

EDC/IV/1
APRIL 1994

**Commission
Internationale
sur l'éducation
pour le vingt et
unième siècle**

***International
Commission on
Education for
the Twenty-first
Century***

EDUCATION AND WORK

BY

OLIVIER BERTRAND

FORMER RESEARCHER AT CEREQ
(CENTRE FOR STUDY AND RESEARCH ON
OCCUPATIONS AND QUALIFICATIONS)

UNESCO, Paris

• **President/Chairman:** Jacques DELORS • **Membres/Members:** Isao AMAGI, Roberto CARNEIRO, Fay CHUNG, Bronislaw GEREMEK, William GORHAM, Aleksandra KORNHAUSER, Michael MANLEY, In'am MUFTI, Marisela PADRON Quero, Marie-Angélique SAVANE, Karan SINGH, Rodolfo STAVENHAGEN, Myong Won SUHR, ZHOU Nanzhao

EDUCATION AND WORK

by Olivier BERTRAND

SUMMARY

When education is examined in terms of its usefulness as a preparation for employment, the theoretical analyses of its contribution to the productivity of labour and the methods used to forecast the quantitative needs of the economy give rise to considerable controversy and seem to provide no more than very general indications. More qualitative studies on changes in qualifications and on the operation of the labour market seem to make a more useful contribution to efforts to achieve a better equilibrium between supply and demand. This equilibrium cannot be purely mechanical or simply reduced to adjusting supply to the needs of the market. It assumes some kind of overall regulation that takes account of socio-political as well as economic factors. In the face of an uncertain future, adaptability in institutions and individuals, and solidly based training, are a better basis for employment than specialised education. Moreover, the economy needs to provide enough jobs to meet demand, which is becoming an increasingly unlikely prospect in many countries and would call for some rethinking of education's role in this field.

Work experience, and especially alternating periods of work and study, and partnership arrangements between educational institutions and business firms could make a useful contribution to the educational process, subject to a number of conditions which are not always met and which are linked to the particular socio-cultural context and historical heritage in each country.

This topic covers an inordinately large field, particularly if we take these two terms in their widest sense, with education including vocational training, and work including paid and non-paid work and the different notions of employment and qualification. An attempt to condense the accomplishments of research and experience in this field into a few pages would be immoderately ambitious. Consequently, this paper is not intended to be an exhaustive account, but rather a summary of the main conclusions and most prominent ideas.

As far as possible, our study will be based on the available literature and on recent or on-going studies. Particular attention will be paid to studies initiated by international organisations, but we will also refer to those from a wide and contrasting range of national sources, excluding, however, studies with too specific a character.

The relationship between education and work will be dealt with in turn from two angles:

- the role of education, in its widest sense, in preparing people for paid work, which may be examined from the point of view of theories, techniques of analysis and projection, policies, and practices. This will be the object of the first four parts of this paper;
- the interaction between education and productive work, and notably the role of work in the educational process.

1. Education, work productivity and economic efficiency: the theoretical approach

The question of the contribution of education to production, and therefore to economic growth, and its value as an investment for individuals and society, is the central concern of the economics of education. This developed at the beginning of the 1960s and was the subject of many debates and copious literature until the middle of the 1970s. Reviewing all these studies does not come within the scope of this paper, which aims to concentrate specifically on work. However, these theoretical approaches cannot be overlooked insofar as they were related to educational policies. Reference to them is facilitated, however, by the existence of several summaries (Blaug 1968, 1976, 1985; Easton and Klees 1990; Little 1986; Klees 1989; Miller 1993; and the paper prepared by D. Blondel for the Commission).

Human capital

During the 1960s, the dominant theory concerning the relationship between education and employment was the "human capital" theory (Becker, 1964). According to this, economic factors alone are not sufficient to explain the growth observed, particularly in the United States. There exists a residual factor which must correspond to the human element, and in particular, to education. "Investment in education and training can only increase the skills and capacities of those concerned. These skills and capacities - which are rare commodities - increase productivity, particularly in the modern sector. Employers rewarding the proprietors of these commodities with earnings. The level of these earnings thus gives a fair indication of the productivity of a given employee, and market activity ensures that rare skills are assigned to the productive sector". (Little, 1986. Also Blaug, 1968 and 1985).

The central idea of this theory is that individuals invest for their future by making a rational estimate of the returns of education, and then orient their careers in consequence. Individual estimates may be transposed to the collective scale by integrating the overall

costs of education. Estimating the rates of return enables the optimum development potential of different levels and forms of education to be evaluated, and thus becomes a tool for planning.

Since the 1970s, the human capital theory has come under heavy criticism, and has been confronted with the development of other theories. These have all been systematically reviewed by M. Blaug (1976 and 1985). He emphasizes the fact that the concept of human capital was developed in the United States (where access to further education is unrestricted and where public initiatives were limited) at a time of expansion and optimism, and inquires whether it might remain valid in very different contexts. Analyzing the different studies which provided the basis for the theory of human capital and its successive extensions (from continuous training to primary instruction by level, special field and type of establishment), he remarks in several cases on the insufficiency of data, the fragile nature of the hypotheses and the anomalies in the results.

A major query concerns the respective role of natural gifts and family environment in relation to the duration of the education received when calculating income differences. The most detailed statistical data suggest that, taken individually, the role of education is insignificant, and that it assumes its full importance only when taken in relation with one of the other two factors. (Blaug *ibid.*). Furthermore, it has been observed that in current economic and technological conditions it has become extremely difficult to individualise and quantify work within the framework of a traditional analyses of the factors of production (Blondel 1989).

Alternative theories

While these observations led to a more subtle appreciation of the theory of human capital, more radical doubts arose with the emergence of the alternative theories. The first of these is known as the "screening" theory, according to which the value of schooling resides not so much in its provision of new knowledge as an increment to human capital, but rather in the fact that it is an instrument for the selection of the most gifted, and of the behaviour best adapted to employers' demands. Employers therefore allow the education system to proceed on their behalf with the recruitment of personnel for skilled jobs. The role of schools would therefore be one of socialization, and would consist more of selecting and of promoting "correct" behaviour that would be of more interest to employers than what had actually been learned.

Contrary to the previous theory, which encouraged the constant development of education seen as investment, the "screening" theory is accompanied by considerations of the risk of educational inflation, since inflation of this nature in no way alleviates the pressure of demand in a job-queuing situation. Its view of the priority given by employers to their employees' behaviour seems quite well suited to recent observations of the situation in European countries. But M. Blaug's interpretation (1985) that this concerns operative-type behaviour in a Taylorist-type organisation no longer seems to apply to recent developments in the organisation of work and in skills (see below).

The views of radical and institutionalist American economists, together with theories of the segmentation of the work market, fit into a context that is opposed to the neo-classical approach of human capital. They question the search for a "socially optimal" quantity, quality and type of education in a world of conflict where political factors play an important role. They tend to condemn the neo-classicists for their mistaken pursuit of criteria of technical efficiency which they believe will enable them to make choices in the interests

of society. The segmentation model tends to lay the blame for unemployment more on the nature of the jobs available than on the inadequacies of education. It considers it possible to "link investments in education and training to transformations of the structures of employment, and to the level of unemployment and under-employment, if the forces that modify both education and employment influence them both in the same way during the same period." (Carnoy 1977).

Having reviewed these different theories, Klees (1989) ends up with a view which is "more than slightly jaundiced" (compared with Blaug's), which leads him to doubt the effectiveness of the instruments and techniques of planning which will be examined below. With Easton (1990), he particularly challenges the dogmatic application of neo-classical theses to educational policies, and the illusion of a universal scientific approach, to which he prefers the study of actual problems.

OECD, on the other hand, with a concern for measurement and accounting, recently displayed renewed interest in the problems raised by investment in knowledge, from the individual point of view as well as from that of business and the community. From this standpoint, the latest study on the subject seeks to transcend the traditional theoretical debate by defining human capital independently of its inputs and its rate of use, which moves the starting-point of the analysis in the direction of human capacity (Miller 1993).

International comparisons

To complete this report, we should mention a series of research which is quite different in spirit and method, but which has a common foundation of international comparisons.

An initial series adopted a sociological approach and concentrated on the relation between the organisation of work in a company, qualification and training. The Franco-German comparative studies carried out by LEST in Aix-en-Provence (Maurice et al. 1982) and by B. Lutz in Nuremberg (1976) suggested mainly that the historical development of the X training system and the availability of skilled personnel influenced the organization of the company and, indirectly, its economic efficiency. These studies were followed by others comparing France and Japan. At the same time, several comparative studies were made of Japan on the one hand and the United States and Great Britain on the other, in an attempt to analyze the implications of the Japanese model of training and work organisation .

