

Technical Development, Cultural Development and the Role of Education

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Introduction:

This paper is supposed not to reveal any new arguments or any hypothesis but only thoughts on a well-known theme, concerned with the functions of education within the scope of cultural and technical development. When trying to assess the effects of a new technology on the social fabric, our contributions are not only the well-known difficulties but also the conceptual shortcomings which have obstructed the understanding of the relations between technological change, economic production and value shifts in society.

Technical change whether local or external in origin entails new methods of production calling for new types of qualification. This necessarily alters the structure of educational needs and the type of training.

Educational needs to be satisfied are defined globally outside the educational system but the task of translating the needs into the terms of training schemes belong to the educational planner. Essentially educational planning is the search for the best possible use of limited resources within specific objectives in view. The proportion of resources allocated to the educational sector is the outcome of arbitration between the different sectors of economic and social life. This is a fact. And the setting of training objectives and the determination of educational demand is both a fact and a variable of educational planning within the development process.

Technical creation is a material and a specialized production but it is, in the sense that it projects tastes and conceptions of a given society, also a cultural production.

In a way we can express technical change as the material expression of culture. For this reason cultural and technical development are interdependent and through its role in technological development education therefore plays a part in cultural development.

The phenomenon of technical change

Technical change whether local or external in origin entails new methods of production calling for new types of qualification. The phenomenon of technical change has taken on new proportions in our contemporary world. It has stimulated the launching of new products and the development of new branches of activity, and in the meantime utterly transforming methods of work in large sectors of the economy and generating new qualifications. (1)

It transforms the pattern of consumption and life-style of the broad sections of population even in the Third World countries.

Technical change can be said is basically a process of labor-saving i.e. the reduction of the working time needed to produce a good or supply a service. Marxist tradition often tends to view technical change as dominating both institutional and cultural change. (2)

It has been widely practiced to use extremely simple cause and-effect models in which technology was projected as an autonomous force causing disruptive or benevolent changes on its way of impinging upon society - but our conceptual apparatus, our collective mode of understanding of the subtle processes of interaction remain underdeveloped. The very fact that every technology incapsulates and embodies social relations is all too easily overlooked. In a research recently conducted by Yujiro Haami and Vernon Ruttan, a model of economic development was outlined in which both technical and institutional change were treated as largely endogenous to the economic system. Technical change was treated as induced by changes in factor supplies and product demand and by institutional change. (3)

If technological development is defined as the capacity to achieve local control over technological change, the need for it might not concern exclusively or primarily new technologies; it also concerns the conventional technologies. Technological development is said to be a process which is changed as a result of innovation but is defined on relation to a particular innovation and as a concept it refers back to a variety of practical situations. (4) Technical development is accepted as universal in character just because of the nature of problems that it seeks to solve.

There is an extremely important issue that though the relations between technological development and the broadening of employment opportunities are extremely complex, today's present forms of industrialization which is often characterized by technical change define the limits to the "economic system"s capacity to absorb graduates from the educational system. (5)

Internalization of technology

The spread of international trade and investment produces a very high degree of economic integration among advanced countries. Against this background emerges the new international division of labor in which the developed countries are becoming increasingly dependent on the third world resources of energy and minerals. The international division of labor is generating a limited but real amount of industrialization in the developing countries and leads to a relative modernization of agriculture employing the technologies of the advanced countries.

On the other hand the disadvantages of the third-world's technical dependence are well-known. Majority of the developing countries are part of the worldwide capitalist economic system, of which they form the weaklinks, being subject to, rather than participants in technological change. By dependence we mean a situation in which the economy of certain countries is conditioned by the development and expansion of another economy. Certainly the relation of interdependence between two or more economies, and their relation to the world trade assumes the form of dependence. (6) Some countries (as called the dominant ones) can expand and be self-sustaining while the others (dependent ones) are linked to that expansion and only stage a reflection of the expansion performed by the developed ones. In other words "underdevelopment" or the situation of the developing countries is a consequence of the international system, due to their "link" to the process of the world expansion. According to a widely accepted argument "the development of the parts of the system occur at the expanse of other parts. (7)

