Green, 1996:1)

As a commentary on the emerging consensus among policy-makers in industrialised countries and especially among those that consider themselves to be superior in economic competitiveness Ashton and Green's assertion that 'rarely if ever has the education of the large majority of the workforce been seen as the central lever of economic growth' is valid. As a commentary on all countries in the world, North and South, rich and poor, however its validity is more limited. It glosses over the longstanding concern with investment in education as a source of economic growth in developing countries. It also reflects – and this is a point I make deliberately for an audience that subscribes to the study of international and comparative education – a continued implicit and widespread assumption that major ideas and related policies about education originate in the North and spread to the South. But as the extracts above demonstrate, the incorporation of the idea of Human Capital into social policy has been apparent in the South for at least half a century. This comment is not intended to detract from the intrinsic merits of Ashton and Green's analysis with respect to the UK, USA, Germany, Japan and Singapore. It is simply to invite caution about sweeping worldwide generalisations on the one hand, and to remind analysts in and of the North that policy dialogue about education in the South often proceeds without necessary reference to dialogue in the North (Crossley, 2000).

Human Capital and its Critics

Human Capital theory has not been without its critics. Six rather different types of criticism have appeared in the literature.

An early conceptual critique stems from screening theory. Winkler (1987) expresses it succinctly:

> Screening is the process by which the productive abilities of individuals are ascertained. Education serves as one mechanism which sorts individuals by their abilities and labels those abilities with educational credentials. Among the important questions explored by screening models is whether these credentials reflect the productivity-enhancing effects education, or, rather, represent some innate productive ability of the individual (Winkler 1987, 287).

If education (as signalled by educational qualifications and credentials) is productivity-enhancing, why is it so? Is it because of the skills that education forms in people or because of the skills for which the process of education selects or screens? Is the extended time spent in securing a PhD a worthwhile investment or is it simply a rather convoluted and expensive way of providing employers with a free selection service helping them to identify abilities that have been underlying for a long time?

A second type of criticism is methodological. This critique stems from concerns about the techniques, data reliability and an exaggerated reporting of the result of rates of return analysis. A recent example may be found in Bennell's (1996) spirited attack on the use by the World Bank of published Rates of Return to Education, and especially on the work of Psacharopoulos (1994, 1996).

A third criticism focuses on the predominant emphasis on the direct *economic* benefits of investment in education to both the individual and society. Indirect benefits, for example, the effects on family health, fertility and child mortality, it was argued deserved more attention (Woodhall, 2001, Lewin, Little and Colclough, 1983 a,b).

A fourth criticism involves questioning the social, political and institutional conditions under which the tenets of human capital theory apply. Ashton and Green (1996) provide a good example of this type of criticism with respect to a range of industrialised countries. They suggest that the link between skill formation and economic performance is far from automatic and that it should be seen in social and political context. National, international and local politics surrounding education and training - all can affect the strength and nature of the relationship between skills and economic performance. And Dore's *Diploma Disease* (1976, 1997) probably remains the best example of the social/institutional critique with

respect to a range of developing countries. Dore focused on the social institutions that mediate learning processes and outcomes and productivity at work. Those of you who saw the Diploma Disease film released twenty years ago may remember Dore's words:

> The simple economic argument goes like this: Educate one child and he or she becomes a hundred dollars more productive a year. Educate a million children and they become a hundred million dollars more productive…. If only it were so simple. You see, something happens on the way. To educate a million you have to create systems and institutions. You need to grade and certify, arrange exams and diplomas – and that's where the problem arises, because the business of grading, certifying and awarding diplomas can overshadow the business of educating. The examination tail comes to wag the educational dog (Dore and Little, 1982).