A second series, of an economic nature, compared competing British and European firms and sought to examine the relationship between productivity and the skills and training of the personnel. Their considered conclusion was that there was a close relation between the lower productivity of the British companies and the lower skill levels of their personnel (Steedman 1987) .

These different studies provoked a great deal of debate about the role of the education system in the organization of work. In France (Commissariat 1979), and even more so in Great Britain and the United States (Marshall and Tucker, 1992; Miller 1993), concern was shown about the negative trend affecting many firms in these countries: inferior skills of the personnel > organization discouraging acquisition of skills > mediocre production quality > poor competitiveness as opposed to the positive trend which predominates in Germany and Japan: high qualification > organisation encouraging acquisition of skills > quality production with high added value > better competitiveness. An interesting aspect of these studies is the direction of this relation: the availability of educated manpower

could encourage companies to adopt other modes of organization and even other types of production (this, however, would not be sufficient if the attitude of the employers was not so disposed).

A very different type of research applies the statistical method, and attempts to discover the correspondence between economic variables, occupational structures and levels of education. Substantial studies were undertaken by L. Emmerij and J.P. Jallade at OECD in 1970 (OECD 1970), but were not followed through by this organisation. Other statistical studies of this nature were carried out later under the aegis of the World Bank (Zymelman 1980) .

This type of study implicitly seeks to determine whether there exists a standard for occupational or educational structures which is associated with a certain level of efficiency or a stage of economic development. This seems very doubtful in the case of education, as expansion in this domain is linked to supply and social demand at least as much as to economic demand. Concerning the relation between the stages of socio-economic development and occupational structures, however, some interesting studies have been carried out in Hungary.

2. Education and qualifications: the qualitative approach

It is probably more helpful to view the relationship between education and employment through a more qualitative assessment of changes that have occurred in the content of work and in the corresponding skills and of the way in which employers have taken account of these changes. In other words, attention needs to be directed towards qualifications, although we need to remember that this term may lead to confusion since it may mean: (a) the skills required to do a job; (b) the skills that a worker possesses (linked mainly to his or her training); or (c) skills that are recognized in the labour market.

These three concepts are not identical and in any case there is no hard and fast correlation between training and employment: most jobs can be done by people with different kinds of training, and a specific kind of training can lead to a wide range of jobs.

It is therefore extremely difficult to define objective standards of qualification, since everything depends on the particular institutional and social context (Commissariat 1979). There are considerable differences, for example, in the approaches adopted in Germany (on the basis of a consensus between social partners), in France (a State monopoly of diplomas) and in the United Kingdom (a detailed survey of the skills required carried out by bodies linked to employers), which makes it difficult to compare there's or transfer them from one country to another. This matter is currently being examined in the United States, where efforts are being made to establish a national system.

It is by taking account of such factors that we are able to examine the possible consequences of changes in the content of work and in employment structures, for vocational forms of education and training in the main but also for general education, as will be seen below.

With the acceleration of technological change since the beginning of the 1980s, there developed (and often still exists) a tendency to link, directly and automatically, the development of the content of work with the development of technology, particularly where the new information technologies are concerned. In fact, many studies have demonstrated that technology was not the only element which determined the structures of occupation and the Content of work, and that these also depended on the type of

production linked with economic considerations and the type of organization chosen by the companies in question (Hallak, Caillods 1980; Grootings 1987).

The linkage of economic, technological and organisational development has consequences of several kinds for qualifications and training:

- it leads to a change in employment structures, i.e. in the distribution between different groups of occupational structure. In this respect, there are two undeniable trends: the decrease of manpower in industrial and manual jobs and a rise in tertiary employment; the increase in the numbers of engineers, executives, those doing intellectual work and technical specialists, to the detriment of labourers and some types of office worker, beginning with the least skilled.

- secondly, the work content of each of these jobs is changing, which is leading to new demands in terms of knowledge, skills and behaviour (or behavioural skills). This second point would need to be elaborated upon at length in order to take account of the specific problems of each sector or group of jobs and of each country. We shall limit ourselves here to a few general considerations.

In particular, we may recall the debate in which the supporters of the descaling theory, those in favour of a polarisation of qualifications, and those who were for a general rise in the standard of qualifications were often at loggerheads. Until the 1970s the former were able to point to the extension of Taylorism, reinforced by the first computer generation which was rigid and centralized. Since the 1980s, there has been a new economic situation with increasing international competition (cf. the paper by W. Gorham) leading to higher quality and a wider variety of goods. This process has converged with the development of decentralised computer technology that encourages autonomy and the recombination of various tasks. These two factors together, alongside the need to motivate workers, encourage the development of new forms of organisation, resulting in : a trend towards higher qualifications in the advanced industrialized countries. One can at least observe that mass production demanding a workforce with a low level of skills is tending to gravitate towards the low-wage countries, and that automation has so far mainly affected the most simple and most repetitive jobs.

However, this conclusion needs to be qualified, and first of all according to sectors of activity and occupational groups. For example, while the increasing predominance of tertiary employment cannot be denied, we must avoid drawing hasty conclusions, because these jobs form an extremely heterogeneous group. It is in the tertiary sector that the majority of highly qualified jobs are to be found, but here also is where there remains the greatest possibility of keeping certain poorly-qualified jobs (Bertrand 1993). Furthermore, distinctions should be made according to countries and businesses, linking up with what was said above about the negative trend associating skills, productivity and competitiveness. It is mainly in successful and innovative firms in the advanced industrialised countries that the trend towards higher qualifications is most marked. Although such tendencies are on the increase, they may still only involve a minority (Kern Schumann 1984) .

Finally, we need to ask questions about the eventuality and consequences of an increasing use of computer technologies for increasingly complex tasks, where these techniques would replace human work (among the numerous studies on this theme, see for example: Bertrand, 1992 (b); CEDEFOP, 1991; Grootings 1987; Levin and Rumberger, 1989; Noyelle, 1990; Tanguy, 1986, and all the studies made by OECD in their programme on , the development and use of human resources in a context of technological development and industrial reorganisation).

From the point of view of knowledge, it is generally agreed that the new qualifications demand more an abstract form of thought, which generally leads either to raising the standard of education or to increasing its theoretical content. However, it has been shown that even in the context of a modernisation of the economy, this development did not necessarily apply to all industrial jobs, some of which called more for adaptability to a variety of functions and to group work while others continued to be based on more traditional skills (Tanguy 1991).

The traditional approach giving priority to theoretical knowledge, considered as a prerequisite for the learning of new skills, has also been challenged. Different experiments have proved that it could be effective to begin such learning in a more practical context. Evidence of this has begun to emerge in advanced industrialised countries such as the United States, but it is even truer in traditional societies (Raizen 1991).

A study by the Department of Labor in the United States (1991) has shown that technical skills only came fifth in a list of employers' expectations, after the ability to manage resources, relate to other people, evaluate information and understand operating systems. As far as the impact of new technologies in particular is concerned, contrary to a widely-held opinion, the problem facing the education system is not to train workers to use them, but to train them to do things which machines cannot do, such as unpredictable tasks, or those demanding creativity and, above all, a human relationship (Bertrand 1992 (b)). As A. Gorz (1988) has remarked, "education must reverse its priorities. Instead of training 'human computers' whose capacities for memorising, analysing and calculating are exceeded and largely made redundant by computers, we should concentrate on developing distinctively human skills: manual, artistic, affective, interpersonal and moral skills and the ability to ask unexpected questions, to make sense of things and to reject nonsense even when it is logically coherent".

I should add that this is a far more complex task than acquiring additional technical knowledge because it implies a larger sum of basic experience and behaviour patterns. However, we should not conclude from this that the acquisition of technological skills is entirely useless, since it is also necessary to provide people with a command of technology and to secure their participation in the process that creates new technologies, particularly in developing countries (Hallak, 1990)

In the advanced industrial countries, companies are tending to give increasing priority to the attitudes and behaviour of the people they employ, rather than to their technical capacities, which in any case need to be renewed continually (CEDEFOP, 1991; Raizen 1991). There seems to be a tendency, particularly in the most efficient companies and new modes of organisation, to give priority to analytical and problem-solving ability, adaptability and the capacity for innovation and oral and written expression.

