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PLANNING EDUCATION FOR EMPLOYMENT

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This paper reviews past and current attempts of countries to relate education more closely to employment. Coverage includes manpower planning, on-job training and apprenticeship training and other blends of work and education, the shaping of education and training to work and the shaping of work to education and training. There is speculation as to why substantial resources, social and private, are committed to education in the face of manifest failures to prepare people for employment or productive work; and a hypothesis on the psychic return to formal schooling is examined. The experience of the United States, China, India and other developing countries are utilized to draw lessons on the problems of blending education and work in order to increase employment and productivity.

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1.0.0 Education, Employment and Work

In all nation states of the world, formal schooling, supported directly from the public fisc or indirectly through social agencies, is designed to transmit the fundamentals of the culture, a sense of national political purpose, social values, information and cognitive learning skills, and, for some portion of the populace, manual and professional skills and knowledge that will prepare people to find employment and to work productively. Preparation for employment and work is not the only purpose of schooling, and in some countries, even in recent times, preparation for work was not even a primary purpose of education for the elites fortunate enough to have access to formal schooling; but in the poor countries of Asia, Africa and Latin America, schooling and work are closely linked in plans, policies and programs.

Designing a closer link between education and work, making schooling more relevant to employment and work performance, is a central task of educational planners. It is not a task in which educational planners have been very successful. There is no check list or set of methods for accomplishing it. This paper outlines issues that underlie the problem of fitting schooling to work, suggests some general approaches to resolution of the problem of education and work, and assesses the comparative experience of countries in developing policies and programs for linking education and work.

The link between schooling and work underlies the idea of human resource development through education and training. National plans state explicitly that education and training are designed to prepare people for the work force.

The notion underlies manpower planning, vocational education, and training through mixes of classroom and in-service practice.

The relevance of schooling to work had been understood by educators, and developed into policies and programs, before economists systematized the notion in human capital theory. The view was accepted, if not fully articulated, that investment in education was justified on the basis of a return to society and to individuals in the form of enhanced productivity, indicated by earnings from work. In the developing countries for almost two decades, beginning in the early 1960's, school systems were expanded and budgets increased on the basis that there would be increased social and private returns through increased education, enhanced productivity, and increased earnings.

Though the direct link between education and productivity was not usually studied or validated, the indirect indicator of higher earnings for greater educational attainment seemed for a time to validate the theories of the economists and the suppositions of educators and political leaders. Toward the end of the period the foundations of the argument began to appear shaky. Educated unemployment began to appear in West and East Africa, in Southeast Asia and massively in India. The signs also appeared in the United States, as higher education continued to expand, economic growth slowed, population began to decline and enrollments followed; and education growth, in part feeding on itself through increased employment in teaching, began to nourish educated unemployment.

In developing countries there was no apparent social or private return on education, unless it was followed by employment and earnings. Economic theory, especially the human capital manifestations of it, was an obvious

target for criticism, for the failure of education to lead to economic returns, and for other shortcomings of moment to theorists. Manpower planning and vocational education were also vulnerable for failure to address unemployment, for excessive costs in situations of exiguous resources, and for pretentions to solutions that the approaches did not provide. The limits of education as a cure-all for social ills, as well as for economic problems, were becoming apparent. Proposals were made to cut back schooling, to invest in more productive social and economic alternatives, and to address the issue both of employment more directly through job creation, mobilization and government financed employment, and of modifications in investment and technology in order to make projects less capital intensive and more labor intensive.

The critiques of the economic return to education were voluminous, the prescriptions for solving the problem, except through creating employment for critics, were few, and some were dubious--one idea was that more employment could be created by putting more shifts on in idle factories, "the multiple shifting solution". Educators, happy to accept the boom that economists had brought their industry, finally woke to the fact that solution of employment, especially demand-deficient employment, was outside their competence and powers. It was a matter for solution through government fiscal and monetary policies which would stimulate economic growth and employment, and in worst case situations, create government subsidized employment. Deschooling never caught on in the developing countries; formal schooling continued to grow, and so did educated unemployment.