If the Third-World countries are technologically dependent, they're equally so from a cultural standpoint. Their cultural dependence is very largely fostered by their technological dependence. What is called "westernization" of the third world or of the developing countries is in fact inseperable from the dispersion of technologies and products emanating from the developed countries. It would be pointless in a way to try to diminish the cultural dependence of the Third World by means of education without simultaneously tackling the technological dependence on which it is based. Education cannot help to safeguard and enrich cultures unless it strives at the same time to foster national creative facilities. (8)

Culture

Technical change involves social change. The social structure changes, the knowledge changes but the values remain unchanged. As mentioned before, technical creation is accepted as a material and a

specialized production, but it is, in the sense that it projects tastes and conceptions of a given society, also a cultural production. In a way we can express technical change as the material expression of culture. The definition of culture and how one situates this concept to the economic and social development is the fundamental question. Unlike primitive or transnational societies modern industrial ones involve very complex relationships between values, norms and knowledge.

The expression of technological development is the assumption that the social relationships linked to production will dominate other social relationships. In the dialectical conception of development the final result is assumed to emerge from a complex interaction between all the various social relationships in society. (9) The cultural system entails social structure and the system of beliefs and ideas. Before running on further paragraphs, one feels responsible for the concept of culture;

Definitions of culture:

Culture in the narrow sense is the most problematic element in modern society. (10) Culture considered as the independent elements of historical evolution is not the economic, nor technical, nor the aesthetic, but the ethical. When we use the term "progress", the only meaningful sense is the "ethical progress", because it renders the fact, when speaking of progress, from the constraint of ritual to the freedom of art. (11) From another view, culture as broadly defined is a national source for development. Traditional knowledge and practices can be fruitfully put to development uses and reduce dependence. (12)

Culture is the very essence of being of nations and the individuals within them. And change is a fundamental aspect of culture, the rate of change varies in different cultures. The contemporary changes in resource endowments, technology and institutions can be expected to result in changes in the cultural endowments available for future generations. (13) According to Randall Collins "culture" is taken as an institution of independent social interest. By "culture", Collins means something other than the forms of subjectivity through which the world is appropriated. "Culture" is seen as basis of social solidarity, independent of economic relations in principle. (14) On the other hand, in recent work by writers such as Peter Burke, the form and content of popular culture is expressed very much dependent upon the nature and degree of development of social production. (15)

In the development process, the cultural interacting of the technology transporting country and the host raises many issues against this background. The traditional societies are, as generally accepted,

those which have not yet succeeded in adequately developing their resources, and their distribution of positions is largely determined by birth not by achievement. Social mobility is limited in such societies. The scenario of development on the other hand assumes the social status to be achieved by competence and thereby ensures social mobility. It assumes that traditional values be abandoned or at least adapted to the requirements of industry. Only the experiences show still today the cultural differences exist. There one can even witness the emergence of a dual culture; the traditional and the modern which in other terms is the "western". While the determinants of the "material comfort and the heritage of suffering" highlighted in the political and economic factors the important influence of culture is often hardly given recognition. This raises the question of cultural identity. The question of cultural identity, value system, the relationship between self-realization of the majority and the national consciousness, the cultural heritage and the means of its preservation and transmission, alienation are all those issues which would need deeper and a separate work for each to be close examined.

The question of cultural identity in the realm of material development and production is one of the most outspoken issues. How it is related to the issues such as labor migration, dual labor markets, employment and technology. The role of culture in the production system and the reproduction of social relationships are issues mostly raised against the background of development. In the development literature "cultural endowments" are more frequently viewed as obstacles to the technological or institutional change. (16)