The contrast between the skills that the most successful companies require nowadays and the skills that used to be looked for may be summarized in the following table which, although it deals with the financial sector, could be applied to other sectors as well:

Traditional skills	New skills
<p>General</p> <ol style="list-style-type: none"> 1. Stable activity in a rigid organisation 2. Direct work on documents 3. Ability to receive and follow instructions 4. Individualized work 5. Limited horizon in time and space 	<ol style="list-style-type: none"> 1. Adaptability to new products, technologies and methods of organisation 2. Abstract work on screen, using codes and symbols 3. Autonomy and responsibility 4. Work in constant contact with customers and colleagues 5. Broader horizon in time and space
<p>Specific</p> <p><u>Higher level</u></p> <ol style="list-style-type: none"> 1. General management staff 2. Managers of the firm and of personnel <p><u>Intermediate level</u></p> <ol style="list-style-type: none"> 1. Specialized production work 2. Detailed knowledge of procedures <p><u>Subordinate level</u></p> <ol style="list-style-type: none"> 1. Specialized work of collecting and processing information 	<ol style="list-style-type: none"> 1. Specialists alongside general management staff 2. High-level technical staff <ol style="list-style-type: none"> 1. Versatility in working in sales and relations with the user 2. Broad knowledge of the firm, its products, markets and customers <ol style="list-style-type: none"> 1. Tendency to eliminate information gathering jobs through automation and restructuring

Paul Adler (1987) has suggested a parallel analysis which contrasts new requirements with the old in four areas: responsibilities, skills, interdependence and training. Robert Reich (1991) has taken up and summarised these analyses in the distinction he makes between three categories of work: production (which is tending to decrease), the provision of personal services and the manipulation of symbols (which are tending to increase).

In conclusion, it should be stressed that the challenge presented to education systems by the development of skills is not how to train elite groups capable of adapting to state-of-the-art technologies. The challenge resides rather in the fact that the modern economy in the most advanced countries no longer has much room for the least educated and least qualified. The major risk for these countries is that of exclusion and the division of society. The education system cannot afford to ignore this.

The developing countries have not yet reached this point. Even more than the industrialized countries, their hopes for creating jobs lie in small firms and in self employment. In their case too, education systems are not only faced with the problem of disseminating knowledge and technical know-how, but even more with the problem of

developing attitudes and patterns of behaviour, in particular those which encourage self confidence and a spirit of initiative and help people to work independently (Frost 1991).

An analysis of these developments, not only by national co-ordinating bodies but also by direct investigation inside companies, could help to throw light on the direction which the education and training system should take. Nevertheless, study of the tendencies affecting job content must be supplemented by a study of employers' methods of recruitment and work-force management, concerning in particular the way in which they are dealing with these developments, and, more generally, an analysis of the functioning of the labour market (Hallak and Caillods, 1980; Bertrand, 1992 a). Thus, faced by a shortage of qualified staff, employers may adopt various approaches:

- attempt to replace people by machines;
- recruit qualified young people by making use of initial training structures;
- seek to adapt and upgrade the existing work-force, possibly through the provision of additional training.

The first approach soon encounters problems when anything other than simple and repetitive tasks are involved, since all automated processes require intelligent supervision. The second may damage continuity within the firm, create conflict between generations and cultures and result in unemployment for older, less qualified staff. The response demanded of the education system depends on which of these solutions is chosen, although this cannot be reduced to merely matching one to the other, as will be seen below .

Finally, with regard to the effects of harmonisation between training and employment on the labour market, questions are bound to arise on the possible impact of internationalization, mentioned in the paper by W. Gorham. Recent studies carried out on behalf of the European Commission suggest that the most mobile workers come from opposite ends of the spectrum: the least skilled move for economic reasons and in their case the problem of education is more one of social integration than of professional qualifications, while, on the other hand, senior management staff adapt more easily and higher educational establishments are increasingly involved in training them (in the case of Europe with the support of Community programmes).

3. Education and employment: the difficulties of quantitative forecasting and the methods of adjustment

There are several ways of attempting to take the present and future development of employment into account, in order to calculate the number of staff that need to be trained. Either we attempt to base projections on the needs of the economy, or we observe the way in which adjustments are made, particularly as regards pay and the placement of young people after their training.

The manpower approach

Before any theories about the relation between education and economy were even developed, practitioners were facing the problem of adjusting the educational system to the "needs" of the economy. The "manpower approach" was developed in the socialist countries, and first of all in the USSR. It consisted of setting economic projections

concerning employment and its distribution, occupation by occupation, over a given timescale (demand for manpower) against projections concerning the evolution of the active population likely to be in such employment, broken down by qualifications and including estimates of the output of graduates (supply) or manpower resources.

Around the 1960s, this approach was re-adopted and further elaborated by OECD, which applied it in its Project for the Mediterranean region and Latin America (Argentina, Peru), and by European countries such as France, where a form of indicative planning was being practised (Commissariat 1978). It was also put into practice by a large number of developing countries, which were anxious to train the skilled work-force needed to carry out their ambitious development plans and also to replace the expatriates who had left as a result of de-colonization. They were encouraged in this by the "human resource" theorists, who attached great importance to the role of education in development and who believed it necessary to build up a greater reserve of manpower in order to respond to the needs of the economy (Hargison and Myers, quoted by Foster, 1992).

Although very widely practised, this approach was heavily criticized and is today widely condemned. First of all, in its simplified form, it does not take into account the fact that a large percentage of jobs are filled through job mobility, accounting for which poses some difficult problems. Economists such as M. Blaug and G. Psacharopoulos base most of their criticism of this approach on its absence of theoretical foundation, its inflexibility, and especially on the fact that it does not take into account either the cost factor or the real conditions of adjustment on the labour market, particularly the level of earnings. In France, the National Institute of Statistics (INSEE) abandoned this method in the mid-1970s, mostly as a result of the elaboration of the notion of skill (Commissariat du Plan 1978, Tanguy, 1986), and following the realisation that there exist no objective needs in terms of training, but rather an interaction between supply and demand which determines the levels of adjustment (an aspect also highlighted by Easton and Klees, 1990). As has been seen above, it is firms' specific recruitment requirements and the operation of the labour market that govern the transition from demand for qualifications to specific job offers for young people beginning work (Blondel, 1992).

The assessment of past experiments is often very harsh, particularly in the case of developing countries, which often do not have sufficient basic information and tended to over-estimate the rate of economic growth and therefore their needs in terms of training. Besides this, considering that manpower projections are unable to estimate the "need" for workers with primary education and fail to account for the cost factor, M. Blaug (1974) criticises them for leading invariably to the allocation of the majority of the budget to the development of secondary and higher education (Psacharopoulos 1991 also). However, if we look at other examples (Bertrand 1992 a), this criticism does not seem generally applicable.

It is interesting to note that despite these criticisms and developments, the Bureau of Labor Statistics of the United States continues to allocate considerable resources to periodical long-term projections concerning employment and its structure, occupation by occupation, at an extremely detailed level (U.S. Department of Labor, 1992). The results are not systematically compared with training prospects so there exists no procedure for aligning training and employment, but the analyses of occupations are compared with data concerning levels of education and the results are used in the publication of an "Occupational Outlook Handbook", which plays an important role in guiding individuals and training organisations. This is not so much planning as information for those operating in a market system. Periodically evaluating its projections, the BLS considers that they have proved reliable in the main and that criticisms of them bear mainly on the degree of detail (Freysinet, 1991).

Other industrialised countries continue to make projections. The Institute of Employment Research in the United Kingdom, for example, produces balances revealing shortages and surpluses by main levels of qualification, thus highlighting trends and the areas in which market adjustments and the efforts of the public authorities ought to be concentrated. In Germany, the IAB (Institut für Arbeitsmarkt und Berufsforschung) and other organisations also produce projections concerning occupational profiles. The use of these studies for the guidance of education systems is highly variable depending on the countries concerned; it is most frequently indirect (Freyssinet, *ibid*; Bertrand 1992).

Finally, in France, less than ten years after the official organisation (INSEE) abandoned quantitative projections of the link between education and employment, the Ministry of Education's coordinating committee (the High Committee on Education and Economy) asked another organisation to make projections of the main balances by level, in order to throw light on long-term courses of action (Blondel 1992). Although the results of this work have been questioned they have nonetheless played a role in the debates about raising the school-leaving age. There is always a demand for this type of projection, particularly at the regional level with the partial decentralisation of educational responsibilities. But the present trend is more towards the development of wider and less quantitative projections based on scenarios. In particular, this trend has become apparent through the development of prospective study contracts for sectoral studies on the evolution of employment, skills and training. These studies aim above all to develop dialogue between social partners as a way of sharing the information, problems and development possibilities of their sectors (Ministère du Travail, 1993).

It is remarkable that despite the sternest criticism, the manpower approach, even in its simplistic form, continues to be practised and considered useful in very different contexts, in which its scope, limitations and the way it is applied cannot be judged. A fair evaluation of this approach should first of all take into account the different contexts within which it has been applied. The method was devised at a time when there was a shortage of skilled manpower and a deliberate drive was being made for rapid growth, and it formed part of a global plan. Its application seems much less justified in a context of poor growth, high unemployment and limited government intervention, in which adjustments are principally made through job mobility and by market forces.