A fifth criticism addresses the presumed link between productivity and earnings on the one hand, and between skills and earnings on the other. Given the ways in which persons are recruited for and promoted to jobs, and the link between educational levels and earnings implicit in many institutionalised salary scales, then it hardly surprising that education and earnings are correlated, and in ways that do not necessarily reflect the individual's performance on the current job (Little 1984). Moreover, most decisions by employers about earnings are fixed before, not after, a person demonstrates performance on the job. There may be some negotiation thereafter – but the greatest scope for negotiation over wages lies at the point of transition from one job to another. Hence earnings at any point in time may be better thought of in terms of anticipated, rather than current job performance/productivity. Wolf (2002) reinforces the point. While wages are used as a prime indicator of people's relative skills and human capital, they are actually a very imperfect indicator. This approach implies, for example, that turning everyone into a lawyer would be one of the most productive strategies one could suggest for a country's economic growth; and that skills matter far less in Denmark, probably the most 'high tech' economy in the European Union, that they do in almost any other part of the OECD.

A sixth criticism concerns the focus of Human Capital theory on economic growth and efficiency. This is not a criticism of the theory *per se* but rather a criticism of those who use the theory and who treat economic growth and 'development' as synonomous. The interest expressed by economists and others over the past decade in Human Development as the

ultimate goal of Development policy, and the positioning of economic growth as a *means to that end*, rather than as an *end in itself*, is probably the best expression of this implicit critique (e.g. UNDP 1991, Sen 1999, Little 1992, see also Schultz, 1961 on J.S.Mill on means and ends)

Response to the critique

One response to elements of this critique has been to modify and extend the conceptual framework. Walter McMahon (McMahon 1997, 1999) suggests that not only is progress in measurement of the returns to education being made but that more comprehensive measures of both non-monetary and monetary benefits are being developed. The use of better and more comprehensive measures is likely to suggest that previous estimates of monetary and non-monetary returns have been underestimated (McMahon 1997, 1999).

McMahon's revised conceptual framework for measuring the total social and private costs and benefits of education involves three key dimensions (i) identification of the investor (private or social) (ii) identification of the beneficiary (private or social); (iii) the nature of the return (whether monetary or non monetary) and (iv) time. The first two dimensions are familiar, though as McMahon uses the term to embrace the benefits shared by society at large including distributional and equity impacts. 'Externalities' are a specific form of social benefit and are those that 'benefit (or injure) others in the society other than the household or firm that has done the initial investing in education (McMahon 1997:454).

Monetary returns are also familiar though in the case of private monetary returns McMahon suggests that at least three components need to be accounted for – returns to the individual, intergenerational (benefits passed from one person to his/her children) and dynamic returns (that take account of earnings trends over time).

It is in the listing of the non-monetary benefits that the conceptual model is substantially extended. Private non-monetary benefits include health effects, enhancement of children's education, higher returns on financial assets, more efficient household purchasing, higher female labour-force participation rates, reduced employment rates, more part-time employment after retirement, lifelong adaptation and continued learning, selective mating, non monetary job satisfactions etc (McMahon 1998:317). Social non-monetary benefits

(public goods) include lower fertility rates, lower population rates, public health, democratisation, human rights, political stability, poverty reduction, property crime rates, environmental effects, higher divorce rates, later retirement, more work after retirement, community service (McMahon: 1998:324-5)

The more explicit treatment of time, through the notion of the life cycle, is important, not least for its power in capturing returns over time, but also for assessing the returns to 'all extensions to the existing provisions for education' (McMahon, 1998: 311). In principle this includes both the 'complete life-span' and 'life-wide' concepts of life-long education i.e. education throughout life, from cradle to grave and education in different arenas (home, work, play/leisure) and through varying modes (oral, print, audio, digital etc).

Although McMahon's work cites few examples of studies that focus on early childhood or on adult education the conceptual and measurement framework that he establishes could be used to so do. Van der Gaag and Tan (1998) provide a rare study of the benefits of early childhood development programmes from Bolivia. And at the other end of the life-span, a recently completed review by the Centre for the Economics of Education on the extent and benefits of adult education in the UK suggests that there is very little evidence of the extent and benefits of adult education, of who undertakes it and why (Vignoles, Jenkins, Wolf and Galindo-Rueda, 2002).

More unexplained variance

While McMahon is promising even more evidence for positive returns to education, both monetary and non-monetary, others remain puzzled by the monetary benefits and the relative failure of investments in education to provide an adequate explanation of differences in earnings between individuals.