There is a fossilized tradition of historical materialism related to this area. In this tradition culture is viewed (as taken superstructure) as so largely determined by the forces and relations of production that it offers little in the way of insight or additional analytic power to economists. (17) Little weight can be given to the cultural differences in a world that is inevitably moving forward in a single integrated economic and political system in which culture is constituted primarily as a source of resistance that has to be taken into account in planning for change. (18) In referring to the article by Ruttan, it is mentioned that the cultural materialist perspective which has been articulated by Marvin Harris, embraces a less ideological sense than the traditional marxist approach. This approach puts Malthus back on the stage from which he was banished by Marx. Marx held that "technology discloses man's mode of dealing with nature, the process of production by which he maintains his life and thereby also lays bare the mode of formation of his social relations and of mental concepts that flow from them". (19) Harris argues that the mode of production and reproduction determine domestic and political economic organization and behavior which in turn

determine the superstructure. As we may figure out the cultural materialists give highest priority to the effort to formulate and test theories in which infrastructural variables are the primary causal factors.

M. Sahlins and Claude-Levi Strauss are known as the most outspoken critics of materialist interpretation of cultural development. In the work of Levi-Strauss the concern is shifted from the role of social structure of systems, to the mental phenomena as a source of social change (20) Language and the evolution kinship structure are taken as the models for social change. Sahlins says that "the material forces in production contain no cultural order but merely a set of physical possibilities and constrains selectively organized by the cultural system. (21) These are different interpretations fostered by different schools of thought concerning culture especially in the realm of anthropology. For example, in utility theories we witness the elimination of culture as a distinct object of discipline. It is generally accepted that through the variety of theories in economical social impact there are two main types; one as being naturalistic and ecological, the other, as utilitarian both entailing the human subject. But again it is argued that none of these types were able to emphasize that the certain meaning is the distinguishing quality of man. There seems no way to connect the process of cultural change to changes in for example macroeconomic political or historical environment. So here comes the use of cognitive anthropology as a device to dialogue with the study of social change. Anthropologists and the economists must collaborate in incorporating the role of cultural endowments into the economic development analysis . (22)

According to one of the contributions on the issue "the greater the creative capacity of culture to adopt to the experience and needs of the majority of its people, the more the culture revitalizes itself and less it is subject to the domination from external forces, The nature of change within a given culture provides useful insights for understanding the outcomes and the expressions of that culture and its place in cross-cultural interactions.

The role of education in cultural development

Obviously depends on how one defines culture and how one situates this concept to the economic and social dimensions of development. Pierre Bourdieu uses the logic of economic reproduction through capital accumulation to explain cultural production and reproduction. 23 By following Bourdieu's analysis, Gouldner suggests that the cultural reproduction serves the interest of cultural bourgeoisie

just as economic reproduction serves the interest of the class of moneyed capitalists. In "cultural production" especially through the educational process, the group that is "knowledgeable" becomes or appears to become even more knowledgeable. In contrast to the knowledgeable the uneducated remain relatively poor. 24 Intellectuals, teachers, academics and researchers who are involved in a process of "cultural capital accumulation" further their own interests. (25)

"Culture is transmitted through education and socialization"... Generally it is known that those with more formal education have life-time earnings in excess of these with less.. The increased income reflects the capital value of increased education". (26) Goulner's notion of cultural capital is merely the capacity to earn money,. Those who have more capacity are more privileged. He expresses intellectuals "highly qualified" and "positively privileged" on the labor market. (27)

An influential school of thought - less today than during the first and second development decades - equates cultural development with modernization. (28) It is widely accepted that the first-postwar generation of development economists gave a prominent role, at least at the rhetoric level, to the role of cultural endowments in facilitating economic growth. (29) They accepted the body of scholarship in history, philisophy, anthropology, sociology and poltical science that insisted that the cultural endowments exerted major impact on behavior and on the response in traditional societies to the opportunities associated with the modernization of community life and the possibilities of natural economic development. (30) Another approach argues that the cultural development must build on existing traditional culture, must encourage cultural diversity and enlarge the cultural space by mobilizing a variety of actors and environments. (31)

Within the scope of education, most non-formal education programmes are part of extremely financed development projects, epecially diversified education has its share in spreading the message that cultural development as modernization. This message is served through health or nutrition education, public education, in-and-out of school education, or even the agricultural extention in the wake of green Revolution. (32) There is another school of thought that tries to resolve this contradiction but posing another new dilemma; their claim is that education has only an indirect and minor role in shaping cultural development. Culture, in this latter view, is primarily a symbolic reflection of a material reality shaped in turn, by the technico-economic structure of production and consumption. In this regard, education can not be an immediate agent of cultural development, its link with culture passes through its long-term effects on technological and economic development.