Developing countries with large populations and exposed to the risk of massive imbalances present a different problem. An approach of this type would be more justifiable there if it could be based on solid data and lead to effective decisions on the path to be followed, but this is not usually the case (Bertrand 1992, Van Adams 1992). Finally, the manpower approach in its most old-fashioned form, which aims at a mechanical alignment of the training and employment of skilled workers (and would not be defended by any experts today), should be distinguished from the more sophisticated approaches which attempt a global and prospective analysis of the main socio-demographic and economic balances (Timar, 1983).

The analysis of performance as the foundation for a definition of educational priorities

As we have seen above, a number of economists, particularly from the English-speaking tradition, recommend the use of the rate of return analysis inspired by the theory of human capital. According to Psacharopoulos and Woodhall (1988), about fifty countries had been studied in this way by the end of the 1980s. This enabled a number of general conclusions to be drawn:

- educational performance seemed to be better for individuals than for the community as a whole (which is to be expected, insofar as the State assumes a large percentage of the costs of education);
- primary education seems to perform better than the other levels, both for individuals and the community;
- returns on education seem in general to be higher than ten percent, which is the rate above which capital investments are considered profitable. In other words, investment in education seems to be at least as profitable as other forms of material investment;
- on average, returns on education seem to be better in the less-advanced countries than in the industrialised countries.

The promoters of these studies consider that the results are sufficiently conclusive to serve as a guide when deciding on priorities and to contribute to the definition of educational policies. The question, however, is whether these results are discredited by the criticism of the theories on which they are based. We are inclined to believe that this type of measurement cannot pretend to any great degree of precision, but that it may provide a useful idea of scale and throw light on the debate about the general line to be followed; in the same is also true of the previous approach and indeed, the two approaches may be complementary.

The use of follow-up studies of school-leavers

Simultaneously with the realisation of the uncertainties of projection came evidence of the need for better knowledge of the conditions currently governing the integration of graduates into the labour market. It was thought that rather than referring to an increasingly uncertain future, it would be more advisable first of all to take the present context into account (and particularly the need for correcting the imbalances noted) when seeking to decide on the direction the education system should take. This is what led to the organisation of surveys of school-leavers, primarily to see if they had found a job and, if so, to what extent it corresponded with the training they had received.

The most ambitious and systematic action in this field has without doubt been undertaken in France under the responsibility of the CEREQ (Centre for Studies and Research on Qualifications) as a result of which, from the mid-1970s, a national "observatory" of those starting work was gradually established. It has the singularity of being permanent, providing information not only on the situation immediately at the end of schooling but also several years later (Affichard J. Gensbittel M.H., 1984). This system has contributed in particular to revealing the complexity and length of the process of entering the world of work, which leads one to be cautious when interpreting the findings of surveys for the guidance of the education system.

Similar systems, but with rather different objectives and methods, also exist in Germany) and the United Kingdom (OECD 1993 concerning university graduates). The need for a better understanding of the future of young school-leavers is most pressing in the developing countries, however, considering the serious imbalances observed there, and particularly the growth of graduate unemployment (see below). These are also the countries, however, where the identification and observation of this segment of the population are the most difficult in practice (Psacharopoulos and Woodhall 1985).

In point of fact, many follow-up surveys have been undertaken in different developing countries, first of all with the collaboration of the IIEP, concerning higher education (Sanyal, 1987), and then with the support of the World Bank, which encourages governments to carry out more of these surveys. Such surveys not only aim to gather factual data on the employment situation and education of young people, but also to examine their opinions in the light of various possible options. However, "a large proportion of the planned studies were not carried out or were left unfinished. The problem is perhaps that the objectives, methodology and use of these surveys have not been properly understood " . (Psacharopoulos and Woodhall, 1985) .

To conclude this summary, it should be noted that the World Bank today recommends that manpower projections should be abandoned and replaced by the study of signals from the labour market, which is roughly equivalent to combining the second and third approaches (performance and earnings, follow-up) described above (Van Adams et al.1992). "By using the information on placement and unemployment rates by level of competence, the economic viability of different levels of formation, job offers, and employers' estimations of their needs in terms of manpower, planners may identify those jobs whose openings stand a chance of increasing in the medium term". (World Bank, 1992).

We should point out once again that the choice of methods should take context and feasibility fully into account i.e. the means available for their implementation (data and capacities) on the one hand, and the political ability to draw conclusions from them on the other. If the data are too unreliable, capacities too scarce, and political power too weak to take unpopular decisions, the implementation of apparently scientific methods run the risk of being no more than a sham (Bertrand 1992).

The chances of effectively carrying out policies designed to match education more accurately to employment prospects are reduced even further, as J.C. Tedesco points out in his paper, by the fact that adjustments to the education system take such a long time and are often at the mercy of political events, since in many countries constant changes of government produce discontinuities in policy. Furthermore, pressures from some sections of society may hold back the necessary adjustments (e.g., when the automatic provision of grants to students does not respond to economic necessity! and represents a large item on the budget).

4. Development of education systems and policies in relation to employment

Are education systems reacting, and how, to the development of employment and skills? At first sight, the problem arises in different ways according to the types of education and country.

The problem of adaptation most obviously affects **vocational education**. As far as OECD member countries are concerned, the studies presently being conducted by this organization on the "new role of technical education and vocational training" (VOTEC) are providing pointers to recent trends, which can be summed up as follows:

- an increase in the number of students on vocational courses, and their continuation beyond the secondary level, particularly so as to train an increasing number of technical specialists;
- a search for flexibility and a greater capacity for response on the part of the training system. This may be sought for by reducing the degree of specialisation and broadening

the scope of training so as to make it more easily transferable and less specifically oriented towards a particular job. It may also concern the courses taken by students (breaking-down barriers between courses) and management (a trend towards decentralisation);

- a rapprochement between school and business, by increasing the participation of employers' representatives in deciding on options, the development of partnerships, and the contribution of firms to the training itself (see the final section of this paper);

- a considerable increase in continuous training, which relieves the basic education system of the need to supply "finished products ready for employment" (Blondel 1992).

This analysis raises several questions. First of all, is adaptation to new economic needs as far-reaching as official declarations seem to indicate, seeing that these needs are difficult to identify and that the development of education systems is still, despite everything, strongly influenced by social demand and by the systems' own momentum, which limits the impact of outside influences. Secondly, we might ask ourselves whether vocational training, principally devised to teach the techniques and skills needed in industry, is adapted to training for employment in the tertiary sector, which demands a more general form of training as well as elements more specific to each company, with emphasis placed more on attitudes (or behavioural skills - Bertrand, 1993). There also remains the question of principle, raised earlier, of knowing to what extent adaptation must be a one-way affair, training being adapted to the economic system, and not also the reverse.

The problem of the role of vocational training is even more marked, although in a very different way, in the East European and developing countries. In the former case, vocational training was highly developed, particularly the training of skilled industrial workers, but it was mainly supported by the major industries which were the most affected by the crisis and which tended to close the schools if they did not themselves close down first. Besides this, as the economic future of these countries is uncertain, it is particularly difficult to say what kinds of jobs vocational training should be directed towards. A prolonged period of transition is no doubt inevitable (Grootings 1993; OECD 1992).

The problem is different again in the developing countries, confronted both by the weakness of the modern economy, and therefore the narrowness of the labour market, and by the insufficient number of companies capable of supporting a training scheme. P. Foster, who distinguished himself by what has become a classic article on the vocational school fallacy in developing countries, recently resumed his critical analysis in *Prospects* (1992), referring to the new lines of approach of the World Bank.

The latter are also mentioned by Middleton et al. (1993) and the other participants in a seminar organized in Asia (Technical 1990), who reviewed the basic problems and national experiences. In particular, they laid stress on the role of informal and private training, and noted examples where formal training was attempting to respond to the demands of adult workers, including those in the informal or rural sectors. On the other hand, they stressed the failure of attempts to anticipate demand in the hope of stimulating growth by an offer of skilled personnel, or to reduce unemployment among young people in the absence of job-creating policies, or again to dissuade young people from studying when vocational education does not propose attractive openings. The possibilities and limits of learning for informal employment were also reviewed.

Innovative experiments by several Asian countries were reviewed at a meeting organized by UNESCO's Principal Regional Office in Asia and the Pacific (PROAP) in Bangkok. These experiments aimed to provide complementary training to young people, particularly if

disadvantaged, in order to give them useful skills and help them become independent (APEID, 1990). Other experiments designed to provide training better adapted to circumstances, involving a link with employment and follow-up and support for students after the conclusion of their training, have been noted in Africa and the Caribbean (Frost 1991) .