This paper examines the issues that lie behind these problems. It attempts not so much to offer a set of simple nostras for planners; because

simple diagnosis and broad spectrum cures for a complicated condition were part of the problem in the first place. Manpower planning and vocational education, even when clothed in the raiment of Human Capital Theory, never had the potential to solve anything but a small part of the structural unemployment problem; but manpower planning and vocational training will endure because they do serve their limited ends. The issue here is what else must be considered in planning the linkage of education to work.

1.0 A Calcutta Street Scene as Background to the Education and Employment Problem

On Council House Street, where the green of the Calcutta Maidan ends and the labyrinths of the northern streets begin, the lines of patient young men wind round and round the Employment Exchange of West Bengal; and though more than three hundred thousand of the registered unemployed in West Bengal have completed secondary school level or above, the educated young men wait for work that does not come. It cannot be that the young men waiting outside the Employment Exchange on Council House Street have much faith in the economist's notion of the individual investment return on schooling. The young men and their families have paid their fees, spent their time and money, and there are no jobs and hence earnings to discount to present value and reckon as an investment.

Down Council House Street come the officials of the government of West Bengal, bound for their offices in the Writers Building. They pass the lines outside the Employment Exchange, and it can not be that these officials have much faith in the public return to investment in human capital, the economic return on high level manpower development that these young men and their

costly training represent in the abstract. Without work there is no production, and hence no public or social return on investment.

The mobs outside the Employment Exchange in Calcutta reflect a problem that is not unique to India, and counterpart situations of high unemployment among educated people can be found in the Philippines and Columbia, in the cities of East and West Africa, in the United States, and reflected in the devastating statistics from Sri Lanka which reveal that unemployment rates for university arts graduates run above fifty percent.¹ The first problem of schooling and work is that there must be work for educated and trained people to do. There must be employment, and the issue here is what there is for planners to know about education and employment so that the linkage can be more effectively designed, and established through policies and programs.

1.2.0 Employment

The problem of providing work and jobs for all can be solved most directly through mobilization. Mobilization can provide universal employment, in that, within limits of physical and mental capacity, work is made available to all, and all are made available for work; the population is the work force, and the work force the population. The work force produces goods and services, and these are distributed to the population as return on their labor. China is taken as the exemplar of the direct approach to the provision of universal employment through mobilization.

Approach to the solution of the problem of employment can be indirect, through monetary and fiscal policies designed to stimulate the production of goods and services at a level sufficient to create and maintain jobs and employment. When the fillip of indirect monetary and fiscal policy is

insufficient, the government can intervene directly and create programs and projects which require workers. The intervention may have inflationary consequences and attendant economic loss and it seems to cause ideological pain to some in the United States. Employment legislation in the United States in recent years has evidenced hesitancy in moving from indirect to direct creation of employment by the government. The Employment Act of 1946, as it came out, took an indirect approach, in that it aimed to promote "maximum employment" (not precisely defined) - but within the limitations set by other economic conditions. As originally conceived in 1946 the measure was designed to have the government guarantee "full employment," then defined as employment for about ninety-seven percent of the work force. There would be direct government intervention as required. The present proposed legislation referred to as "The Humphrey Hawkins bill" attempts to extend the 1946 Act toward the original conception of guaranteed full employment, with direct government intervention through public works programs and loan subsidies for creating and expanding businesses in necessary fields. The direct programs would be supported by a full set of monetary and fiscal policies to stimulate general economic activity, and there would be overall planning to guide policies and programs for stimulating employment.

Taken far enough, government intervention to create work could approach mobilization, but this is not envisaged in the United States where one fundamental, the ideological basis for making mobilization an acceptable alternative, is unlikely to be developed. Whether work and jobs are created, and employment sustained, through mobilization at one extreme, or through monetary and fiscal policies without direct government intervention, or through

some combination of fiscal policy and direct intervention in between, education and training can be designed to fit workers more effectively to work. How this is done under varying situations and political economies is the concern here.

2.1.0 Education and Work

Education is assumed to do more than merely fit people for work; but to do even this much, it is necessary to determine the requirements of work, to design education and training to respond to those requirements, and to design work and employment to fit the capacities and requirements of people. In work, people have physical, material and psychic needs which determine their requirements in a job. Fitting work to people is thought to be a recent concern of the West, as in current pilot programs for job re-design and work enrichment, but even the Romans had a start on adapting work to people when they modified oar length and bench height to fit different batches of galley slaves from different countries of origin. In all countries, schooling can be designed and re-designed to improve the address of education and training to work.

