

Theorizing the links between skill formation system and the economic system : towards a new model

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Abstract

This paper revisits the debates that took place from the mid-seventies to the early eighties on theories concerning the education-economy relationship in the light of the theories of Fordism, Neo-Fordism and post-Fordism¹. The main theories highlighting the links between education-economy are the orthodox technological-functional theory, the human capital theory, the conflict theories, the contingency theories and the socio-political theory of skill formation theory. A Meta-analysis methodology is used. The result of this study indicated that those theories emerged as a response to the needs of economic change. Although there is a gulf between rhetoric and reality, it seems that the ideal types of neo and post-Fordist theories offer different methodological purposes for the recent educational restructuring. Nevertheless, their analysis in making a description of skill formation and skill utilization in terms of economic change has been a matter of debate amongst the major stakeholders. The importance of this paper is that it suggests new model of links between education and economy which not only consider skill formation but also emphasises on skill utilization based on the mutual trust between education, economy and individuals.

Key Concept: skill formation, skill utilization, Fordism, Post-Fordism, economic change

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Introduction

Over the past 20 years, economy system has experienced profound changes involving all of its dimensions. These changes occur not only with technological advance, but also as a result of a broad range of predominantly organizational and managerial innovations, including, total quality management, concurrent engineering, and business process redesign. Both internal company organization and external factors, such as market demand, technological development, the labour market, employee expectations, and industrial relations, are very different from the typical form of industrial development in the past, generally referred to as Fordism-Taylorism. This process of change, which has been so radical as to suggest a paradigm shift, has been analyzed as Fordism, Neo-Fordism and post-Fordism. (Baca, 2004; Lauder with Mehralizadeh, 2001; Bob, 1995; Lipietz, 1997). The implications of these are far ranging and nowhere more so than in education and training. There is a debate about the the Fordism, Neo-Fordism, and Post-Fordism changes in the theory and practice of education and skill formation. Education policy increasingly presents a view of education that has as its main purpose the promotion of a knowledge economy (Peters, 2001), where earning power is related to knowledge management.

Clearly, the answers to this debate will depend on which form of economic development is taken, neo or post-Fordist. (Mehralizadeh, 2001; Murnane, & Levy, 1996). It could be argued that neo-Fordism would require far less skilled workers than post-Fordism since the competitiveness of the former would depend on casual, often-cheap labour -what was described in the previous chapter as numerical flexibility. In turn, this may require forms of socialisation and discipline which would not be necessary if post-Fordist forms of work predominated. In the latter case, competitiveness would depend much more on the education and skills of the workforce. The problem for education is that in the real world it is likely that most economies may be more mixed in the routes they choose to take, although we might expect a greater emphasis on one of these forms of economic development in

Various national economies.¹ This being the case it is likely that education systems in a 'post-Fordist' world will face dilemmas and trade-offs in the attempt to match the supply of skill to the demand.

Despite the varieties of economic possibilities that educational systems now have to cater for, it is the case that all advanced economies irrespective of the predominant paths they take are confronted with some common problems. In a 'post-Fordist' world, it is not enough for students to leave school without any skills/abilities. On a Fordist production line, it has been estimated that workers exercised more skill driving to work than on the production line, while in the post-Fordist production line all workers need basic numeracy, literacy and probably some facility with IT skills. At the same time, most advanced economies have expanded the range of professional and managerial jobs and this has meant the corresponding expansion of higher education. However, within these broad parameters there are clear questions that need to be raised about the precise linkages between education and the economy and especially the notion of skills, which is now so central to all discussions of economic development, which cannot be taken at face value. Therefore, the main questions of this paper are:

1-What is the relationship between skills formation and economic system? A Critique of the Dominant Theories of the Education-Economy Relationship

2-Which model making a better and feasible link between education, industry and individual in a post-Fordism economy?

In order to address these two questions we need to examine the theories that have been used to explain the linkages between education and the economy. The author used a Meta-analysis methodology to address this links. It is argued that the leading, often competing theories are themselves the product of the Fordist era and the most defensible of these need modification if they are to address the key issues concerning the linkages between

¹ For example, it has been argued that Germany conforms most closely to the Post-Fordist model (Green, 1999) while the Anglo-saxon economies of Britain and America conform more closely to neo-Fordist forms of development (Brown & Lauder, 1997). These national variations are due to political struggles as well as and deep cultural expectations and norms. (Brown , 1999; Green, 1999 and Lauder ,1999).

education and the economy in the 'post-Fordist' era. In this sense, this paper should be seen as an attempt to fill out the broad picture of the links between education and the economy suggested by Brown and Lauder (1997) and Mehrizadeh (1999). In doing this a critical analysis of the key theories linking education to the economy will be undertaken. These theories are: Orthodox Technological-Functionalist Theory which is associated with the work of Kerr *et al* (1962); Human Capital Theory which is associated with the work of Schultz, (1961); Becker, (1964); Sobel, (1978); Conflict Theories which are associated with the Marxist Correspondence Theory of Bowles and Gintis and latterly with that of the Weberian Theory of Collins (1977, 1979) and Bourdieu and Passeron (1990) and Hickox and Moore (1992); Contingency Theories (Rubinson and Brown, 1994; Ashton, and Green, 1996) and the Socio-political theory of skill formation (Phillip Brown, Andy Green & Hugh Lauder, 2001).

What is the relationship between skills formation and economic system? A Critique of the Dominant Theories of the Education-Economy Relationship

Technological-Functionalist Theory

Technological-Functionalism assumed prominence in the fifties and early sixties at the height of the 'golden era' of the post war economic boom. It fitted in with the mood of the times because it optimistically predicted that technology would lead to an upgrading of the skill level of jobs. Two processes are involved: (a) the proportion of jobs requiring high skill increases and the proportion of jobs requiring low skills decreases; and (b) the same jobs are upgraded in skill requirement. Formal education provides the training, either in specific skills or in general, capacities, necessary for the more highly skilled jobs because more educated employees are more productive. Therefore, educational requirements for employment constantly rise, and increasingly larger proportions of population are required to spend longer and longer periods in school.