The role of Education in technical development

Analysis of the past and present experiences has shown that educational systems have played a positive role in technological development though in very different ways. As previously mentioned in the foregoing paragraphs technical change generates new types of qualifications. This necessarily alters the structure of educational needs and the type of training related. In the mean time, education is viewed as an important device both for transmitting values and establishing norms or reinforcing them. Education involves both the creation and the transmission of values and might be reflected in a variety of normative structures which represents different values. (33)

One of the essential responsibilities of education is to harmonize the ability to create and disseminate techniques and the training of corresponding skills and qualifications. It also has the instrumental role of raising social productivity. The goods conceived in a given society, reflect a certain conception of life, of things and of people. They are distinctive not only in terms of physical characteristics but in terms of notions of authority, hierarchy, discipline and conception which are the characteristics of any collective work, experienced differently due to the nature of social relationships in that society.

It is rightly held that education seen as a social process, performs several functions and could be transformed into an instrument of technological development. It is also asserted, according to a certain point of view, that relations between education and development of all types might reinforce the inequalities of power between the most highly-skilled and the least-skilled in such societies where qualifications are highly polarized. Even in societies that are explicitly seeking relative social equality, the quest for technological development would introduce new forms of social stratification related to the technological conception and control. The emergence of a stratum of technicians and engineers through mechanization and technical change might reproduce the risks of exploitation of a certain kind. (34) It is scarcely acceptable that the social inequalities are entirely determined by technology. Otherwise we should reject all forms of technological development and its implications for education out of use just because it entails the alleged inequalities. No one can deny the multifunctional character of education and that one of the education's functions is to produce producers. We need to know its interaction with other functions, to see how this function is organized in different models of development and how it is cooperated with the different aspects of development, especially in its technological content

Conclusion:

There are many issues to be raised concerning the responsibilities of education in technological development. Some are in view that the technological development is the development of national capabilities to control technical change, the concern for educational policies is only marginal. The overall economic policy imperatives are above all concerns. Analysis of the past and present experiences has shown that educational systems have played a positive role in technological development though in very different ways.

Education furnishes society with the means of perceiving its environment rationally and transforming it consciously through providing the training necessary for production and utilization of techniques. If we recognize the modes of production and consumption as part of a society's culture, education's role is therefore prominently cultural. As we expressed the technical change is the material expression of culture, the prominence of education's role extends both for technical and cultural development.

Notes and Referenes

- 1) *The Economics of New Educational Media*, Vol3, Unesco, 1982, p.134.
- 2) V.Ruttan "Cultural Endowments and Economic Develoment: What Can We Learn from Anthropology", *Economic Development and Cultural Change*, Vol 36 No 3 Supp. April 1988 247-271.
- 3) *Ibid.*, p.54
- 4) *Educational Problems in the Context of Current Development Problems*, Vol1, An IIEP Seminar, held in Paris 3-8 Ot.1983, (Unesco 1984) p.99.
- 5) M. Blaug, *Economics of education*, (Oxford, Pergomon 1970) p.83.
- 6) L.Stein, "Dependency Theories and Underdevelopment" *Journal of Economic Studies* Vol 6 No 1 1979. pp. 64-85.
- 7) *Ibid*, p.68.
- 8) S.Gudeman, *Economics as Culture: Models and Metaphors of Livelihood*, (London, Routledge-Kegan Paul 1986).
- 9) *Ibid*, 71.
- 10) E. Gans, *The End of Culture: Toward a Generative Anthropolgy* (Berkley and Los Angeles: University of California Press) 1985. P.52.
- 11) *Ibid*, p.58
- 12) IICDA; p.93
- 13) Ruttan, *Ibid*, p.266.
- 14) See, e.i. Bruce Curtis "Capitalist Development and Educational Reform" *Theory and Society* 13 (1984) 41-88, reference made to Collins "Some Comperatie Principles of Educational Stratification." 1977, p.58 Collins argues that the interest in society structured by independent lines of social division interact to create a market - like educational structure. These interests are economic, political and cultural. And the social divisions are economic, organizational /political and cultural. These interests are mobilized in a common arena in the pursuit of economic advantage, social prestige or political domination. According to Collins the interaction of these interests produces a market-like structure in educational organization. Education is a part of a market in culture, and it involves a common cultural currency which derives from an elite culture, Curtis, *Ibid.*, p.49,50, in reference to Collins' "Comparative Principles".