2.1.1 The Fit Between Educational Background and Job Openings

Back on Council House Street there are hundreds in line who hold AB's, some with 'firsts' in mathematics, or English, or physics, but that is the line that comes in the side door of the building. An industrial employer, coming in the front door, and without waiting, states that he can find no one available in air conditioning, refrigeration repair, plumbing, silk screen printing or circuitry... For the boys out in the line the requirements of

the few jobs that do exist in Calcutta have not been well determined, nor have education programs been designed to respond to existing job demands. This is not a problem limited to schools in Calcutta.

The problem of lack of fit between job requirements and education also exists in the United States: the Panel on Youth of the President's Science Advisory Committee² estimates that, in the decade ahead, three quarters of a million college graduates will not find jobs that require college level education. The precision of the Panel on Youth estimate is not important, because the signs of educated unemployment are already apparent in the U.S.

At Logan Airport in Boston the taxi driver informs you that he is two months, seventy pages and fifteen footnotes away from completing his Ph.D. thesis. He is, he says, getting a "real doctorate in philosophy," his special field being the transmission of thought and value through "iconographic modes." You ask him if he has any line on possible openings, after he finishes the degree. His answer: "Sure, starter, dispatcher, checker, maybe buy or lease a cab...Nothing much available for a wi-si --a think-only, a philosopher." Still he is solving his employment problem, even if the second problem of fit between his preparation and his work is not too exact. Back in the university, a statistician estimates that professors in Ph.D. programs should train their replacements at the rate of one-fifth of a graduate every third year. He may be joking, but that's what the statistics seem to suggest if education is to be fitted to work requirements and employment possibilities in higher education.

2.2.0 Determining Work and Education Requirements

In China, mobilization appears not only to solve the problem of providing

work to all, it also seems a crisp solution to the problem of fitting people to job requirements. It doesn't do this very well, but that point will be saved for later examination, while a somewhat less sweeping remedy for the education/employment problem is examined. One alternative is manpower requirements planning. In simplest form, employment and job requirements are assessed and education and training programs are designed to fit people to fill the jobs; so many job openings for plumbers, so many training slots for plumbers; so many job openings for electrical engineers, so many educated as electrical engineers. There is, alas for planners and happily for free spirits, slippage in the fit. Workers are born, educated and trained in one location and the jobs are in another, a frictional employment problem that besets Russia where work opportunity grows in the east and population grows in the west. When asked what Russia does to fit education and training programs to work and employment, apart from manpower planning, a Russian economist who specializes in education describes "new" programs. The "new" programs to improve the fit resemble educational and vocational guidance programs that have been running for many years in the United States, without having quite solved the problem of matching education to work.

When manpower requirements planning is attempted over a national domain there is considerable mismatching, as planners attempt to work with aggregated and out-of-date information. In some locales the fit may be good, but in many it will not be exact. When space does not confound the manpower planner, time does. Job requirements change in number and kind

over time, and the education and training response never quite keeps up to the changes. Occupations are born, grow and die with changes in the level of production activity and the technology which supports it. New levels of general education and general and specific skills are required. Or where they are not required to perform the job they are demanded as a form of certification, or through the simple snobbery of employer preference.

Against an uncertain future and over a wide domain and for a large work force, manpower planning can only write very general requirements, by projecting growth in employment by sectors of the economy, distributing this employment by occupations, and tracing education and training requirements from the occupational structure.³ This may yield inexact results. Sectors and industries within them can have varying occupational structures, seemingly with no profound effect on production. The correspondence between occupations and educational background may also be variable; and thus tracing educational requirements from manpower requirements yields uncertain signals for education and training establishments. Even if it were possible to set the requirements beforehand, the future would not conform to plan, as long as individuals had freedom of choice to enter, or not enter, or to move from one occupation to another. Individual choice overturns not only manpower planning in open societies but also massed assignment in benefit of the society, or to preserve the purity of the ideological base, does just as poorly in the mobilized situation, as in China.