While the technician approach favoured by Kerr *et al* (1962) has gained prominence, it fitted broadly into a functionalist view of the links between education, economy and society (Parsons, 1959; McClelland, 1961; Dreeben 1968 and Inkeles and Smith 1974). Perhaps the clearest articulation of this view has been

given by Inkeles and Smith (1974). Their particular functional theory of modernisation is based on the notion that there is a direct causal link between five sets of variables, namely, modernising institutions, modern values, modern behaviour, modern society and economic development (Fagerlind. *et al*, 1983). These modern values and behaviours, knowledge, attitudes, and skills according to Parsons (1959), Inkeles and Smith (1974), and Dreeben (1968) are instilled in students by the authority structure, curriculum, teachers, and peer networks. These students then develop an altered and expanded set of qualities that give them adult competence and prepares them to participate and achieve in the roles structured by modern society.

There are several problems with this rather optimistic scenario that critics in the 1970s pointed out. The first is that while functional theorists may have been right to observe that schools attempted to inculcate a universalism consistent with the principle of a meritocracy it was another matter altogether as to whether practice matched the rhetoric. This then raised the question of whether the picture painted by functionalists overemphasised consensus and harmony at the expense of social conflict (Bowles and Gintis, 1976). However, from the perspective of this thesis the key issue really turns on the precise linkages between education and the economy. Here the criticism is that functionalist theorists, especially those such as Kerr *et al* (1962) took the notion of the credential at face value that it reflected cognitive achievement. Therefore, when the demand for credentials rose it was assumed this was because jobs with cognitively higher levels of skills were being created.

But, as Hirsch (1977), observed credentials are positional goods. This means that they are goods, which are scarce in a socially imposed sense, the more people obtain the good the less social value it has. This leads to two consequences. Firstly, to credential inflation since, for example, as increasing numbers gain an undergraduate degree so that degree becomes socially and economically devalued. The result is that the demand for higher degrees will increase. However, this leads to the second consequence of screening because it requires ever more intellectual and financial resources to achieve higher levels of qualification. This insight has been taken a step further by conflict theorists such as Bowles and Gintis, (1976) and Collins (1979) who argue that screening is also related to personality types

associated with different social class and status groups. In order to establish and preserve their privileges elites will raise the level of qualification required. When these elites enter the labour market they are hired not for their technical expertise which may not require such a high level of credential attainment but for the type of person they are.

This line of thinking was supported by the work of Bourdieu (1977) who argued that the cultural capital of the home was consistent with the processes of formal education and that this is why elites are able to reproduce their privilege from generation to generation. But the curriculum of the school is what Bourdieu has called a *cultural arbitrary*, it has been moulded by particular elites who have then benefited from it. But since the predominant form of the curriculum has been academic, it is unclear as to how the content of education could be related to economic needs. Rather it has appeared as if the only links between the education system and the economy during this Fordist period were those of credentials. Again, this raises questions about the Technological-Functionalist view of a correspondence between education and the economy.

Human Capital Theory

Human capital theory is the basis for the economic analysis of education and training (Schultz, 1961; Becker, 1964; Mincer, 1958, 1962). The theory of human capital can be defined very broadly in terms of skill acquisition. In modern human capital theory, it is proposed that the process of human and physical capital accumulation are essentially analogous. This theory consists of four parts

"...a) education is a commodity like any other, hence knowledge is a private good that can be purchased like any other; b) the theory claims to explain investment in education as a function of the basic human drive to secure wealth and status, since it is generally accepted that education over time, leads to greater income; c) it is asserted that differences in earnings reflect differences in productivity; d) the labour market, refers on one hand to the skills and abilities individuals are prepared to sell for a given wage and, on the other hand, to the demands employers have for specific kinds of labour in a near perfect labour market wages accurately reflect the skills people have (Hughes and Lauder, 1991:6-8)."

The initial ideas about human capital theory were developed by US economists in the early post-war years, and in the modern sense human capital theory might be traced back to the work of these economists, mainly Schultz (1961), Mincer (1958; 1962) and Becker (1962). Human capital theory can be defined in terms of the neo-classical production function. According to human capital theory, education and the economy form a set of self-reinforcing, reciprocal relations. The model explains the long-term growth of education as a consequence of the increasing technical efficiency of the economy, then argues that expansion of education, in turn, contributes to modernization and economic growth through the capacity of schools to socialize individuals to new values, commitment, and skills (Rubinson *et al*, 1994).

Looked at from this perspective human capital theory can be seen as an economic gloss on technological-functionalism, which given its origins in the mid 1950s, is not surprising. All the problems raised in relation to the former can also be applied to this theory. It is unclear how traditional school curricula relate to economic productivity; it is merely assumed that credentials accurately reflect the possession of economically useful skills. Moreover, any analysis of power relationships within the labour market and between education and the labour market are further ruled out by the assumption that all individuals are motivated in the same way to invest in them through education. Yet the evidence suggests that even when students from different backgrounds have the same measured ability or educational qualifications they make fundamentally different choices as regards their careers (Bowles and Gintis, 1976; Hughes, 1990; Hughes and Lauder, 1991). Moreover, if conflict theorists like Collins (1979) and Bowles and Gintis (1976) are correct, then the power relationships obtain in terms of recruitment and remuneration in the labour market. Making links between credential, income and productivity is far looser than human capital theorists would assume.