Higher education, coming last in the line, cannot afford to ignore the world of employment either. In fact, in Central and East European countries, it was essentially concerned with the training of engineers for the traditional industries. This is creating a problem for these countries today, not only because of the crisis affecting these industries, but also because everywhere else the aim of this type of education is considered to be wider and is further removed from the idea of matching training and employment.

Even from the point of view of the development of skills, it is not easy to decide which way higher education ought to go. It is clear that the modern economy demands a higher proportion of highly qualified personnel, but it is difficult to say to what extent. Along with other American authors, Levin and Rumberger (1989) speak readily of over-education, stemming from a more rapid increase in the number of university graduates than offers of employment. The European trend towards extended study, for example, is certainly caused more by social demand than by the needs of the economy and will probably lead to frustration among young people, who will not always be able to find the high-level employment that they expect. These problems are cautiously examined in the OECD's latest report, which also looks at how people pass from training to employment (OECD 1993). See also the surveys carried out in a more varied sample of countries by IIEP (Sanyal 1987) .

In the 1960s and early 1970s, the problem of graduate unemployment became a matter of serious concern for the developing countries and was the object of numerous studies which referred to the theories mentioned above (Little, 1986). In an article on universities and development in Africa (in Caillods, 1989), M. Diambomba considers that too close a link with employment is one of the reasons which prevented African universities from fulfilling their traditional role. He particularly mentions over-estimation of manpower needs in the 1960s, particularly in the public sector (which accounts for almost 90% of the jobs at this level). But he adds that the pressure of social demand was also responsible for the over-rapid growth in the number of students, while the distribution of students by type of course did not keep pace with developments in the labour market. He also recalls the public authorities' self-imposed obligation to provide employment for all graduates from the secondary level on.

Expansion of higher education with no relation to job openings, and the resulting graduate unemployment, is the main cause of the brain drain which affects many of the developing countries, constituting a serious waste of resources. Rwomire (1992) stresses the fact that "the development of education has simply given rise to the replacement of a poorly-educated work force by one with a higher level of education. The number of jobs has not increased as quickly as the number of graduates, and therefore the higher level of instruction has been of no benefit to the economy. As the demand for education remains strong, a large portion of public funds is allotted to this type of education, whereas the money would better be spent creating jobs for the disadvantaged. But this is not done, because the political weight of the disadvantaged is inferior to that of the middle and upper classes" .

The development of skills and the new socio-economic context are naturally affecting the recurrent debate concerning the "vocationalization" of higher education. In an issue of the European Journal of Education on to this topic, G. Neave (1992) notes in particular the role

of market ideology in the options chosen by young people and in the structuring of this a level of education (the development of business schools). In the developing countries, criticism has often been expressed about the imbalance in favour of arts subjects, but training greater numbers of scientific and technical personnel would not be enough to develop the economy. It should be noted that the change of priorities has been efficiently carried through in the newly industrialized countries of South-East Asia, as this was linked to the development of a modern economy (Sarjit Singh, 1991).

General education is also affected by developments in employment and skills, although in a more indirect way. This is true first of all on the quantitative level. The trend towards a higher level of skills and the observation that the level of unemployment is generally lower among the more educated, particularly as concerns the long-term unemployed in industrial countries (OECD, 1993), have been arguments in favour of a rise in the general standard of education. The same questions as for higher education can be asked in this connection: the relatively favourable situation of the better educated may be more the result of their higher place in the queue for jobs than the objective needs of the economy.

In Europe, as in the United States, the main problem facing general education today is not raising the level of education, but helping those who are weakest, given the increase in the number of people at risk because of the diminishing number of low-skill jobs available to them. This is why Levin and Rumberger (1989) set the under-education of these people against the over-education of the upper levels. This imbalance, now becoming evident in the industrialised countries, is much more marked still in most of the developing countries, where a large part of the educational budget is spent on secondary and higher education, often leading to unemployment, while basic education is far from being generally available. S. Raizen (1991) also stresses the widening gap between the aims and results of traditional education, a phenomenon which is particularly prejudicial to some groups.

On the qualitative level, the problem of vocational content has also arisen in secondary education, particularly in the developing countries, with the hope of reducing unemployment among those completing general education. Experiments in this direction were inconclusive since the problem was the lack of jobs in the modern sector. To solve the problem it was not sufficient to train young people for a job if in any event there were no openings. The only result was the raising of costs.

The brief remarks made above about the nature of the skills required by the modern economy (notably concerning behaviour) suggest that their development concerns general a education as much as, if not more than, vocational education. It could be asked whether it is not here that the problem first arises of the adaptation of education systems, which traditionally are not very good at encouraging the development of the adaptability, creativity and team spirit that the most successful businesses require today. This is particularly true of the countries of East and Central Europe, whose transition to a market economy involves changes in behaviour even more than changes in the structure of courses and curriculum content. (Grootings 1993).

For many reformers and in many policies followed by a number of developing countries, particularly in Africa, the ruralization of education could be a way of fighting both the rural exodus and unemployment, by encouraging young people to learn skills useful to them in a slightly improved traditional environment, and by dissuading them from going on to further study. Too often, however, particularly in French-speaking Africa, these policies have been a failure for two simple reasons: the teachers were not trained to apply them; and the main motivation of families in sending their children to school is precisely to allow them to escape from the traditional environment and have a better job and a better lifestyle. "Primary school has become, not the place where the student receives an education

enabling him to lead a useful life, but the place where he may grab an exit visa from rural society." (Dore 1980. Also: Carnoy 1977, Psacharopoulos 1990).

As has already been noted, the development of **continuous training** is mentioned by the majority of the OECD countries and may be considered as an answer to the constant and mostly unpredictable development of skills and training needs and to the fact that it is no longer possible for initial training to prepare workers for the whole of their lives. Similarly, the Commission of the European Communities has launched large-scale programmes to promote its development (FORCE). In the case of the Central and East European countries, demand is said to have mushroomed (Belanger 1991). As a response to economic needs, continuous training is heavily slanted towards employment, on the initiative either of companies, or of government programmes concerned with fighting unemployment (Atchoarena 1992).

In this sense, it can be distinguished from **lifelong education**, which aims more generally at personal development and not just at vocational objectives. Where lifelong education is concerned, the absence of any real policy and the peripheral place occupied by adults in institutions and even ministries has been condemned. The same author notes that the theoretical model of lifelong education (preparation for working life, the alternation of jobs and training, and retirement/leisure) is not followed in reality because of the long length of time spent in work, together with insecure jobs and interruptions in the periods of work (Belanger 1991). Another recent study gives a more positive view of the broadening of the concept of lifelong education in a number of industrialised countries (Atchoarena 1992).

The role played by firms in this development of continuous training is that much more important since the most successful firms realize that it can play a strategic role in helping workers to adapt to new products, technologies and methods of organising work. This leads to greater co-ordination between firms and the training system, and also between training and the various elements of employment management: (classification, careers Mehaut 1989).

Against this background of increasing co-ordination, one may wonder whether the distinction between lifelong education and continuous training, is really valid, since economic demand is tending to give increasing preference to basic qualifications and to behaviour as opposed to knowledge and specific skills. Where are the limits, and how should responsibilities be redefined from this point of view ? The question also arises with programmes for the long-term unemployed who have little chance of finding work, where the main concern is with developing their communication skills and spirit of enterprise rather than with teaching them techniques. (Atchoarena 1992).

5. The interaction between education and productive work

In 1982, the IBE published an issue of its bulletin which was given over to the interaction between education and productive work, following a Recommendation drawn up on this subject by it in 1980 (Pain 1982). It proposes a typology of four types of interaction (which are reproduced below with a few changes):

- school curricula and productive work are parallel and separate activities;
- school curricula are subordinate to productive work, and are drawn up in accordance with the skills to be developed;
- productive work is subordinate to school curricula and responds to the aims of education;

- school curricula and work are integrated.

The IBE also notes that these approaches may be a response to very different concerns economic, social and ideological as well as educational. The issue in question contains an 1 assessment of the publications dealing with this question. More recently, von Borstel a (1992), after stressing the educational potential of an association between work and study, 4 examined the conditions for the success of a form of education that included productive work, while the book by Boeren and Epskamp (1990) includes a review of various approaches adopted by a number of countries. A specialized journal "Education with production" published in Botswana regularly provides reports of experiments, particularly in Africa (the June 1991 issue contains *inter alia* a report of a workshop on this subject held in Nairobi in June 1991).