2.3.0 The Psychic Return on Schooling

Standing on Council House Street observing the long line of young men outside the Employment Exchange provokes a question of why the young men

have gone to school and persisted in such a fruitless exercise in the first place. To dispel the notion that the young men receive much of a cultural return on their education it is only necessary to spend a day in the halls of the colleges of Calcutta University. Given the richness of Bengali culture, most children of the middle class, the badhra lok, may have lost a little cultural ground at college. There they have read lists and memorized facts in an alien language, have been jammed into noisome halls like rickshah wallahs caught in traffic at Sealdah Station, missed months of schooling through strikes, and then cribbed their way through examinations, or gheraoed the invigilator, to make up their marks. After all this they return from the academic tamasha* with a piece of paper in hand.

It is the paper, the credential, and not the cultural return that is the object of it all. So say some; and there is some truth to it, except that with no employment the paper is worthless as a credential. There is more to the pursuit of schooling, under extreme sacrifice and with small return in prospect, than the acquisition of culture or a credential can explain. Schooling attracts and rewards powerfully all over the world, something the educated advocates of de-schooling in the west should be aware of when they propose that people in poor countries should have less schooling.

Formal schooling for the poor, even in situations where subsequent employment prospects are bleak, provides a high psychic return. It may only be aspiration preserved in aspect, but living with anticipation and promise in school is rewarding. In Maslovian terms⁴ it is a self-actualizing

*A Bengali word meaning social chaos, usually festive.

experience, at least in anticipation. Promise of fulfillment lies ahead. Employment and work, at least the jobs available as alternatives to many, do not provide psychic return or permit anticipation of self-actualization.

For many of the young men, waiting outside the employment office in Bengal, the expressed object of the wait is to get a job, but the preferred choice is to get back into school at a higher level, and then to get a job. The graduate of a technical school says that he would prefer a place in an engineering school to an immediate job. Why? "Because when I finish engineering I will get a better job." Though he can read in the local press that there are ten thousand unemployed engineers in Calcutta he will insist: "I will get a better job..." This is one possibility. Another possibility is that by getting into engineering school he will have several years in which to enjoy the anticipation of a better job--but still not get one. Then why persist in school? Young people do persist in school, in places like Calcutta, even when the schooling is of poor quality and yields small cultural benefit; and even when schooling is irrelevant to employment, if there were employment. One reason they persist is because schooling, the experience of being in school and the status of being a student, reward psychically, and there are few other opportunities of this for the young. Certainly not in the jobs which are available to them for the most part. Thus, the problem is not so much in reforming schooling so that it fits people for work, as it is reforming work so that it fits people and provides an attractive alternative to schooling. At least this is so in societies where there is no mobilization supported by an underlying ideology. Schooling can be reformed so that it fits people more effectively for work and jobs, but only up to a point.

3.1.0 The School Response to Fitting People for Work: What Schools Can't Teach

If there is employment and work, then people can be educated and trained to perform this work. Provision of employment and work on a near universal basis depends on social and economic policies outside of schooling; that is, the solution lies beyond educational policies; but educational policies can enhance the effectiveness of the school response to work, if there is work. Even here there are limits. School is only one setting for education which, in turn, is but one mode of providing for human learning. What humans must learn, outside as well as within schools, includes both the aesthetic and the practical arts. Learners must also acquire knowledge which transcends any given job situation; and they must learn science which provides a theory and method for increasing knowledge. Members of societies must also learn, in the sense of internalizing and exemplifying in their behavior, morality, the ethics of individual and social conduct.

Formal education, exemplified in the conventional association of student/teacher/book/classroom, with cognitive learning the main objective, is not necessarily the best means, nor is the school the best setting, for providing all that humans must learn of the aesthetic and practical arts, nor morality and ethics. Facts about the arts, aesthetic and practical, can be taught in schools, and models and canons can be learned, but mastery in performance of the arts comes through practice, and this can be provided outside schools. The propositions of ethics and morals can be presented in schools, and memorized as maxims, but moral values and ethical conduct are usually tested, validated, and internalized so as to affect behavior, in experience outside of classrooms. Literate knowledge and mastery of science does seem

to require some founding in formal education.