Conflict Theories

Conflict theories of the relationship between education and the economy have been divided between Weberian based market theories of the reproduction of inequality through the education and credential system and Neo-Marxist theories which have

emphasised the links between the demands of capitalist production and education. What both approaches have in common is a challenge to Technological-Functionalist and Human Capital theorists' assumption that the links between education and the economy are essentially rational, meritocratic and hence progressive. For this reason, the sociologists who developed these theories have been called 'radical'.

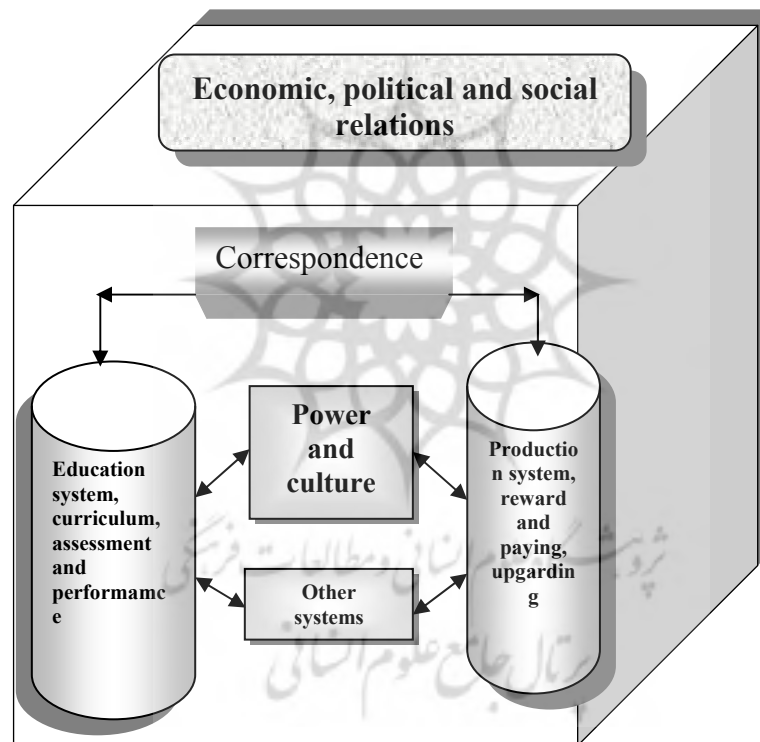
These radical sociologists in many ways differ in their explanation of how this relation between education and the economy developed historically and why it exists today. Within the general framework of radical reproduction approaches, theories differ on whether status or class is considered the major dimension of stratification. Most of these theories are Marxist in orientation (Bowles and Gintis, 1976; Sarup, 1978. Carnoy and Levin 1985; Edwards, Gordon, and Reich, 1975; Braverman, 1974). In general, Marxist theories see the schools as instrument in preparing wage labour with the skills, values, and attitudes to accept the capitalist order and to contribute to capital accumulation (Carnoy, 1977). This is why they place the production system at the centre of explanation as well as class conflict between capitalists who own the means of production and workers who must sell their labour to capitalist to obtain income (Braverman, 1974; Bowles and Gintis, 1976).

The key text in the Marxian tradition is that of Bowles and Gintis' *Schooling in Capitalist America* (1976). In this book they began by asking what the liberal ideology of the education system suggested was the function of schooling. They found that three goals were central to the traditional liberal conception. First, education should be egalitarian in the sense of acting as an effective force for overcoming the natural, social and historical inequities that tend inexorably to rise in society. Second, education should be developmental in the sense of providing students with the means to develop the cognitive, physical, emotional, critical, and aesthetic powers they possess as individuals and as human beings. Third, education should be a means of what John Dewey has called the "social continuity of life". That is education should promote the smooth integration of individuals as fully functioning members of society.

They challenged all three of these assumptions on the basis of the argument that the critical problem in the articulation of schooling with advanced capitalism lies in its undemocratic

structure of control over the process of production. Education prepares students to be workers through a correspondence between the social relations of production and the social relations of education. Like the division of labour in the capitalist enterprise, the educational system is a finely graded hierarchy of authority and control in which competition rather than co-operation governs the relations among participants, and an external reward system wages in the case of economy and grades in the case of schools. On the basis of this theory, they argued that schools did not enhance human development but shaped it according to social class and capitalist development. And, rather than promoting greater equality, opportunities were again determined by social class. Their theories can be characterised as follows (See Figure 1).

Figure 1: Correspondence between the schooling system and economic system based on the conflict theory



In this theory, Bowles and Gintis argued that there was an essential continuity between the experiences of socialisation in the

home, the hidden curriculum of the school and the demands of work. For example, relying on the work of Kohn, (1969) they argued that working class students had low aspirations and an essentially passive view of how they could operate upon the world reflecting their parents' experiences. In contrast, those from professional backgrounds reflected their parents' high aspirations and expectations that they could make an impact on the world. In school working class, student's socialisation was reinforced by an authoritarian structure and regimes of rote learning where little was expected of students except to conform. The experiences of home and school then fitted these working class students for life on the Fordist production line. In contrast, those from what Bowles and Gintis termed the ruling class, had an elite education in which, within limits, they were expected to exercise judgement and discretion in the work they undertook at school and later at the elite Ivy League colleges. However, Bowles and Gintis emphasise that the autonomy that these students enjoyed was nevertheless within an environment characterised by creative conformity.