Productive work and education carried out in parallel

Some very contrasting illustrations of this situation can be found. The practice of doing paid work while also studying has been examined by OECD with regard to the member countries of that organisation (*Employment prospects*, 1988). Statistics suggest that such students generally have an advantage compared with the others, perhaps because this approach is a better way of fitting into working life and learning more about the labour market. Interpreting this situation is nevertheless difficult. In the United States, where this practice is more frequent than elsewhere, some people wonder whether it might not be preferable for students either to concentrate on their studies in order to get better results, or else to link their activity with their studies so that it takes on some educational value (contribution by the United States to the OECD's VOTEC programme).

A second instance is that of someone who works, preferably at a manual job, at the same time as studying, but this is not done for money but for ideological reasons (to create a new human condition or a new society). Various examples of this were observed in the socialist countries, where the recent trend was towards reducing the importance of manual labour in favour of more educational activities. Some rural schools in Latin America also practise productive work, considering that it is educational in itself, even if unconnected to school work (Boeren and Epskamp 1990).

Much more frequent is the case of children who, in the developing countries, are obliged to take paid work because of lack of resources. Von Borstel quotes examples of job opportunities being offered to young people while they continued going to school, which enabled them to avoid leaving school early. In many cases, on the contrary, the need to work can prevent children from attending school. In 1982, it was estimated that between 50 and 200 million children were holding jobs (Pain 1982). According to recent observations in Africa, because of the economic crisis "strikes and the closing of schools I have put tens of thousands of children on the 'informal' job market". (Deblé 1993).

A final case, in the developing countries, is when productive work provides a response to economic necessity. The resulting produce can be sold or distributed to students (Boeren and Epskamp 1990). Von Borstel (1992) considers that this is an efficient method of dealing with the budgetary restrictions which are felt in all countries.

Education subordinated to Productive work

Pain's typology mentions school curricula, but the chief focus of interest is the training and further training of workers in employment. The main point of reference here is the Japanese experience, which has been the subject of many studies. It particularly concerns

workers in major industrial firms and takes place on the job. It is especially difficult to analyze, since job and training overlap so closely. Its success seems linked to a particular context which includes manpower management practices (stability encourages companies to invest in training), and pressure encouraging the employees to seek parallel training. It should be noted that the growth of quality circles, encouraging exchanges of information and giving wage-earners an opportunity to express their opinions, has been seen as part of the educational process.

The international study soon to be published by CEDEFOP should throw an interesting light on the differences between the policies pursued by European firms. They now share an increasing interest in continuous training, seen as an essential factor in productivity and competitiveness through the improvements it brings about in quality and adaptability.

Productive work as a part of the educational process

The dividing line between this situation and the first is not always clear. Psacharopoulos (1990) made an unfavourable assessment of several examples of participation in production and the introduction of manual work in schools in different African countries because the activities were not highly thought of by the families and the teachers lacked motivation and the necessary qualifications.

Boeren and Epskamp (1990) describe a number of experiments, most of them in Latin America, of farm-schools and training institutions in which students take part in productive activity, which may or may not be profitable, and are linked with educational activities in varying degrees. They analyze the conditions for the success of these experiments, which they see as training for the teachers and management staff, community participation, a concern for economic viability, and greater integration of productive and educational activity.

Here we are coming close to the most characteristic form of this third type of relationship between work and training - "sandwich" training, which has been arousing much interest in different countries over the last few years. It will be the subject of an International Seminar organized by OECD in April 1994, which will provide an opportunity for member countries to compare their experiences and policies. There are several different methods.

The most common form is the apprenticeship system, which has been and still is employed in very many countries, in both traditional and industrial societies. In the former, S. Raizen draws a distinction in educational terms between learning based on the observation and imitation of more experienced workers following traditional methods and the teaching of abstract knowledge as in traditional education: the former is a way of life, can show immediate results, concentrates on doing rather than talking and implicitly involves an evaluation since the results are clear for all to see (Raizen 1991). The difficulty lies in knowing to what extent this kind of learning can contribute to modernization or include an academic element when the two systems are based on opposing principles from the point of view of social and economic status even more than of their educational standing.

In industrialised countries, apprenticeship is usually associated with the traditional occupations of skilled workers, particularly in such areas as the building industry. In the developing countries, it concerns traditional crafts and it is important to establish to what extent it could be modernised so as to help these occupations adapt to new circumstances.

The apprenticeship training generally pointed to as an example today is the one provided in the Germanic countries. It usually involves an alternation between a school providing

theoretical instruction (for one day a week or more, or set periods) and a company (but sometimes too in specially designed workshops, when companies are unable to provide a sufficient range of activities) in which practical skills are acquired under real production conditions. It is the norm for the majority of young people; it is accessible from several levels and can lead to higher education. The certificates awarded are recognized on the labour market (cf. articles by Drexel and others in *Formation Emploi* 93).

Many countries would like to follow this model but it cannot easily be transferred to other contexts since it implies a consensus between three partners (government, business and labour representatives); heavy investment by the companies in order to provide places and the necessary resources for the follow-up of apprentices; a structured programme and competent and accessible staff. When these conditions are met, the system offers advantages on three levels: for the apprentice, the possibility of familiarising himself with the working world and with a trade that facilitates his entry into working life; for the company, the means of selecting its personnel; and on the educational level, complementarity between theoretical and practical learning. As far as possible, these must be closely linked, but this may not always be the case.

As has already been mentioned, other OECD countries are seeking to integrate work experience into vocational training curricula. Most of the time, students retain their student status and their training remains the responsibility of the school, though the reverse is true in the German system.

Another form of 'sandwich' training has been developed with the courses set up for disadvantaged and unemployed young people (in France, on the initiative of B. Schwartz). These courses aim more at integration into society and the world of employment than at providing remedial teaching. Relatively short periods in companies are generally not enough to provide genuine educational content, but they are an important part of socialisation (coming up against the restrictions of social and working life) and finding one's way (discovery of trades).

Finally, a form of organization whose development is in full swing is that of partnerships between schools or universities and businesses, for both the devising and implementation of training programmes (for example in the banking sector).

Work integrated with schooling

The introduction of practical work into school as part of education is an ancient and universal practice. It relates to a slightly different approach from the one that concerns us here, and we do not feel it necessary to expand on this point.

Final remarks

This very brief over-view of a very vast field, concerning which only a part of the available literature could be reviewed, enables us to raise a few questions which can be expressed in the form of contradictions or contrasts.

From the point of view of the relations between education, employment and the needs of the economy, this report may arouse contradictory impressions. On the one hand, it is a fair conclusion that most education systems are insufficiently responsive to the economic environment and slow to adapt. Increasing their responsiveness and their flexibility can therefore be seen as a necessity. Those responsible for education often speak of this

necessity, but this does not automatically lead to effective action because education systems, particularly those which are most institutionalised, have a momentum of their own and obey other obligations.

On the other hand, however, all studies show that it is difficult to speak of objective economic needs, that the evaluation of these economic needs is random and approximate, that perhaps they concern basic education more than specific training, and finally, that since the traditional forms of work are being increasingly challenged, it is less desirable than ever to direct education systems essentially in accordance with them. This view might lead to a questioning of the role of a vocational training system that could be too rigid and too costly, but it should not dissuade education systems and establishments from seeking closer integration with their economic environment, nor give any encouragement to their tendency to isolationism. Nor should we relinquish the search for some sort of balance between educational development on one hand and employment and the economy on the other, even if this balance cannot result from any mechanical adjustment.

The most obvious conclusion has already been stated in the contribution by C. Pair: in circumstances where the future is uncertain the best way of preparing young people for employment is to encourage adaptability. It may also be the case that the increasing coordination between education and work is not only - and perhaps not mainly - a question of adaptation of courses and contents, but at least as much one of familiarisation with the world of productive work and the mental attitudes and behaviour that it involves. Rather than seeking to adapt education to the world of work, which is perhaps not possible and not necessarily desirable, it would probably be more useful to explore the different forms of association and partnership and the system of alternating periods of work and study.

The problem of adaptation leads on to another contrast, between two cultures and between two methods. On the one hand, is the way of proceeding based on planning, technology and, in general, on strong centralisation. On the other hand is the way which relies on the market and on decentralised, often private, initiatives. The first method, which was very common 30 years ago, is out-dated today and the only thing that concerns it now is adapting to the market. We need to be aware of the limits of the second approach, however. The market has a poor understanding of its own needs and often has a narrow, short-term and purely local view of them.

In any case, some form of national regulation of the education system is necessary in order to allow in a global way for a whole series of demographic, economic and social considerations. This implies a strategic approach which may impose some difficult choices, often of a political nature; an approach founded more on future studies than on forecasts and which is concerned less with the product of the planning (a document) than with the process itself, which in turn implies co-ordination between all the different partners at all levels; and a global approach aiming at integrated development.