3.2.0 Establishing and Reforming Education Systems

Criticism of schooling in the past century has addressed shortcomings in the entire range of teaching and learning : failure to teach the aesthetic and practical arts, failure to develop morality and ethics, and failure to promote literacy, general knowledge and mastery of science. Actual reform attempts have been more often limited to bringing into the curriculum literacy, general knowledge and science. Often the importation is from other cultures. Schooling introduced in Africa and Asia by the colonial powers sought not only to change the cultural and scientific lore but to replace it. In the Philippines there were successive waves of educational importation from Spain, the United States, Japan and the United States again. In turn, the schooling introduced in Japan in Meiji times borrowed a great deal from abroad and changed it into a local variant only slowly and over time.⁵ More recent reforms of national systems have attempted to move the other way, and to break away from cultural imposition from outside. The reforms in Tanzania, proposed by Nyere, and implemented following the Arusha Declaration of 1967, are an example.

3.2.1 Reform Attempts: India and the Nai Talim

Through most of the world, reforms of schooling have come, but later the basic pattern settles into something that is standard the world over. Gandhiji through the nai talim (new education) tried to bring work and production experience into primary education and thereby implant a unique form of schooling to fit people for work. In nai talim, children used the takli

and charkha (spinning frame and wheel) to learn not only practical arts and skills, but also to learn how to apply general knowledge and science to the solution of work-day problems. In the process, school production units turned out a product of economic value in a poor country and became self-supporting, a notion that has been much further developed in China. The nai talim did not last. Incorporated after independence as an official program, "Basic Education", nai talim ended as an economic and pedagogical travesty of the original notion, and has gradually been buried in the highly formal school systems of the various Indian states.

3.3.0 Reform in China

China is an exemplar of more radical reform where morality and practical experience have been made central and integral to schooling. From what can be learned from the record and occasional commentary, educational reform in China has improved the teaching of the practical arts and the inculcation of morality and ethics consistent with the ideology on which national mobilization is based. This has not been accomplished without cost. It is much less clear that the reform in China has improved the learning of general knowledge and science.

3.3.1 Education and Work in China

In China, within the context of a general mobilization built upon a pervasive ideology, schooling has been reformed, and the result appears to be the most effective blending of work and education accomplished in modern times. Even allowing for selectivity in reporting from inside, and bias from outside observers, China appears to have accomplished a most effective

blending of work and education to prepare its people in the practical arts for employment, work and enhanced production.

3.3.2 The Chinese School System of the Mid-Seventies

The Chinese education system is decentralized, and local control, along with the necessary accommodation to exiguous resources, have led to highly varied forms in the provision of educational services. If the form is varied the substance is not, nor is the pedagogy and epistemology which undergird the curriculum. Chinese education covers Occupational Education, in which study and practice are blended; Cultural Education, which provides the rudimentary knowledge and literacy skills for further study; Political Education, designed for study, interpretation, criticism and reform of ideology and social practice; and Theoretical Education to bind the other three areas together with an epistemology that derives mainly from Mao's "On Practice."⁶

3.3.3 Mao on Education

Learning is viewed by Mao as a sequence that begins with perception of phenomena and the linking of perceptions into formed concepts. Inference and judgement are then applied to the related concepts to yield conclusions which are validated only when applied and tested in social reality. The epistemology is novel only in the extent to which it is embodied in education and social practice. In Chinese schooling, Cultural, Occupational Political and Theoretical education are not separated as curriculum divisions or discrete study areas, rather they are the emphases or foci of all instruction; and all four may be blended in one lesson or work experience. Within Cultural Education the areas of study may be divided into conventional curricular rubrics, Mathematics, Science, Language...Physical Education and Foreign Language training are strong in most school programs.

3.3.4 The Constantly Changing Education System of China

Education in China, consistent with the epistemology of Mao, has been under constant trial, test and change, some it radical, since the time of the Kiangsi Soviet in 1930 and the first circulation of "On Practice," dated 1937. The blending of productive work with formal schooling was an economic necessity in the time of the Kiangsi Soviet, and a political, military and economic necessity in the Yen-an Period. Since Yen-an the blending of work and schooling has been recurrent, cyclic rather than constant. Currently work experience dogma seems to be weakening. Swings in the cycle reflect an underlying dynamic that has persisted to current date, a continuing tension between standardized schooling designed to produce experts, in contrast to education reformed to produce trained workers who are socialized to the ideology of the Peoples Republic of China.