There are several criticisms that can be made of the Correspondence theory¹, some of which are common to all the Radical sociologists discussed in this thesis. Therefore, it is worth confining criticism at this stage to one which will prove significant to this thesis. This concerns their treatment of the overt, rather than hidden curriculum as irrelevant to either equality of opportunity or to processes of socialisation. In other words, they

¹ Apart from the criticisms against Bowles and Gintis theories discussed above Hogan, Sarup and Livingston also hold opposing viewpoints. Hogan (1979) points out that their reliance on a very generalised conception of structural contradictions and class struggles were regarded as to obscuring to class formation and class conflict over the structure and content of education. Sarup (1978) asserts that Bowles and Gintis focused on the structural forms of social relations in both workplaces and schools. This emphasis obscuring the roles of actual historical class agencies, especially in the virtual absence of any specification of working class culture and very limited attention to resistance through working class politics. Livingstone (1983) argues that Bowles and Gintis defined the capitalist and working class in terms of production relations, thereby ignoring both the possible autonomy of the household and community spheres in class relations of education. Some scholars asserts that Bowles and Gintis' theory was insensitive to differences between abstract analysis of capitalism as a global, epochal system and the specific development of concret social formations; especially, they perceived as overlooking the distinct roles of the state in shaping education in such formation.

ignore what in subsequent debates about the relevance of schooling to work became a key issue: the academic curriculum.

As Hickox and Moore (1992) have argued, the relationship between education and the economy in the Fordist era was weak because industry allowed the education system to develop in a relatively autonomous way. The key link between the two sectors was the credentials. Debate about the relevance of the curriculum to the economy was particularly widespread in Britain. In 1977 James Callaghan, the Prime Minister of the time launched a bitter attack on the failure of education to be relevant to economic needs in what has become known as the Ruskin College speech. It also explains why in the eighties greater efforts were made to develop school-business partnerships (Jamieson, 1985). Later I will return to this issue because it figures prominently in my research.

The question of the apparent irrelevance of much of the school and college curriculum to the economy is best taken up by two theorists Collins (1979) and Bourdieu (1977) who can both explain the relative 'autonomy' of the school and college curriculum. Collins (1979) argues that the expansion of education reflects less the growing technical needs of the economy than the effects of competing status groups for wealth, power, and prestige. Instead of teaching technical skills, Collins suggests that the main activity of schools is to teach particular status cultures, both in and outside the classroom. In developing this argument Collins sees beyond the credential to the power relationships that lie behind it, arguing that privilege and character which comprise his screening hypothesis had more to do with social background in which character might be better defined in terms of the manners of a social elite rather than in terms of specific characteristics needed for economic productivity. As he says,

"From this perspective it is not important for schools to impart technical knowledge, but they must indicate "vocabulary and inflection, styles of dress, aesthetic tastes, values and manners" (Collins 1979: 150). The theme of the relative autonomy of education being explained by a cultural struggle for privilege is taken up and developed by Bourdieu (1977).

Class and Cultural Capital

Bourdieu (1977) describe the way in which schools legitimatise the dominant culture, by presenting as natural a form of pedagogy, which belongs, in fact, to only the dominant groups in society. Bourdieu argues that we should think of cultural capital in the same way we think of economic capital. Just as our dominant economic institutions are structured to favour those who already possess economic capital, so our educational institutions are structured to favour those who already possess cultural capital, defined according to the criteria of the dominant elites in society. Schools, he argues, take the cultural capital of the dominant group and treat all children as if they had equal access to it. Hence, the cultural capital that the schools take for granted acts as a most effective filter in the reproductive process of a hierarchical society. The education system organizes itself in terms of the imperative of its own reproduction. Crucially, he argues that the school has a relative autonomy with respect to the economy with its own rhythm of evolution. The main interplay between the systems "education" and "production" is the conjunction between formal qualifications and jobs.

Criticisms of the Radical Sociologists

These kinds of observation give support to the radical view. First, studies have shown that there is only a loose relationship between what is studied in school and kinds of work that most people are doing. Second, other studies have found that within job categories, there is little correlation between a worker's level of education and economic productivity. And third, still other studies have revealed that the level of education required by employers for job entry and the amounts of education workers bring to their jobs are considerably higher than actually required to do the work (Rubinson, 1986).

The essence of the radical sociologists position centres on credentials. Individuals are allocated to jobs and other adult roles on the basis of their educational credentials, apart from anything they may have learned in school. Schools may not socialise, but they certainly select, certify, and allocate. If schools simply sort and certify individuals, transforming students' social class backgrounds into educational credentials, then education has no

necessary effects on the economy or society as a whole. Educational credentials then allocate individuals into a zero-sum or fixed structure, affecting the distribution of individuals but not altering the social structure or increasing economic growth.

The theories of the radical sociologists certainly provided a useful corrective to the naive and optimistic theories of technological-functionalists and human capital theorists, introducing the key concepts of power and conflict into the analysis of the education-economy relationship. The fundamental problem confronting the radical sociologists' analysis of Fordism concerns that fact that when their theories are taken to their logical conclusion there appears to be no link between the expansion of schooling changes in technology or the upgrading of skills. Consequently, education does not necessarily increase economic growth or labour productivity (Rubinson 1986).

However, it is highly unlikely that education and training can have no connection to economic productivity, if they did not then employers in countries like Germany and Japan who have placed so much store and invested so much in skills as the motor of economic productivity would have to be considered mistaken in their view.

In the UK, evidence of the importance of the need to develop links between education and the economy can be gained from the attempts to establish industry-education business partnerships in the 1980s. In this case, the UK had the evidence from Germany and Japan to suggest that these links were important, although the form they took clearly differed between the different countries¹. The major reasons in establishing links between schools and industry resulted in considerable pressure to change school from both within and without schools. Inside schools pupils wanted

¹ There are different forms of skill formation. Three models for initial vocational education/training and international provision of skill formation have been identified by developed countries (OECD, 1985); Germany, Switzerland and Austria have a dual model. Belgium, Sweden, Japan, or North America follow the schooling model whilst Britain address to a mixed model (Furth, 1985 quoted from Ashton *et al.*, 1996). In the schooling or full-time model, students spend most of their education and training at school or college and limited part of the training period is spent as a trainee in firms. The dual model places emphasis on a combination of schooling and in-company training and part-time and full-time vocational training courses are provided. And mixed model is provided for youths outside the schools in a non-formal sector.