Lack of education may be a hindrance to development, but educational expansion which is not part of a real process of development can be a source of frustration and expensive waste. Insufficient integration between educational and development policies has already been condemned in Fay Chung's note. The problem arises at the local as well as at the national level and has an effect on the success of all attempts at improving the adaptation of education to the environment.

If economic needs are too uncertain and job prospects are too unpredictable, should we trust social demand instead? This is in fact what most education systems do, often using the needs of the economy as a cover. As we pointed out earlier, however, social demand emanates above all from the privileged classes and chiefly concerns the highest and most

expensive forms of education. In satisfying this demand, we are in danger of sacrificing basic education, which could in the long term provide a response to economic as well as to social needs.

A further contrast could be made between education systems and world regions. As far as the systems are concerned, it is significant that the most economically successful countries have education systems and, above all, vocational training systems that differ widely. The obvious conclusion is that there is no ideal system and that what is important is the way these systems actually work and the degree to which they match the institutional and cultural environment and national traditions.

In this connection, another contrast visible throughout this report concerns geographical areas. In education and in economic development, the gap between the poorest and the richest countries has only worsened, as Fay Chung's note points out. The latest reports on the situation in a number of African countries show a qualitative as well as a quantitative decline in the standard and extent of schooling. In this context, traditional studies based on elaborate methods may seem derisory and beside the point.

As Fay Chung's paper also points out, in many developing countries, the majority of the population cannot get regular jobs in the modern sector and a large percentage are condemned to remain in a state of long-term under-employment or even unemployment. General as well as vocational education thus seems increasingly out of touch with reality.

What is new today is that this type of problem is also beginning to appear in a number of advanced industrial countries, although in different terms. In many of these countries, unemployment and under-employment are growing and are tending to become permanent among certain sections of the population. This is going hand in hand with increased social exclusion and a re-emergence of the parallel economy. The forms of employment are diversifying and are often moving away from the traditional notion of stable, paid, full-time employment.

At the same time and in the same countries (and here we find the opposite situation from the one in developing countries), continual progress in terms of productivity will probably lead to a substantial decrease in the time devoted to paid work. Marx considered that the time gained should be dedicated to similar but superior activities, of a scientific or artistic nature. Continuing this line of thought, Hanna Arendt reminded us that the desire for freedom from work is as old as history, but that modern society has glorified work. Thus go "this wish is now coming true, just as in fairy tales, but at a time when it can do no more than lead to confusion. A whole society of workers is to be liberated from the chains of work, and this society no longer knows anything about the higher and more fruitful activities for which liberty would be worth acquiring" (*The Condition of Modern Man*). This subject has also been discussed by A. Gorz (1988).

Whether we are concerned with the many people still living in traditional societies, or those rejected by or benefiting from advanced industrial society, the problem of the adaptation of education systems to a situation other than that of conventional stable employment in a modern economy arises, although in different terms. Rather than identifying work with traditional employment, more consideration must be given to the needs of people, who must be trained for a broad range of activities, whether utilitarian, cultural or leisure, and in the domestic or social spheres. Perret and Roustang (1993), after commenting on the difficult situation facing many French people who are attempting to gain access to the labour market, suggest other ways, such as social integration by means of useful work outside traditional forms of employment and informal and voluntary activities.

This problem cannot be solved just by changing the curricula within the framework of school alone. Once again, it can only be approached in a global fashion and from the point of view of lifelong education.

In this brief review there have been several references to attempts to deal with this problem, (Fay Chung's note also refers to this), notably at a local level and in a number of developing countries. Given the vast range of the subject, we have referred mostly to studies of a general character, avoiding specific national experiments. The fact that there often exist contradictory evaluations of these experiments demonstrates the need for more objective and deeper evaluations, which would require perspective and comparison, in turn demanding time and resources which are not available here. Nevertheless, we must recommend that greater stress should be placed on evaluations of this type concerning innovative experiments which have been judged promising, particularly in the developing countries. In the case of the industrialized countries the discussion has only just begun, so that in this field, everything still remains to be accomplished.

References

THIS SELECTION CONCERNS PRIMARILY, BUT NOT EXCLUSIVELY, RECENT PUBLICATIONS ON THE STATE OF THE ART.

van Adams, A.; Middleton, J.; Ziderman, A. *Manpower in a Market Economy with Labor Market Signals* Washington, D.C., World Bank, 1992.

Adler, P. Automation et qualification: nouvelles dimensions. *Sociologie du travail*, n° 3, 1987.

Affichard, J.; Gensbittel, M. H. Mesurer l'entrée des jeunes dans la vie active. *Formation emploi*, 1984.

APEID (Asia and the Pacific Programme of Educational Innovation for Development). Innovative Education for promoting the Enterprise Competencies of Children and Youth, UNESCO, Bangkok, 1990.

Asian Development Bank. *Technical Vocational Education and Training. Proceedings of the regional seminar on technical and vocational education and training*, Manila, 1990.

Atchoarena, D. Lifelong education in selected industrialized countries. Report of an IIEP/NIER Seminar, UNESCO/IIEP Paris, 1992.

Becker, G. *The Human Capital : a Theoretical and Empirical Analysis with special Reference to Education*, New York, Columbia University Press, 1964.

Bélangier, P. Adult education in the industrialised countries, *Prospects*, vol. XXI no 4, 1991 (80). (également en français: L'éducation des adultes dans les pays industrialisés).

Bertrand, O. *La planification des ressources humaines: méthodes, expériences, pratiques*. Paris, UNESCO/IIEP, 1992 (also in English: *Planning Human Resources: methods, experiences and societies*) (Fundamentals of Educational Planning).

Bertrand, O. L'évolution des qualifications professionnelles, *Futuribles*, no 168, septembre 1992.

Bertrand, O. *Emplois et formations tertiaires*, Paris, OCDE, 1993 (document à diffusion restreinte).

Blat Gimeno, J. *L'éducation en Amérique latine et dans les Caraïbes dans le dernier tiers du XXe siècle*, Paris, UNESCO, 1984.

Blaug, M. (Ed.). *Economics of education*, Penguin Books, 1968.

Blaug, M. *Education and the Employment Problem in Developing Countries*, Geneva, ILO, 1973. (également en français: L'éducation et le problème de l'emploi dans les pays en voie de développement).

Blaug, M. The Empirical Status of Human Capital Theory: a slightly jaundiced survey. *Journal of Economic Literature*, vol. XIV, no 3, septembre 1976.

Blaug, M. Where are we now in the economics of education ? *Economics of education review*, vol. 4, n° 1, 1985.

Blondel, D. Innovation et ressource humaine: pouvons-nous encore parler du "facteur travail", *Bulletin de l'Association française de science économique*, 1989.

Blondel, D. Les métiers de l'économiste au service de la décision, *Revue économique*, juillet 1992.

Blondel, D. Contraintes, risques et enjeux du XXIème siècle. (Note préparée pour la Commission internationale sur l'éducation pour le vingt et unième siècle, Mars 1993).

Boeren, A.J.J.M.; Epskamp, P.K. *Education, culture and productive life*, CESO, 1990.

von Borstel, A. A theoretical framework for productive education. *Prospects*, vol. XXI, n° 3, 1991 (79). (également en français: Cadre théorique pour une éducation intégrant le travail productif).

Caillods, F. (ed). *Les perspectives de la planification de l'éducation*. Atelier organisé par l'IIEP, IIEP/Unesco, 1989. (also in English: *The Prospects for Educational Planning*).

Carnoy, M. *Education and employment: a critical analysis*. Paris, UNESCO/IIEP, 1977. (également en français: *L'éducation et l'emploi: une étude critique*).

Carnoy, M., Levin, H.M., King, K.: *Education, travail et emploi*, UNESCO/IIEP 1980.

CEDEFOP. Quid des qualifications ? *Formation professionnelle*, n° 2, 1991. (également dans les autres langues européennes).

CEREP. *Formation emploi*, octobre 1993. Marseille.

Chung, Fay. Education, Work and Employment (paper prepared for the International Commission on Education for the Twenty-first Century - September 1993).

Colclough, C. Education and employment: lessons from African experience, in M. Crowder (ed.), *Education and development in Botswana*, London, Macmillan, 1984.

Commissariat général du Plan (France). La qualification du travail: de quoi parle-t-on? *La documentation française*, Paris, 1978.

Committee for Economic Development (U.S.A.). *Work and Change: Labor Market Adjustment Policies in a Competitive World*, New York, 1987.

Deble, I. Les élèves dans la ville, *Afrique contemporaine*, octobre/décembre 1993.

Dore, R. The future of education, in J. Dimmonds (ed.), *The Education Dilemma*, Oxford, Pergamon Press, 1982.