In the Yen-an period, work, schooling and ideological development were effectively blended, most notably in the cadre training school at K'angta. As Communist power spread out of the enclaves and across the mainland there was increasing standardization of schooling, and in the period of Russian influence greater emphasis on the training of high level manpower. The Great Leap Forward intervened to push the pattern of education back toward the Yen-an model. Seybolt states⁷ that in 1958 the blending of work and education was reintroduced during the Great Leap Forward, "as if no one had ever heard of it, much less practiced it. The same phenomena recurred as an aspect of the Great Proletarian Cultural Revolution following retrenchment in the academic education..."

3.3.5 Basic Education in China

Chinese education is not only constantly changing, it is endlessly varied in form and auspices. The basic pattern of Chinese education is a five year elementary schooling which permits of considerable variation in auspices and offerings. Schools are run in and by Communes and Production Brigades, by factories and unions, and serve children, workers, peasants and cadre members with slightly different blends of Cultural or Basic Education, Occupational or Work/Education; and, for all, some mixture of Political and Theoretical Education. That there is some blending of production and work with Cultural or Basic Education is exemplified by the primary school in Nanking where the school production enterprise is the manufacture of pens.

3.3.6 Middle Schools

Beyond elementary school there is a two year middle school, and entrance may follow a period of rustification and production work under the hsia hsing program which mobilizes and sends people to the rural areas for experience. Students are selected for study by committees of worker/peasant/soldier teams, and the schooling is governed also by committees of worker/teacher/student groups. Opportunities for full time study at middle school are limited, but there are a variety of other study opportunities, in "May 7th cadre schools," in "part study part work" programs set up under the July 21 program directive, in correspondence courses and in a variety of short technical training courses offered on factory or commune premises.

3.3.7 Higher Education: Blends of Education and Work

Higher education in China, consistent with the usage of Mao, means mainly colleges of sciences, engineering and agricultural science. In all

variants of higher education, production, training and academic study are blended. Schooling and production are combined at Futan, Peking and the North East China College of Electrical Engineering, where the textbooks are said to have been prepared by joint committees of teachers and workers. Mao has cited Tachai in agriculture and Taching in industrial education as the examples, but the work/education establishments most often visited and praised by outsiders are the education programs offered by Shanghai Tool and the production enterprises run out of Tsinghua University. At all levels of education, work and schooling are effectively combined, but Shanghai Tool, the factory which runs schools, and Tsinghua, the school that runs industrial, agricultural and construction enterprises, are the models that represent an effective blending of work and schooling.

3.3.8 Other Features of Chinese Education

Certain features of Chinese pedagogy characterize education at all levels of schooling. Under chi-fa, work, social reality and practice are investigated to improve learning of practical arts and to enhance practice and job performance. Morality and ethics, consistent with the ideology, are taught with models of correct social behavior, and acceptance of the ideology and the sacrifices entailed is reinforced through "bitter remembrance," in which present favorable conditions are contrasted to the past. Central to all is the pedagogy of struggle in which social reality is examined and criticized; and within the ideology and general policy guidelines, solutions to problems are worked out through struggle, criticism, and transformation. Cooperative behavior and committee participation provide the social milieu for study, work and learning; the ethic of cooperative work is fostered; and

externally the system is adjusted through the great campaigns of struggle and reconstruction, as in cheng feng and rustification through hsia hsiang. The system not only trains people to do work, it develops an ethic of work acceptance and social sacrifice.

The main point to remember about Chinese education is that it is in constant change, and during some periods, in actual turmoil. The patterns of organization, the curricula and even the underlying aims of education are even now changing from the ones described here. Education for the past thirty years has been powerfully shaped by the thought and policies of Mao; and hence with the death of Mao, education will not avoid going into a new period of reform and change. The exact nature of this change is not yet fully clear, but it is possible that the more pragmatic approach to development advocated by those shaping the political objectives of China, will push education toward more concern with the quality and standards necessary to prepare professionals and higher level experts.