more freedom and variety, parents wanted more relevant skills for the labour market, teachers more autonomy for themselves in defining the curriculum and schools programmes. From the outside, according to Jamieson (1985), central government, local employers, and ad hoc projects and organisations pushed for change in the education-business relationship. Consequently, this period established the assumption that schools must be more closely involved with the needs and demands of business. If, in the Fordist era there was little or no connection between education and the economy the assumption in the post-Fordist era is that education must be vocationalised (Ashton and Sung, 1997) if national economies are to remain competitive. If skills are in fact related to the economy, it follows that the static analysis presupposed by the Correspondence theory of Bowles and Gintis (1976) or the zero sum assumption of a fixed social structure would not stand up to analysis. Rather as Rubinson and Browne (1994) and Ashton and Green (1996) have argued the links between education and the economy are always contingent and subject to constant readjustment. In part this is because there is a political struggle over the selection and allocation of skilled individuals in the way the radical sociologists suggest and in part because the demand for skills is constantly changing. In this respect, the work of Ashton and his associates is of particular interest because it seeks to integrate the insights radical sociologists have on power and conflict with the idea that education and skill development are central to economic development (Ashton and Sung, 1997).

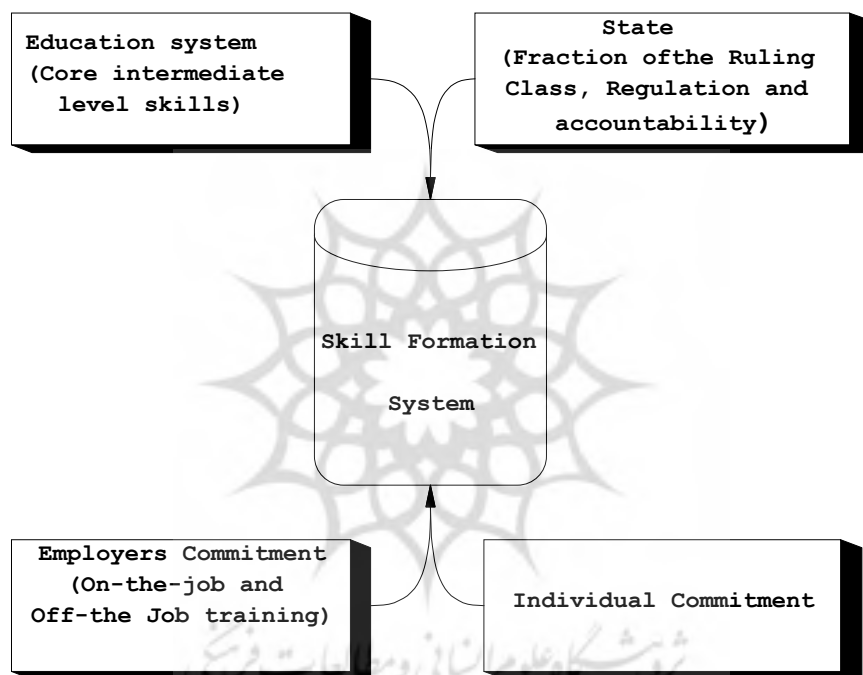
Contingency Theory

In searching to elaborate a dynamic approach to skill formation David Ashton and Francis Green (1996) argue that education and training in the period of global economy is more significant than during the Fordist period. They have tried to give a more complete understanding of the link between modern education and training systems and modern capitalist economies in particular. They elaborate a theory of skill formation systems that defines the institutional conditions necessary for achieving higher levels of skill formation as follows:

a) A fraction of the ruling class, specifically those in control of state apparatus, must be committed to the goal of achieving a

high level of skill formation and the innovative use of the productive system; b) high levels of competency must be produced by schools in language, mathematics, and information technology; c) there must be a commitment by a group of leading employers to the goals of high-level skill formation; d) there must be some form of regulation and accountability in the process of skill formation in the workplace; e) workers and prospective workers must themselves become committed to the goal of skill formation and continuous development at work; f) links need to be organised in which work-based (on-the-job) learning can be complemented by off-the-job training in the knowledge base of the skills.

Figure 2: Correspondence between the schooling system and economic system based on the Contingency Theory



The main aspect of this theory takes into account the role of government, education and schools, employers, and appropriate policy making. This theory claims that skill formation first of all requires a government commitment to provide equal opportunities for all children because marketisation of education reinforces inequalities in society. Also in order to provoke a culture of

commitment and continuity among employers, and employees developing suitable mechanisms, regulations and accountability are fundamental to the process of skill formation. Schools have a vital role in providing high levels of core intermediate level academic skills. However, employers are required to participate in the process of skill formation, since the reorganisation of the workplace is an important source of learning. In supporting and completing the process of skills formation through the schooling system it is essential that employers develop a system in which on-the-job learning is supported by off-the-job training. Apart from government, employers and the educational system, individuals must be motivated to actively participate in the process of learning and skill formation. They hypothesise that low-skill routes is due to inability of the economics in developing the institutional requirements for skill formation. In looking at the origins of commitment to high skills process the authors take a broad historical approach to state formation and industrialisation. They argue that the national links between education and the economy in UK and USA developed a low-skill route while in Germany, Japan and the new Asian countries there is a high-skill route. They claim that the former countries developed the process of industrialisation in an environment of a quite poorly educated Fordist working class while in the latter countries, at the time of industrialisation the ruling elites saw particular merit in developing the education, including the technical skills, of the working classes. Indeed, the sort of criteria developed by Ashton and Green form a useful checklist by which a national commitment to post-Fordist skill formation can be judged. We shall make use of their criteria subsequently.