In language reminiscent of Schultz's work (1961) Bowles, Gintis and Osborne (2001) identify a series of puzzles, each expressed in terms of unexplained variance. The first is that individuals apparently similar in terms of age, years of schooling, years of labour market experience, parents' level of schooling, occupation and income, receive quite different earnings. The second is to understand the advantages of the children of successful parents that go beyond those of superior education, wealth inheritance or genetic inheritance of

ability. The third is to explain why beauty, height, obesity, and a clean home - 'seemingly irrelevant personal characteristics' – appear to earn a competitive reward in the labour market. The fourth is to understand why extra resources spent on schools have little impact on student academic performance while in school, yet appear to improve success in the job market after students graduate.

In the first puzzle the proportion of unexplained variance amounts to between two thirds and four fifths; in the second just over two fifths. In the third the beauty premium attracts 14 per cent for men and 9 per cent for women. The clean home premium is even more dramatic. One standard deviation difference on the home cleanliness measure affects a change in earnings over half as large as a standard deviation difference in years of schooling. As Bowles, Gintis and Osborne (2001) observe

> The substantial size of the residual variance in earnings equations, the importance of parental social status and other traits seemingly bearing no direct relationship to individual capabilities used in the production process, and the conflicting evidence on the effectiveness of school resources are puzzling from the standpoint of the canonical human capital model, which attributes earnings differences to differences in productive skills (Bowles, Gintis and Osborne, 2001: 4-6)

To solve these puzzles Bowles, Gintis and Osborne (2001) propose a model of 'behavioural traits' that are not normally regarded within Human Capital Theory as skills. They employ the term 'behavioural' as a catch-all for descriptors as various as future-oriented, self-directedness, internal/external locus of control, aggression, Machiavellian intelligence, conscientiousness, leadership, self-esteem, preference for challenge over affiliation, fear of failure, degree of trust and church attendance. They conclude from their review of studies that behavioural traits are indeed important in the explanations of earnings differentials. And they acknowledge that the policy implications for schools are controversial. While there may be a broad consensus that 'improving earning-enhancing cognitive skills is probably welfare increasing, there is likely to be less enthusiastic support for the fostering of traits such as aggression in high status males or Machiavellianism, both of which increase earnings' (Bowles, Gintis and Osborne, 2001)

Productive Skills: what are they?

Much of this will come as no surprise to many educationists and to those who study the cultures of work organisations. The surprise, rather, is that it has taken so long for economists to notice that human beings are complex entities whose intra- and inter-personal functioning and development of capabilities rely on complex, context-dependent processes and are developmental over time.

Back in the 1970s, isolated studies of the inconsistent relationship between years of education and productivity (using measures other than earnings) in both industrialised and developing countries were emerging. My own work, with colleagues at the Institute of Development Studies, explored the relationship between education levels and job performance among groups of workers in the government and private sectors in Ghana, Mexico and Sri Lanka. Using supervisor ratings of worker performance generated through the use of Kelly's repertory grid technique and information about employee's education collected independently, correlations between education and performance among workers in 47 workgroups were explored. The correlations between education level and job performance ranged from +0.71 to -0.89, with an average around zero (+0.023) (Little 1984: 90-95). Of interest were the supervisors' views of the determinants of job performance. In Sri Lanka, the workgroups were drawn from two levels – managerial and clerical. Supervisors were encouraged to produce as many descriptions and explanations of job performance as possible. Their responses could be divided into three categories (i) cognitive skills (e.g. technical knowledge), social skills (e.g. relations with peers, ability to handle subordinates) and personal attributes (e.g. hard work, honesty, reliability, loyalty, punctuality). Supervisors of persons working at managerial level were more likely to produce responses classified as social skills; supervisors of persons working at the clerical level were more likely to produce responses classified as cognitive (Deraniyagala, Dore and Little, 1978: 64-76). In Mexico, the supervisor of public relations officers gave, as her first mentioned quality needed for good job performance, 'extraverted'. By contrast the supervisor of computer programmers gave 'must be organised mentally'. The Mexican data also suggested that where supervisors had mentioned non-cognitive traits first then the correlation between education and performance was positive; and where they had mentioned cognitive traits the correlation was zero or negative. The tentative conclusion reached was that 'where the contribution of education to productivity is positive the contribution lies with the socialising rather than

cognitive function of schooling – or alternatively, it lies with the ability of the school to filter out those with negative personality rather than cognitive traits' (Brooke, Oxenham and Little 1978: 90), echoing the earlier concern of screening theorists about whether schools form or filter.