- 15- P. Burke, *Popular Culture in Early Modern Europe* (London 1978) 244-86.
- 16) Ruttan, *ibid.*, p.250
- 17) M.Harris. *Cultural Materialism, The Struggle for a Science of Culture* (New York, Random House 1980) 121.
- 18) G.E.Marcus and M.J.Fischer; *Anthropology as Cultural Critique: An Experimental Moment in Human Sciences* (Chicago; University of Chicago Press, 1986) 77-110.
- 19) See, Ruttan, *op. cit.* 1, p.261 referring to the work of Marx, *Capital, a Critique of Political Economy* (New York 1906, Modern Library 1936)
- 20) M. Sahlins *Culture and Practical Reasons.* (Chicago, University of Chicago Press, 1976) p.76.
- 21) Sahlins, *ibid.*, p.79.
- 22) R. Murphy, "Power and Autonomy in the Sociology of Education" *Theory and Society*, 11 (1982) 179-203.
- 23) P. Bourdieu and J.C. Passeron, *Reproduction in Education, Society and Culture*, (London, Sage Publications, 1977) p.79.
- 24) See, e.g. Ivan Szelenyi "Gouldner's Theory of Intellectuals as a Flawed Universal class", *Theory and society*, 11 (1982) 779-798.
- 25) *Ibid.*, p.780.
- 26-27) *Ibid.*, p.793,794; See, also C.Disco "The Educated Minotaur: The Sources of Gouldner's New Class Theory" *op.cit.* p.811. Gouldner's new class theory is a theory of intellectuals, includes both the technical and "humanist" or cultural intellectuals and admitted as an attempt to advance beyond the marxist and the functionalist "mutual disinterest" and beyond limits of these competing camps and tries to give a sociological ground for their blockages. Gouldner's "cultural capital" thesis is different from human capital theory. With "cultural capital" explanation Gouldner is said not to assume that the amount of rewards or power allocated by the elite or cultural bourgeoisie is any way proportional to the "increase in productivity" generated by cultural capital. In reference to Gouldner's *The Future of Intellectuals and the rise of the New Class* (New York, Seabury Press, 1979). According to his thesis, cultural capital is considered merely the capacity to earn money. The education of the intellectuals is part of its capital. In "cultural production" especially through the educational process, intellectuals pursue the establishment of favorable exchange rates for their "cultural capital" His principal theoretical claim is that culture and money are today discrete and competing forms of general concept of capital. By generalizing capital in this way, Gouldner is able to situate knowledge in economic structure.
- 28) B.F. Hoselitz, "Non-economic Barriers to Economic Development" *Economic Development and Cultural change* 1 (1952): 8-21, 15.
- 29) E.Hagen, *On the Theory of Social change; How Economic Growth Begins* (Homewood III; Dorsey press 1962) p.3,4.
- 30) *Ibid.*, p.80
- 31) A.O.Hirschman, "Obstacles to development: A Classification and a Quasi-vanishing Act". *Economic development and Cultural Change* 13 (1969) 385-93.
- 32) Hagen, *ibid.*, p.20.
- 33) Ioan Davies, "The Management of Knowledge" p.125 and P.Bourdieu "Systems of Education and System of Thought", p.171/173 in E.Hopper (Ed.) *Readings in the Theory of Educational System*, (Hutchenson & Co. Ltd. University Lib. London 1971, 1972.)