In critics of Ashton and Green theory it is possible to say that it does not explain how the employers working in different neo-or post-Fordist systems can become more committed to learning. For instance, policies involving intermediary institutions, link Chambers of Commerce, work councils or unions in Germany, or the lifetime employment system in Japan and state intervention in Singapore might not work in an mixed economy which is based on both neo and post-Fordist systems of work. Ashton and his colleagues also cite the commitment of employers and the education system as crucial to developing high skills. They do not discuss the conflict that arises between schools and industry. Ashton and Green have seen the central role of schools as

producing students with high standards in basic competencies such as languages, science, and mathematics and information technology. This vocationalised view of schooling face with two issues. Firstly, it may be not enough to motivate school leavers to invest in increasing their knowledge and skills. However, if the target is to foster high school commitment, the focal point for joint efforts should be on developing a more responsive educational delivery system. The aim of schools should be on developing a culture of learning which is grounded in basic competencies. The absence of a culture of learning in some instances, however, creates problems in learning and teaching core and key skills for both neo and post-Fordist systems of work. Second issue is that the aim of seeking to vocationalise education is clearly problematic in relation to key skill since there is no consensus between schools or industry. However, the most salient point is that the culture and policies of the school system are different to those industry and it is an open question as to whether a government policy which emphasises the academic can deliver a more effective relationship between education and industry. The dominant view amongst teachers interviewed is that it cannot.

If Ashton and his colleagues have made a major advance on early theorists of the education-economy relationship a further step has been taken by Phillip Brown, Andy Green & Hugh Lauder (2001).

Socio-political Theory of Skill Formation

Phillip Brown, Andy Green & Hugh Lauder (2001) in their book on High Skills: globalisation, competitiveness and skill formation provided a more relevant study about the current links between skill formation and economy. Against the background of this debate they developed an updated way of theorising the links between education and the contemporary economy. They have done a comparative study in countries like Germany, the United Kingdom, Japan, Singapore, and to a lesser extent, South Korea. The main question within this work has been to ascertain the key determinants underpinning the considerable variability existent in differing national routes to a high skills economy. And in answering this question, the authors develop an analytical framework which they term a 'new political economy' of high skills which borrows strongly from economic sociology and the

new institutionalism of Ronald Dore and Wolfgang Streeck. The book argues that skill formation and economic performance are socially constructed and experienced within social institutions such as schools, offices and factories. The relationship between skill formation and economic performance can be organised in highly divergent ways, shaped largely by the very different national contexts in each case study, which are based on culture, history, politics and social mores. This study is the first attempt to re-insert the 'social' back into the academic practice of political economy, something that has been amiss in the past decades given the dominance of neo-classical economics and the hegemony of 'returns to investment' theories of human capital formation. They categorized countries into the four typology of high skills. (Kraak, Andre 2002). (see table 1).



Table 1: Four typology of high skill societies (Phillip Brown, Andy Green & Hugh Lauder 2001)

FOUR TYPOLOGIES OF HIGH SKILL SOCIETIES				
Typology:	The High Skills Society Model	The High Skills Manufacturing Model	The Developmental High Skills Model	The Low Skills/High Skills Model
Country:	Germany	Japan	Singapore	United Kingdom
Key characteristics:				
1. Labour market structure	Strong Occupational Labour Market—close fit between ET and employment	Strong Internal Labour market—lifelong employment; rewards to seniority	State 'guided' labour market—state intervenes strongly at coordination of skilled labour	Flexible labour market; employment insecurity; casualisation; strong employer prerogative to 'hire and fire'
2. Education and Training System	Dual system of general education and occupational training; smooth transition from education to work	Strong underpinning general education with internal enterprise-based on-the-job training	Massive state expansion of general education; Strong state intervention in training through manpower planning and vocational streaming to meet key skill needs	An under-performing general education system, little state or enterprise-driven training
3. Key societal characteristics	High degree of social inclusion, income equality and trust.	High degree of social inclusion, social conformism and strong work ethic; significant inequalities with respect to women workers and SME sector	Strong socialisation, compliant workforce; significant inequalities with respect to Malay underclass, women workers and SME sector	Strong polarisation of skill and income—low skill and high skill sectors; strong emphasis on 'individual choice' in ET and employment; low trust
4. Form of interaction between the state and market	Social consensus model; strong codetermination by stakeholders of state-market relations	Strong state regulation of market	Conscious state intervention in market relations	Minimal state action; Market is the dominant regulatory force
	Stakeholder capitalism	Stakeholder capitalism	A 'developmental' state	Shareholder capitalism

Along with this study Phillip Brown (2001) begin from the observation that accompanying changes in technology and global competition have been changes in the way corporations are structured from bureaucratic to adaptive organization. He spells out the seven key societal conditions (what he calls the 'seven C's') necessary for the attainment of an ideal-type 'high-skills society'. These seven conditions need to 'interlock' or be 'joined up' through coordinated state action across diverse domains such as the labour market, education and training, social welfare, industrial strategy and macro-economics. These conditions act to shape and become embedded in the key social institutions of a high skill society such as schools, of. ces, factories and training centres. These seven conditions are described in table 2.

Table 2: seven conditions of ideal-type 'high-skills society (Brown 2001)

Key factors	Condition
consensus	social cohesion and high trust among major stakeholders, government, employers and trade unions
competitive capacity	a value-adding rather than cost-cutting approach to productivity and competitiveness via investing on entrepreneurial and risk-taking activities
capability	the continuous development and investment in human capital, particularly in the new skills of 'emotional intelligence' (self-regulation and responsibility, innovation and creativity, adaptability to change, and the ability to continuously learn)
coordination	the 'joining-up' of cognate government policies
circulation	high levels of skills diffusion across society (as opposed to skills polarisation);
cooperation	in the form of high levels of trust which are embedded in the institutional fabric of society;
closure	inclusion as opposed to social exclusion from the benefits accruing in a high skill society.

