EDUCATIONAL TECHNOLOGY

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I. INTRODUCTION

The development of education throughout the world during the 1960's and 1970's reflected all the dynamism and all the contradictions of the worldwide changes that took place in those two decades. The period was marked by the increasing rapidity of scientific and technological progress, which in turn had a profound effect on economic, social and political life. All this phenomena had repercussion on education, one of the oldest social institutions, which has never been untouched by the evolution of society.

Educational systems have reflected the main trends in each society's social and economic development. Vastness of the field of education leads this article to limit the boundries only within the developments related to the means of education; the educational technology.

The "offical" definition of educational technology is complex, integrated process involving people, procedures, ideas, devices and organizations for analizing problems and devising, implementing, evaluating and managing solutions to those problems, involved in all aspects of learning. (Silber, K.H. (1981))

The purpose of educational technology is to promote the efficiency of education by improving the quality of teaching, of educational administration, and of educational research. New types of technology intended to accomplish these purposes appear at an ever-accelerating pace, paralelling the rapid increase of innovations in the general society.

However, these technologies had been created and developed in societies whose features are very different of those in developing world: a high level of technological potential linked to extremely diverse academic and industrial structures; a relative scarcity of labour; considerable capital resources.

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Both societies, the exporters and the importers, have some similar conditions influencing the development of educational technology in their countries such as the enthusiasm and the populace for schooling, the efficiency of teacher-training system. However, there are some significant differences in conditions among the two societies which should be clearly specified.

II. STATE OF EDUCATIONAL TECHNOLOGY IN THE INDUSTRIALIZED WORLD

In early decades, books and instructors in the education were about the only means avaible outside the family and immediate community for transporting information from generation to generation. But over the past four decades, this changed dramatically since nearly everyone in advanced industrialized societies gained access to television, to radio and at a rapidly growing rate, to computers (Haefner, K. (1985)).

By the 1960's three major trends affected the introduction of new media into education had been noted: the trend towards simpilicity in use; the trends towards miniaturization; the trend towards combining the devices avaible in new ways of education.

In advanced industrialized countries, although the increase in computer hardware (both at schools and home), in computer education research, and in computer publications has been impressive, the impact of computer publications has been impressive, the impact of computers on existing curricula is still quite limited (Thomas, M. and Kobayashi, V.N. (1988)).

In all countries, the quantitative expansion and the qualitative improvement of education systems, as well as the development of socio-cultural activities, has been accompanied by rapid growth in demand of instructional material and equipment; already in many countries, demand exceeds present production capacities, and in most countries of specific materials, audi-visual software and courseware is not sufficient to supply all the hardware producted by Educational Technology transfer is a particulary delicate matter because of the strongly dominant position of the North and because of the peculiar nature of information which together make-it especially difficult to consider the associated technologies as a natural: since it concerns information, know-how, intelligence matters, access to these technologies is synonymous with power or various aspects of power-economic, political cultural.

III. STATE OF EDUCATIONAL TECHNOLOGY IN DEVELOPING COUNTRIES

There are diverging points of views on the educational technology literature of developing countries such as: the great cure-all for the problems of development (Servan-Screiber, 1981) or the means of reinforcing the disparities, the political and economic dependence and the increasing lots of cultural identity of developing countries (Mattelard, 1977).

In the field of education, perhaps even more than in other areas, the great diversity among developing (and developed) countries means an equally great variety of response to technological advance with its differenet socioeconomic and cultural concequences. The countries already rich in their command of the new technologies and in their resource bases for further development will stride even further ahead of those countries that lack these advantages.

In numbers of developing nations during the 1960's and 1970's, educational leaders became increasingly discouraged about their inability to provide formal education for the entire school-age population. Hence they welcomed the suggestion that broadcast radio and television might go a long way towards solving some of their most distressing instructional problems. Broadcast lessons of high quality, taught by expert instructors, could be send to thousands of learners all over a region (Thomas, M. and Kobayashi, V.N. (1988)).

Most current discussions on educational technology transfer center on broadcast media and have not yet broached questions of the latest changes in technics necessitate the training of growing number of specialists, who must constantly update their knowledge if their are to continue to work efficiently.

Especially in Third World countries or Western industrialized and socialist countries with significant populations to be educated outside the already existing formal institutions, it seems likely that the highest pay-off will come where expanded opportunity is greatest and where present systems cannot respond to that need.

While educational effort alone cannot bridge this gap, investment in education and training related the new technologies is for developing countries essential if the North-South divide is not to be further exacerbated.

In spite of the obstacles and the handicaps, some parts of the developing world have acquired varying degrees of mastery of both production and use of the information technologies properly. The computing capacity of some Latin American Countries was in fact built up at the same time as that of the most advanced industrialized countries. The absence of local skills and the complexity of the new

industrial sector explain why at first all the necessary equipment had to be imported-indeed it was not until the new electronic systems were standardized and miniaturized in the 1970's that certain countries began to consider establishing their own computer industries.