Motivation for Education

But let us move on to the people who supposedly lie at the heart of Human Capital theory and who choose to invest in education. The basic proposition of Human Capital theory is that people invest in themselves through education (Schultz, 1961). But what motivates people to invest in education and what motivates them to learn once they have enrolled?

A first and fairly obvious point to make is that it is generally not *individuals* who choose to improve themselves through investment in education. In developing countries where education is not legally enforced it is parents and communities who expect and encourage young children to enrol in school, attend school and stay in school. In industrialised countries, parents exert very little choice about enrolment in the compulsory stage of education. Most parents do not ask themselves why they should send their child to school, just as they do not ask themselves whether or not they have choice in paying their taxes. For much of the past century and a half going to school has not been a matter for individual choice. Choice has lain with governments. Enrolment in school has been compulsory and non-enrolment illegal. In England parents who choose not to enrol children in school have to prove to state authorities they are capable of providing alternative education at home. States are motivated to provide education for their citizens. Citizens are generally motivated to conform. So in what sense then do individuals choose to invest in themselves?

The issue of *choice of school* is a different matter altogether. In many countries, developing and industrialised alike, many parents exert choice over which school to send their child. However, this was not the focus of most Human Capital theorists, whose prime concern was whether people chose or not to invest in a particular level and type of education, rather than type of educational institution.

At a later stage in life it may indeed be an individual rather than a household that is making the decision – about whether to enrol himself or herself in a post-compulsory education

course. Why is he or she is taking that decision? What is his or her anticipated goal? As the study by Jenkins *et al* (2002) concluded:

> if we are seeking earnings effects of lifelong education, we need to know *why* lifelong learners are seeking that education. It surely matters a great deal whether lifelong learners are following a course for job and earnings related reasons or for non-job and earnings-related reasons

To some extent the issue of multiple and non-economic goals is addressed by Human Capital Theory through the application of the principle of utility and its maximisation. Utility describes the pleasure or satisfaction or benefit derived by a person from the consumption of commodities. With education treated in Human Capital Theory not as consumption but as investment, then the maximisation of utility refers to the anticipated pleasures, satisfactions and benefits derivable from education. While these may include benefits that go far beyond earnings very few studies of education and earnings explore the conditions under which individuals have been motivated to enrol in and complete their education.

The issue of costs is also fundamental to motivation at all points in the life cycle and this is amply recognised by Human Capital Theory. In countries where compulsory education is neither legislated nor enacted poor families' decisions about whether to send children to school – and whether to send boys *and* girls – will be strongly motivated by costs. Who is bearing the direct and indirect costs of education? Who is the agency of investment? States? Communities? Households? Household members? Questions of costs will also be important for adult learner's decisions about enrolment in courses. And it goes without saying that costs are fundamental to governments' willingness to back policies of lifelong education – by which I mean education 'from cradle to grave'.

Motivation for learning

But what assumptions are made about the process and outcomes of learning once one has enrolled in a course of study? Reading between the lines of Human Capital Theory there appears to be an assumption that when students enrol in courses they will be motivated to learn by the anticipated value that these skills will have in the labour market and in their contribution to earnings. There is no doubt that this constitutes one potential motivation for

learners – but there are many others to which teachers, parents and learners will be quick to point out.

Learning is motivated by many goals and the relative importance of these probably changes through the life cycle. Many learning goals are determined by societies, communities and families and are driven by the necessity of economic survival. The human needs for food and water are very basic goals for the learning of the skills of survival. Wages, status and prestige also drive people on.