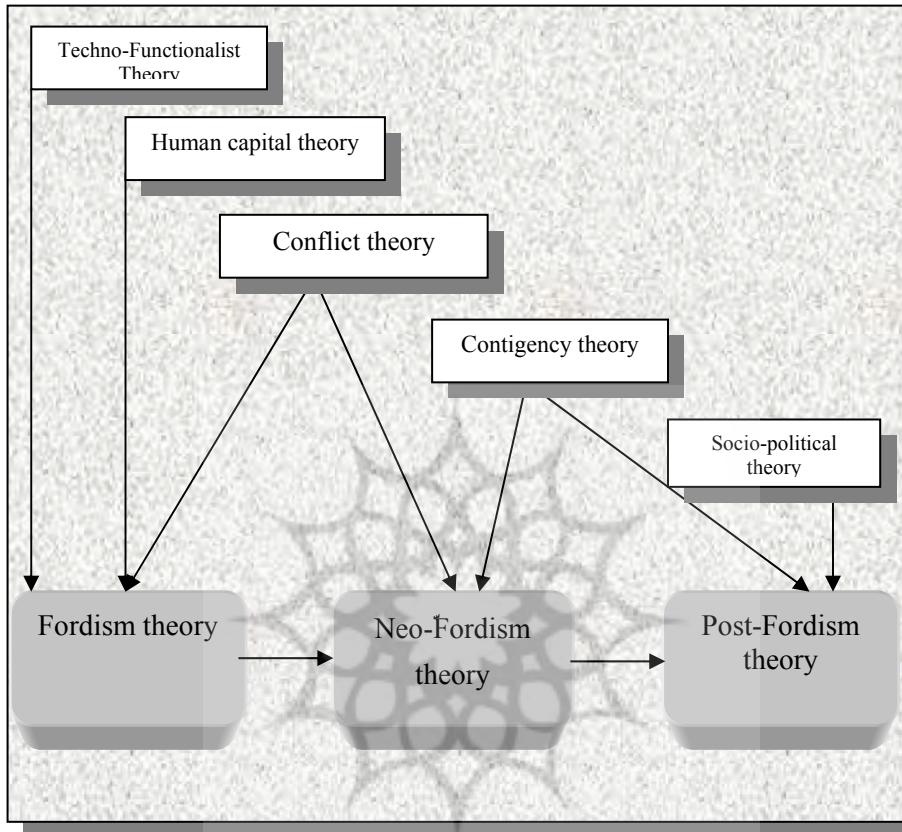
In conclusion it is possible to show the advantage and disadvantages of theories of links between skill formation system and economy system. The Functional-Technical and Conflicts theory were formulated in a period in which the Fordist model of production dominated. The Fordist model was based upon the scientific management principle including external design control, job division, technology control, repetitive work, de-skilling, work measurement, individual control and etc. As the theories of that time reflect, the main advantage of Fordist production was that it was highly stable. However, international competition, the changing organisation of work, the introduction of new technology, declining profitability and increasing labour unrest created contradictions within the Fordist system at the micro and macro levels of the economy. Economies has consequently shifted from a period of post-war growth to one characterised by more 'flexible' production. The process of skills formation in post-Fordist economy as Ashton (1999) has argued are understandable only if conceptualised as part of a broader set of social relations. Brown, Green & Lauder 2001, Lauder (1999), Brown (1999) and Green (1999) have also highlighted that skills formation is a process affected by socio-cultural, economic and political issues. However, these theories except socio-political theory tend to neglect the demand side in terms of issues related to skill utilisation and the relationship between skills, job design, career and employment structures, work organisation and product market strategies. In other words, the commitment of companies to learning and providing more opportunities for learning and skill formation is not sufficient. Companies should ensure that workers are involved in decision-making, participate in teams, quality control, and line management. By making work more challenging and meaningful, workers can be persuaded to learn and update their skills and knowledge.

Additionally, there is evidence of widespread underutilization of existing skills and qualifications and radical economists such as Bowles & Gintis argued job performance often depended more on non-cognitive personality traits than the cognitive skills imparted during education and training. The idea of schooling for work is intensely problematic because of the differing needs amongst neo and partly post-Forrest firms and the disagreements even withing firms like Rover. To conclude, the reality is that the relationship

between schools and industry in all stages of Fordism, Neo-Fordism and post-Fordism remains tenuous.

As figure 3 depicted each theory is emerged to answer the requirements of an specific economic system.