In the first decade of computer expansion, by far the best equipped region of the developing world was in Latin America (% 58); Asia accounted for 28 % , The Midlle East 8.14 %, Africa 5.37 %. Moreover very few counteris each of these regions possessed the bulk of these stock: in Latin America, the four leading coutries in descending order of importance were Brazil, Mexico, Venezuela and Argentiana; in the Middle East, The Islamic Republic of Iran, Egypt and Turkey owned 50% of the region's total stock; in Africa Algeria, Nigeria and Zambia made up 54 % of the market. In Asia, computers were more evenly distributed among countries. The annual growth rate of these stock over the last two decades has been very rapid (25 to 35 %). (Johnston, A. and Sasson, A. (1981)).

VI. GENERAL CHARACTERISTICS OF EDUCATIONAL TECHNOLOGY IN TURKEY

Although educational tehnology is at an early stage in Turkey, number of developments are taking place which are seem to indicate the potential. The commercial electronics companies and the private computer schools as well as the government are assisting its development by producing training, facilities, hardware and courseware. There are some barriers such as the general tendency to resist innovation, the concentration of resources.

Given that the educational systems in Turkey are traditional in teaching methods and somehat over-academic in curriculum and content, current trends in industry and society are generating a pressure for change. One recent development has been the opening of a television based university.

In Turkey, in 19 out of 27 universities there are educational science departments. But the enrollement to educational science departments fluctuates from year to year.

	Educational Science Enrollement
1978–1979	103056
1979–1980	55075
1980–1981	28080
1981–1982	35199
1982–1983	41952
1983–1984	50024

1984–1985	57380
1985–1986	58657

Source: State Institute of statistics (SIS), Statistical Yearbook of Turkey, 1987, Ankara

Distribution of public education investments by appropriations to echelons is given on the table below.

DISTRIBUTION OF EDUCATIONAL INVESTMENTS

YEARS	TOTAL INVESTMENTS	ELEMANTRY		SECONDARY EDUCATION		YOCATIONAL TECHNICAL		HIOHER EDUCATION		YOUTH SPORTS		CULTURE	
	Qt.	Qt.	%	Qt.	%	Qt.	%	Qt.	%	Qt.	%	Qt.	%
1983	59.6	10.0	30.1	1.1	1.8	20.0	33.6	14.3	23.9	2.7	4.6	3.5	6.0
1985	99.2	35.7	36.0	7.8	7.9	18.2	18.3	27.6	27.8	2.5	2.5	7.4	7.5
1987	259.9	79.5	30.6	10.0	6.9	44.4	17.1	59.0	22.7	32.5	12.5	26.5	10.2
1988	534.3	143.3	26.8	48.8	9.1	121.9	22.6	148.1	27.7	17.0	3.2	55.3	10.4
1989	904.7	254.5	28.1	74.5	0.2	204.2	22.6	265.1	29.3	25.0	2.8	81.5	9.0

Source : Union of the Chambers of Commerce, Industry Maritime Trade and Commodity of Turkey, Economic Report, 1989.

The Turkish educational system is centrally controlled as far as curriculum, content and to a certain extent teaching methods are concerned. Thus any major reorganization of instructural systems in the schools depend upon high-level decisions.

The part of educational expenditures in the total government expenditure of Turkey is low comparing to some developing countries.

	expenditures of ET / government expenditure 1985	Expenditures of ET / GNP
Singapore	20.2	0.0531
Philipinnes	20.1	0.0217
Thailand	19.5	0.0425
S. Korea	18.4	0.0338
Iran	16.2	.....
Chilie	13.3	0.0469
Mexico	12.4	0.0309
Irland	11.7	0.0668
Egypt	10.6	0.0510

Turkey	10.0	0.0257
Argentina	9.5	0.0171
Greece	9.1	0.0250
Tanzania	7.2	0.0178
Israel	7.1	0.0639

Source : World Bank (1987) World Development Report, Washington D.C.

Sophisticated technologies such as computerized information are to be found side by side with antiquated methods like training by chalk and talk. According to SIS data, in Turkey only 33 % out of 689 data processing center use their machines with educational purposes (SIS, (1986)).

In its 12th meeting in 1988 The National Education Council has adapted recommendations related to the solution of the problems of the Turkish education system, financing education and education programmes.

Modernization and renewal of education and its programmes and methods calls for corresponding renewal of materials and equipment to be achieved, on the other hand, by taking advantages of the the resources offered by modern technology and, on the other, by adopting new organizational patterns of work in educational institutions.

CONCLUSIONS

The conditions affecting the adaption of all educational technology should be carefully considered in developing countries. Political power influences technology on the macro, national and also on the micro level. The content that a technology conveys is the result of competing political forces that produce a compromise solution. Power relationships in the specific social systems should give clues to policy-makers in determining the strategies that may maximize the chances that the technology will be addapted.

Financial strenght of the society is another factor influencing the use of educational technologies. Moreover, the value systems of the people who control the expenditure of funds; decision-makers' estimates of the ultimate expense of a given technology and coast-benefit comparisons among units of the education systems are other factors specified to be affecting significantly.

The cultural mismatches that can result during the transfer of educational technology include a wide range of incompatibilities-problems of physical infrastructures, of climatic conditions, of training facilities, of language use, of religious belief, of work habits, of sex-role traditions, and more.

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