Psychologists have long described how very young children's learning seems to be driven by an almost insatiable internal curiosity about the physical and social world and a desire for 'mastery'. They contrast this type of learning – often termed 'intrinsic learning' - with motivation that is driven by external or extrinsic rewards – sweets and presents. A learner who is intrinsically motivated derives interest and satisfaction from the content and the process of learning. Motivation seems to reside within the learner and is generated by the process of learning. He/she seeks out learning challenges and perseveres. A learner who is extrinsically motivated perceives learning as a means to an end. The end goal (whether that be examination success or ultimately a good job) is more important than the content and the process of learning.

Hence 'motivating learning' has at least two meanings. The *double entendre* embedded in the title of this article is intentional. In the first meaning, learning is a process and an outcome. What goals, what expectations, what actions can be put in place to stimulate the process and outcomes of learning? Motivation is the antecedent and learning the consequence. In the second meaning, it is the process of learning that provides the motivation for learning and for future learning. In this sense learning is the antecedent and motivation the consequence. The process of learning can provide its own motivation.

Notwithstanding its simplicity this dichotomy runs through many of the qualitative descriptions of learners that have emerged in the past thirty years. For example, Harter (1981), working with Grade 3-9 students in the US, identified several motivational contrasts among students. The first was between students who showed a preference for challenging work versus those who showed a preference for easy work. The second was between those who were driven by curiosity versus those who were motivated by approval from the teacher.

A third was between those who seemed to be independent learners driven on by a desire for mastery, a desire to solve a problem and those who were motivated to the next stage of learning by teachers.

Although these descriptions arose from work with young learners they resonate with descriptions of learning motivation that emerged from studies of higher education learners in the 1970s and 1980s. You may recall Bigg's 'achievers' in Australia (1987); Miller and Parlett's 'cue-seekers' in Scotland (1974), Marton and Saljo's 'deep' and 'surface' level processors in Sweden (1976), and Taylor, Morgan and Gibb's 'personal extrinsic orientators' in England (1981).

Motives in the Development and use of Human Capital

Dore's early comparative work on the 'diploma disease' and his own critique of human capital theory was developed quite independently of this work by psychologists. But it had parallels with it. The original presentation of the diploma-disease thesis assumed, rather than explored, a number of propositions about learning motivation. Recall that Dore had argued that the business of grading, certifying and awarding diplomas can overshadow the business of educating. 'The examination tail comes to wag the educational dog' (Dore and Little 1982). Dore was concerned that in developing countries in the 1970s

> educational systems are more likely to be geared to qualification-getting (than advanced industrial countries), and the consequences for society and its pattern of development are likely to be even more deplorable… schooling in developing countries seems… much less effective at developing those attitudes which make people find intrinsic satisfaction in creative mental activity (Dore 1976: 95).

The assertion was consistent with another body of work emerging within psychology in the US from Deci (1978) and others. Deci (1978) used the dichotomy between intrinsic and extrinsic motivation to describe motivation in a range of learning sites across the life span, but with a particular focus on young children's informal learning, school learning and work learning. He also advanced the controversial claim that when extrinsic rewards are attached to learning tasks that are undertaken originally for intrinsic reasons, then intrinsic motivation

is undermined. Rather than extrinsic and intrinsic motivational goals being additive they might under some conditions be subtractive.

Motives for Learning and Motives for Working

Very few studies have attempted to explore links between motivation for learning and motivation for working, largely because of methodological and design complexity. In an early attempt Bowles and Gintis (1976) describe personality and motivational factors that are rewarded through grades in senior high schools. They identified three clusters of traits – submission to authority (including 'externally motivated' and 'low creativity'), temperament (including 'not frank' and not 'creative') and internalised control (includes 'defers gratification'). Submission to authority was a better predictor of school grades than the second temperament and internalised control. Through a review of studies of motivation at work they identified three rather similar clusters – rule orientation, dependability and internalisation. Rule orientation showed the strongest relations with supervisor ratings of job performance. Bowles and Gintis (1976) used that sort of evidence over 25 years ago to support the idea that there was a correspondence between the social relations engendered in schools and in the workplace. However, they did not take the next step and try to link supervisor ratings of job performance with earnings, nor was there any evidence that those who demonstrated a particular type of orientation or motivation at school displayed a similar type of orientation in the workplace.