Easton, P.; Klees, S. Education and the Economy: Considering alternative perspectives. *Prospects*, vol. XX, n° 4, 1990 (76). (également en français: Education et économie: autres perspectives).

Éducation permanente, n° 2, 1993, n° spécial l'Alternance.

Foster, P. Vocational Education and Training: a major shift in World Bank Policy, *Prospects*, vol. XXI, n° 2, UNESCO, 1992 (82). (également en français: un revirement

Freyssinet, J. (rapporteur). *Prospective des metiers et des qualifications. Rapport d'un groupe de travail*, Commissariat general du Plan (France), Paris, 1991.

Frost, D. *Skills forlife: Experiences of training in three developing countries*, London 1991.

Gorham, W. *Education for Work and in Work*. (paper prepared for the International Commission on Education for the Twenty-first Century - September 1993).

Gorz, A. *Metamorphoses du travail: Quete du sens*. Paris, Galilee, 1988.

Grootings, P. (ed.). *Work and learning*. Maastricht, Presses universitaires europeennes, 1987.

Grootings, P. (ed.). *Training in transition: comparative analysis and proposals for the modernization of vocational education and training in Poland*, Berlin, CEDEFOP, 1993.

Hallak, J. *Investing in the Future: setting educational priorities in the developing world*. UNESCO/IIIEP, 1990. (egalement en francais: Investir dans l'avenir: definir les priorites de l'education dans le monde en developpement).

Hallak, J., Caillods, F. *Education, travail et emploi, 1. Education, formation et marche du travail*. UNESCO/IIIEP, 1981. (also in English).

Jallade, J. P. *La formation en alternance des jeunes: principes pour l'action*, Berlin, CEDEFOP, 1982. (also in English: Alternance Training for Young People: guidelines for action).

Kern, H. Schumann, M. *Das Ende der Arbeitsteilung?* Munich, Bech, 1984

King, A.; Schneider, B. *The First Global Revolution: A Report by the Council of the Club of Rome*, New York, Pantheon Books, 1991

Klees, S. J. *The Economics of Education: a more than slightly jaundiced view of where we are now*. (egalement en francais: L'economie de l'education: une opinion plus que legerement desenchantee de la ou nous en sommes). Perspectives de la planification de l'education, UNESCO/IIIEP, 1989

Lamoure, J. *Les relations education/emploi*, Paris, UNESCO, 1981

Levin, H. M.; Rumberger, R. W. *Education, work and employment: present issues and future challenges in developed countries*. In Caillods, *The Prospects for Educational Planning*, Paris, UNESCO/IIIEP, 1989. (egalement en francais: travail et emploi: questions actuelles et defis futurs dans les pays developpes)

Little, A. W. *Education et emploi. Bulletin du Bureau international d'education*, n° 238/239, 1986

Lutz, B. *Bildungssystem und BeschAftigungsstruktur in Deutschland und Frankreich*, in H.G. Mendius et al. *Betrieb, Arbeitsmarkt, Qualifikation*. Frankfurt/M, Aspekte, 1976

Marshall, R.; Tucker, M. *Thinking for a Living: Education and the Wealth of Nations*, Basic Books, Division of Harper Collins Publications, Inc., New York, 1992

Maurice, M.; Sellier, F.; Silvestre, J.J. *Politique d'education et organisation industrielle en France et en Allemagne : essai d'analyse sociale*, Paris, Presses Universitaires de France,

Middleton, J.; Ziderman, A. van Adams, A. *Skills for Productivity: Vocational Education and Training in Developing Countries*. (A World Bank Book) London, Oxford University Press, 1993.

Miller, R. L'enseignement et la formation complémentaire en tant qu'investissement: Connaissance de l'investissement et investissement dans la connaissance. Document de travail, OCDE, Paris, 1993.

Ministère du travail (France), Délégation la formation professionnelle. *Les contrats d'études prospectives: aide pour l'action*. Paris, La documentation française, 1993.

National Governor's Association (U.S.A.). Enhancing Skills for a Competitive World. Report of the Action Team on Lifelong Learning, Washington, D.C., 1992.

Neave, G. Professionalisation: recent trends in higher education. *European Journal of Education*, n ° 1 /2, 1992.

Noyelle, T. (ed). *Skills, wages and productivity in the service sector*. Boulder, San Francisco, Oxford, Westview Press, 1990.

Organisation for Economic Co-operation and Development (OECD). Structures professionnelles et éducatives et niveaux de développement économique possibilités et limites d'une approche comparative internationale, Paris, 1970. (also in English).

Organisation for Economic Co-operation and Development (OECD). *L'éducation et l'économie dans une société moderne*, Paris, 1989. (also in English: Education and the Economy in a Changing Society).

Organisation for Economic Co-operation and Development (OECD). *De l'enseignement supérieur à l'emploi: rapport de synthèse*, Paris, 1993.

Organisation for Economic Co-operation and Development (OECD). Conférence sur l'éducation et l'économie en Europe centrale et orientale, Paris, 1992.

Organisation for Economic Co-operation and Development (OECD). *Perspectives de l'emploi*, Paris, 1993.

Pain, Abraham. *Education et travail productif*. Education et travail productif. Documentation et information pédagogiques: Bulletin du Bureau international d'éducation, n° 207, 1978. (also in English: *Education and productive work*. Educational documentation and information: Bulletin of the International Bureau of Education, no.207, 1978).

Perret, B.; Roustang, G. *L'économie contre la société: affronter la crise de l'intégration sociale et culturelle*. Paris, Seuil, 1993.

Psacharopoulos, G. From Manpower Planning to Labour Market Analysis. *International LabourReview*, vol.130, n°4 1991. (également en français: De la planification de la main d'oeuvre à l'analyse des marchés du travail - *Revue internationale du travail*).

Psacharopoulos, G. Why Educational Policies can fail ? An overview of selected African experiences, World Bank Discussion Papers, Washington, DC, 1990.

Psacharopoulos, G.; Woodhall, M. *Education for development: An analysis of investment choices*. Paris, Economica, 1988. (également en français: L'éducation pour le développement, une analyse des choix d'investissement)

Raizen, S. Learning and Work: the research base. Working document for OECD seminar on linkages in vocational technical education and training, Phoenix, March 1991. (également en français: Les études et le travail: bases de recherches.).

Reich, R. *The Work of Nations*. New York, A. Knopf, 1993. (également en français: L'économie mondialisée).

Rwomire, A. Education and development: African perspectives. *Prospects*, vol. XXII, n°2, 1992 (82). (également en français: Education et développement: perspectives africaines).

Sanyal, B. C. *Higher education and employment: an international comparative analysis*. The Falmer Press, London, New York, Philadelphia, 1987.

Singh, J. S. Higher Education and Development: the experience of four newly industrialising countries in Asia, *Prospects*, vol. XXI, n°3, 1991 (79). (également en français: Enseignement supérieur et développement: l'expérience de quatre pays d'Asie nouvellement industrialisés).

Schiefelbein, E. *Education and employment in Latin America*, Paris, UNESCO, 1979.

Steedman, H.; Wagner, K. A Second Look at Productivity, Machinery and Skills in Britain and Germany, *National Institute Economic Review*, no 122, London, 1987.

Tanguy, L. (sous la direction de). *L'introuvable relation formation/emploi un état des recherches en France*. Paris, La documentation française, 1986.

Tanguy, L. *Quelle formation pour les ouvriers et les employés en France?* Paris, La documentation française, 1991.

Timar, J. Planning and Educational Policy and Methods and Experiences in Hungary, 1948-1988, Paris, REP, 1990 (IIEP Research report no. 83).

U.S. Department of Labor. *What work requires of schools: A SCANS Report for America 2000*, Washington DC, 1991.

U.S. Department of Labor. *Economic change and the American workforce*. Research and Evaluation Reports series, Washington DC, 1992.

U.S. Department of Labor, Bureau of Labor Statistics. *Outlook 1990-2005* Washington, 1992.

World Bank. *Technical and Vocational Education and Training*, Washington, 1992. (également en français: L'enseignement technique et la formation professionnelle).

Youdi, R. V., Inchliffe, K. (eds.). *Forecasting skilled manpower needs: the experience of eleven countries*. Paris, UNESCO/IIEP, 1985.

Zgorzalek, Koutcher. Approches et méthodes pour favoriser l'alternance de périodes d'études et d'emploi et pour mieux harmoniser les politiques de l'éducation et les politiques de l'emploi: synthèse d'expériences nationales sélectives. Paris, UNESCO, 1985. (document a distribution restreinte).

Zymelman, M. *Forecasting Manpower Demand*, Washington, D.C., World Bank, 1980.