Figure 3: the links between theories of skill formation and economic system

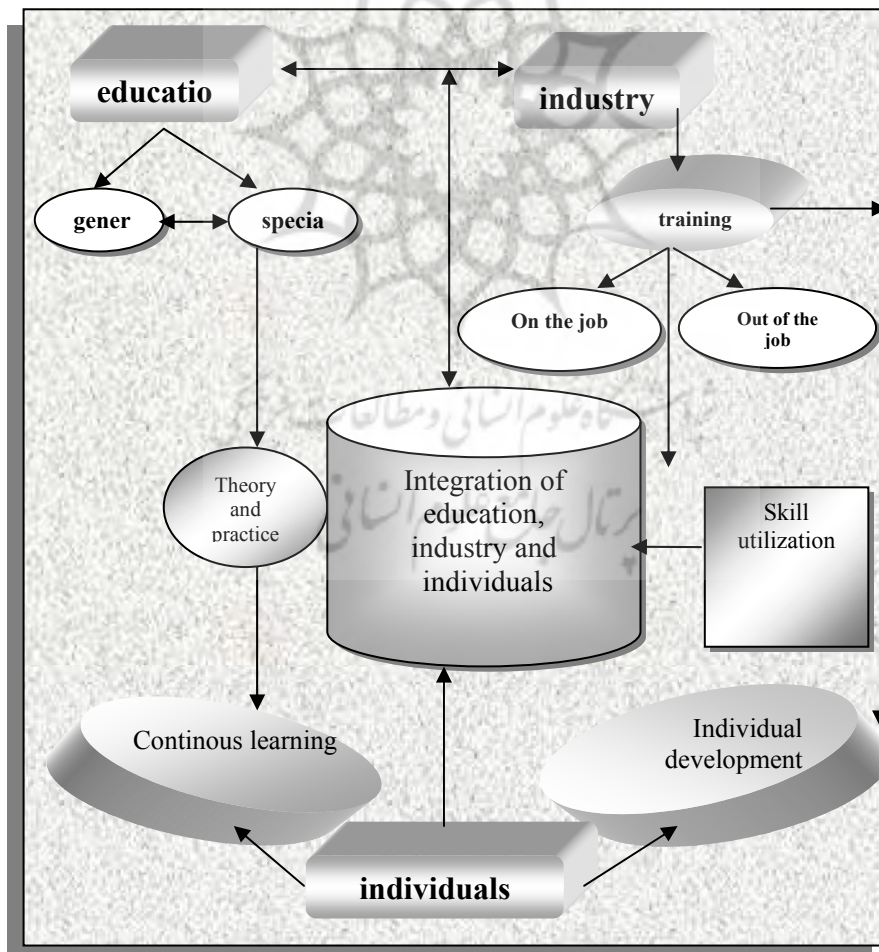


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Toward developing a new model of skill formation

In addressing to develop a model the author utilised the above discussions. In this way a model suggested which contain some elements of each theory (see figure 4). In fact, it is suggested that skill formation is achievable if we work on developing a active participative and cooperation culture of three forces, namely education system, industry system and individuals. The important part of this model related to its emphasis on not only skill formation but also skills utilization. To create a partnership culture between schools and economy requires long range planning. This long term planning when institutionalised through the government funding of an intermediate organisation should enable a stable culture of partnership to overcome. The current experiences shows that neither state nor private economic sectors can by themselves create and maintain an adequate skill formation. This process require the broad participation and cooperation of a capable state , an ever widening range of private economic sectors, and more importantly motivated and determined individuals.

Figure 4: a new model of links between skill formation and economic system



the worker-citizen should be. Here, the education system in general, and schools in particular, are presented with a series of problems. The first is whether schools should be involved in the servicing of a neo-Fordist economy when clearly it requires 'producing' individuals who are compliant and not encouraged to develop their learning potential. There is a sounder rationale, in theory, for teaching for a 'post-Fordist' economy since as the 'optimists' view it, it provides for far greater autonomy and the fulfilment of human potential. Although, the critics of optimists like Brown and Lauder (1992) point out that that post-Fordism is still capitalism and therefore has limited radical potential. Given these varying views we are still left with a series of key questions. These can be illuminated by considering some of the prescriptions that have been made for education in the future. For Mathews, *et al* (1989) and Young (1992) to accommodate to changes in industrial economies we need a flexible curriculum on the following principles: breadth and flexibility in a broad base of knowledge; flexible connections between core and specialist knowledge and general (academic) and applied (vocational) studies; emphasis will need to be placed, in the primary and secondary years of schooling, on the development of resourcefulness, cooperativeness, independence and problem-solving ability, as well as on mathematics, science, technology studies, literacy, and basic technical skills. Opportunities will need to be provided so that students can connect knowledge in different areas and relate theory to practice in a variety of contexts. Similarly, Berryman (1996) has also listed the requirements she considers necessary for an apprenticeship pedagogy which could equally apply to schools. These include:

a focus on the conditions of application of the knowledge and skills being learned; taking into account the learner's original ideas, and the staging of discrepant or confirming experiences to stimulate questions, and encourage the generation of a range of responses with the opportunity to apply these in various situations; and an emphasis on learning in context. Assessment should be focused on authentic learning outcome measures based on demonstration and performance of competence.

Underlying this thinking is a vision of close links between learning and work utilising: "...work-related cognitive, interpersonal and manual skills, theoretical and applied general knowledge and specific knowledge and information. (Thurly *et al*,

1990)." The means to achieving these aims, it is argued, relate to an emphasis on project work, teamwork, and self-directed study. In this scenario teachers are seen as facilitators of learning; emphasising cognitive learning skills with the ability to transfer skill. The curriculum should not only focus on maths, science and technology but also on information technology; tasks should be open-ended with a closer integration of manual and mental tasks. This view also assumes a capability and necessity for collaboration in both setting and achieving goals, and for negotiation of roles and responsibilities requiring skills in communication, teamwork, and problem solving. The focus is on learning, not specifically on either training or education (Marsick,1987) rather through learning these dispositions and abilities the division between education and training is transcended.

Conclusion

This paper illustrated how skill formation theories are connected to economic system. It is appeared that orthodox technological-functionalist human capital theory conflict theories contingency theories and the socio-political theory emerged as a response to the needs of economy from Fordism, neo-fordism and post-Fordism. In either regime of work the links between skill formation and the economy has been a matter of debate amongst major stakeholders, educational planners, government, and commentators. The above discussion shows why the relationship between schools and industry is much more complex than a straight correspondence in terms of neo- and post-Fordist production theories. It must be recognised that it is difficult for the education system to cater to both the neo- and post-Fordist organisations. During the Fordist and 'post-Fordist' organisation of work two related questions have been prominent. The first is, what are the socio-economic functions of education and training for industry and society as a whole? For example, is education fundamentally a mechanism of social class control as some neo-Marxist critics have argued (Bowles and Gintis, 1976) or is the current emphasis on skills and skills upgrading integral to competitiveness? The second question follows directly from this, to what extent does industry need learning, skills, and knowledge to be effective and how do they utilise these skills in practice?

However, the suggested model in this paper needs to be more investigated to find out to how extent it is adequate and capable to develop a better relation between skill formation and skill utilization in theory and practice.

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