An attempt to explore the connection between motivation at school and motivation at work was made by Little and Singh (1992) in a study that was designed to explore assumptions embedded within the Diploma Disease thesis. These were that (i) students are motivated to learn by a range of orientations; (ii) workers are motivated to work by a range of orientations; and that (iii) inter-individual variation in assessment orientation in school within a society will be associated negatively with inter-personal variation in innovation and creativity in the workplace.

The study was conducted in England and Malaysia and the design, while cross-sectional, involved students describing their learning motivations in the present and expressing their work motivations prospectively; and workers describing their work motivations in the present and reflecting on their learning motivations retrospectively.

A range of motivational goals was identified among students and workers in both societies. Among students, their contemporary learning motivations were described as assessment orientation (examination success is what I have aimed for throughout my school learning); interest orientation (e.g. I will continue to study the subjects I like even after the examinations are finished) and an inter-personal orientation (e.g I work hard to please my parents). Students expressed their aspirations about a range of job characteristics for the future, including whether they wanted a job that would give them opportunities for creativity and originality.

Workers' motivations were described initially as (i) material rewards (working for pay, promotion, security or the 'perks that go with the job); (ii) social rewards (status, acknowledgement, prestige and respect from others); and (iii) self-fulfilment (challenge, a sense of purpose, personal growth and skill utilisation). Dimensions (ii) and (iii), stressing inter-personal processes and self-fulfilment were closely related and combined for further analysis.

At the risk of over-simplifying a complex body of evidence our conclusion was that there was evidence for an extremely weak relationship among students between assessment orientation at school and innovation and creativity at work. Much stronger and positive was the link between assessment orientation and a desire for financial benefits.

Of greater interest perhaps was a positive link between an interest orientation at school and prospective work orientation. Those students who said they would 'like to continue learning subjects one likes even after the exams are finished' was strongly correlated with a desire to undertake a job where one can demonstrate and develop ones abilities and skills at work, to seek opportunities for creativity and originality and to develop ones interests. By contrast the relationship between interest orientation and the desire for financial benefits was almost zero for the English students and negative for the Malaysian students.

The worker data were even more revealing. There was a slightly negative relationship between an assessment orientation at school (recalled retrospectively) and a 'fulfilment' orientation at work (i.e. a motivation to work based on challenge, a sense of purpose, an

opportunity for personal growth and skill utilisation). But there was a strong positive relationship between this work orientation and an interest orientation at school

The puzzle for Human Capital Theory is to explore which motivations – at school and at work - are the most consonant with the development of capital required for economic growth? Are they those that are linked with the search for financial benefits? (the pre-occupation of Human Capital theorists might suggest it is these). Or are they those that focus more on the doing of the job, the opportunities the job creates for creativity and originality, and the opportunity to develop one's abilities and work skills?

Of course, positive and negative correlations do not indicate causality. Aware of this, Jasbir Sarjit Singh and I offered *post hoc* several possible causal explanations for our findings on interest orientation at school and at work.

The first was that schools and teachers are succeeding in creating environments from which students derive interest and satisfaction and some excitement from the learning tasks they encounter. The interest orientation formed by the school experience endures and transfers to the workplace. This interpretation would, we argued, be consistent with the development, the formation of human capital. A second interpretation was that the relationship may be a function of a disposition to perceive most situations as interesting and challenging, a disposition that is developed in early childhood and which transfers from the family/household to the classroom, to the workplace, to leisure, to parenting. This would be a form of the screening hypothesis – schools are not actually forming the orientation; rather individuals are demonstrating dispositions formed elsewhere. A third was that individuals are self-selecting themselves for work. Those who display an interest orientation in school choose to enter or are selected for those jobs that offer the opportunity and environment for creativity and innovation.

In his assessment of our study Dore favoured the second interpretation. The differences, he asserted, are most likely 'to have to do with differences of basic temperament or family-formed personality or their particular mode of self-presentation in daily life' (Dore 1997). As educators in the classroom Jasbir Sarjit Singh and I were probably more concerned whether there is anything we can do to intervene, to influence the motivation of learners and learning

and were ‘attracted intuitively by the plausibility of the first and the third’ explanations (Little and Singh, 1992).

In a subsequent study in England I explored whether the nature of the process of summative assessment in secondary school classrooms had an impact on students’ interest motivation (Little, 1994). Capitalising on the diversity of summative assessment practices that pre-dated the introduction of the National Assessment System in England I explored through case studies in just three schools whether assessment of mathematics through the use of profiles, graded tests, and numeracy profiles (a combination of grade tests and profiles) influenced student interest in mathematics. Though necessarily limited in terms of generalisability there was some suggestion that the nature of assessment did influence the level of interest expressed by students in the learning of mathematics, and that this influence was perceived by students to be exerted either through the sense of personal control over and participation in the pace and style of learning; or through the specific content and quality of the test items which provide challenge, variety and interest.

Interestingly the question about the impact of summative assessment on student motivation for learning is now attracting high-level policy interest in the US and in England. No longer confined to studies of education and learning in developing countries, the question formed the basis of recent extensive and rigorous reviews of policy and practice-relevant research in the US and England (Kellaghan, Madaus and Raczek 1996, Harlen and Deakin Crick 2003). Needless to say the results of these reviews underline the importance of understanding the motivation of learners and teachers in the process of education and the development of human capital. Harlen and Deakin Crick (2003) identify negative impacts of summative evaluation on learners under some conditions and also positive impacts. They make recommendations for practice on minimising the detrimental effects of assessment on students’ motivation for learning and maximising the positive benefits of summative assessment. And they list recommendations for policymakers, one of which has clear links to the notion of human capital and lifelong learning. ‘Not only is there growing evidence of the value of learning to learn and of the drive and energy to continue learning, but there is empirical evidence that these are positively related to attainment’ (Harlen and Deakin Crick, 2003). I am unaware of parallel reviews on questions of motivation at work.

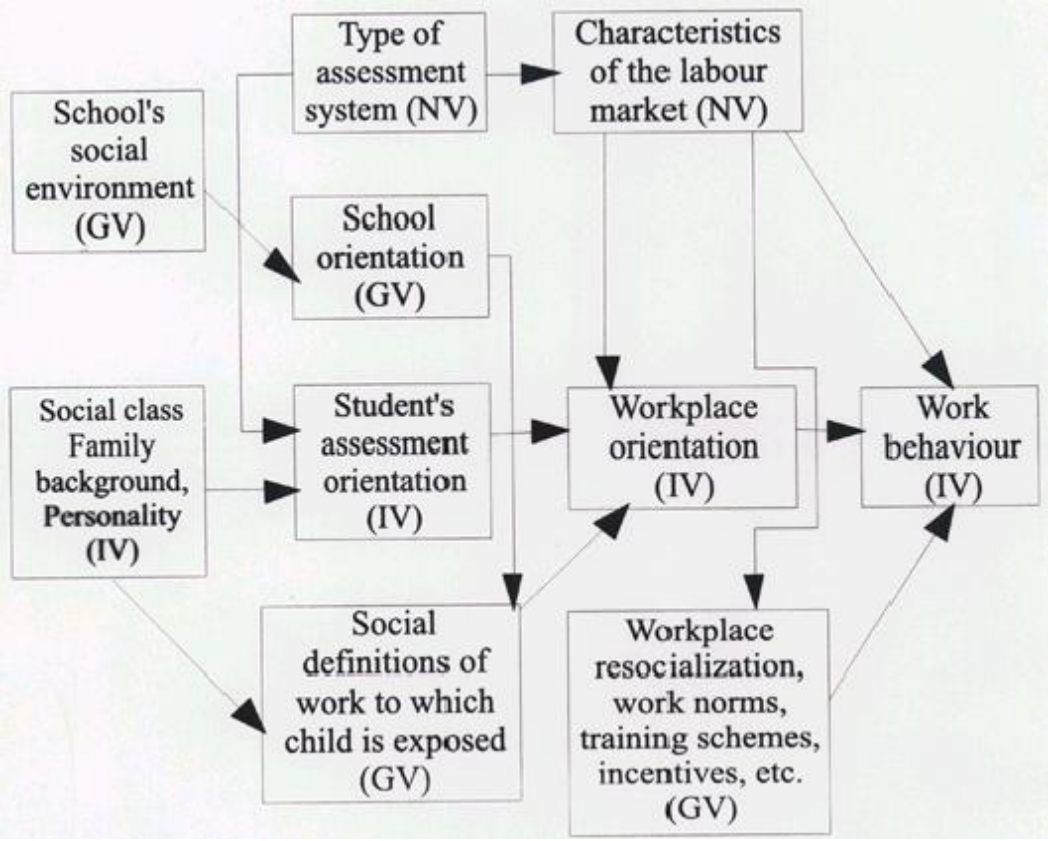
Units of Analysis: from the National to the International

Finally I address *units of analysis*. So far I have allowed much of the description of motives for learning and motives for working to remain at the level of the individual and the analysis at the level of co-variation of inter-individual differences. How much of what I have said about motivation is so very different from David McClelland's work on Achievement Motivation in the 1960s (McClelland, 1961) and Inkeles and Smith on 'Modern Man' (Inkeles and Smith, 1974)? Have I forgotten the critiques of individualism from the structuralists and others in development studies in the 1970s and 1980s and those of ethnocentrism from the psychologists during the same period (Little, 1990)?

Part of the problem that we face in the social sciences derives from conceptual and design difficulties in establishing *reciprocal* relationships that thread their way through individuals, families, communities, societies and economies. For example my work with Jasbir Sarjit Singh (1992) on inter-individual motivation for learning and motivation focussed on the impact of individual-level variables (IV) on other individual variables. But these relations in turn were framed within a conceptual scheme that acknowledged, but which did not systematically explore, empirically, the simultaneous effects of what we termed group (GV) and national (NV) level variables (Figure 2).

Figure 2 acknowledges that learning motivation is influenced by the school's social environment and the culture, ethos and orientation of the school and the social definitions of work to which the young learner is exposed. Similarly the work environment – the nature of the work, the norms of the working culture, the nature and quality of training schemes and incentives will all influence work orientation and behaviour. Two sets of national level variables were included in the scheme – the type of assessment system framing learning in schools, and the characteristics of the labour market. But despite our conceptual design the empirical design and analysis that we were able to establish in practice failed to address *all* the avenues outlined in Figure 2.

Figure 1 Motives for Learning and Motives for Working



The scheme outline in Figure 2 was limited conceptually, in two ways. First, the end point of the scheme is motivation at work. Hitherto the end point of analysis for Human Capital theorists has been the growth or decline of national economy via education and human capital. If we were to include this end point in Figure 2 we would need to create space for the effects on economic growth of social groups (communities, work organisations, trade unions) and States that go beyond those represented by the aggregation of effects of individuals.

Second, the scheme was rooted in analyses of economic growth within national economies. Like so many studies in international and comparative education conducted in the 1970s and 1980s we treated the nation as our unit for comparative analysis. Increasingly, however, in the new decade and century we need to extend our analyses beyond the national in order to recognise the integration between economies.

We would need, in principle, to include in this scheme inter-national (i.e. between nation) variables that recognise the *differentiated* nature of that integration. These variables would recognise, *inter alia*, the differential effects that economic liberalisation policies have on workplace motivation, worker motivations and skill development. These variables would, we may hypothesise, influence the contribution of human capital to national economic growth. They would also influence the movement of human capital across national borders in search of both work and skills. A question that arises is: How will this movement influence the growth of the economy in which the Human Capital has been formed and that of the economy to which it moves? While this question is not new (it arose in the1960s as 'brain drain'), it is likely to have even more significance than it did forty years ago.

And if these variables and hypothetical relationships are not challenging enough, we may pose one final question. How does Human Capital contribute to a definition of development that includes, but goes beyond, economic growth, to definitions that embrace the social, the cultural and the political aspirations of people and peoples? For those of us in international and comparative education who wish to hold open those definitions of development, the conceptual and empirical challenges ahead remain great indeed.

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