3.4.0 The Limits of Chinese Success in Shaping Schooling and Work

China appears to have solved all three of the major problems of education and work. Through mobilization there is work for all, and when this is backed up by rustification under hisa hsiang there are no scenes similar to the one outside the employment exchange on Council House Street in Calcutta. Nor are there scenes that parallel Boston; there may be potential wi si spreading night soil where the k'aoling grows in Shantung, but not driving taxis in from the airport. Because the mobilization is based on an ideology which is accepted and internalized, the problem of fitting work

to the psychic needs of workers does not appear to arise in acute form for many. People accept and do their assigned work, and social actualization takes the place of, or fills the need for, the self-actualization sought, often vainly, in the West. At least there is a sufficient level of acceptance so the system endures. Acceptance, nay, more than acceptance, zeal in fact, is created and reinforced through education, especially in "Political" and "Theoretical" education. There are periodic upsets, however.

3.5.0 Education, Work and Ideology

Acceptance of whatever portion of schooling and work falls to the individual by directive and communal decision depends on acceptance of the ideology on which mobilization is based. When the ideology is consistent with the facts of life as experienced in school and work, that is when there is equity in sacrifice, then the problem of self-actualization for many does not arise and social actualization suffices. When life and the ideological schema for interpreting life are inconsistent, there is a massive adjustment, as in the turmoil of corrective campaigns, Great Leaps and Great Proletarian Cultural Revolutions. Temporary chaos is the price paid in the short run for the adjustment; and continuing acceptance, and relative stability in intervening periods, are the longer-term return. In any event the problem of fitting work to the psychic needs of workers seems to be resolved, at least better than it is in some western countries. There remains the question of how education fits people to the requirements of work, and it appears that there are limits on the goodness of fit in China.

There are obvious limits to Chinese success in situations where

mobilization schemes assign scarce and valuable human resources to jobs which do not require high level talent, and deprive other work situations of these human resources when indeed the work does demand them. That this is a cost cheerfully borne in order to preserve the system does not change the fact that it is a waste for a country that has not escaped the need for production and productivity. Success is also limited in that part of education that must provide knowledge which reaches beyond mastery of the practical arts, that is knowledge for extending knowledge through science. China solves the work-education problem well and at the same time provides a basis for social morality and an ethic of acceptance, but it does not solve the problem of fitting people to work. Through mobilization, talent is mis-matched, and through education people are not fully prepared for the demands of work which lie beyond mastery of the practical arts. On the mis-match of talent to work there is largely silence except for a few deviants. Acceptance of the ideology takes care of this problem. The other side of the problem is partially revealed in Chang Tieh-Sheng's letter.

3.6.1 The Red Versus Expert Conflict

In June, 1973, Chang Tieh-Sheng, recommended for university study by the Revolutionary Committee on the basis of rural service since 1968 and his leadership of the Number 4 Production Unit of the Tsao-Shan Brigade, was taking qualifying examinations in physics and chemistry. He handed in a blank examination sheet and on the back wrote a letter which appeared in the Lioning Daily, was reprinted in the Heilungkiang Daily, and appeared ultimately in Jen-min Jih-Pao.

Chang T'ieh-Sheng's Letter

Dear Leaders:

The examination is over and I like to convey some of my feelings to you.

I came to the countryside in 1968. I carried out my duty conscientiously. I put in 18 hours in productive labor everyday. I do not allow anything to interfere with my job not even study. I only started to turn over my books (accounts) when I received the notice on June 27, three days ago. I could not answer any of the geometry, physics, or chemistry questions. As I do not want to write just anything on the answer sheet, I will hand in a blank answer sheet to you. To tell the truth, I have not respect to the book-worms who loaf about doing nothing. I feel discriminated by the examination which is controlled by the book-worms. During the summer harvest season, I could not pull myself away from my job and hide myself into a little room to study. To do this is very selfish. And I will be neglecting the revolutionary duty entrusted to me by the masses. I will feel very guilty. I am contented that I have not slowed down the collective work because of the examination. The struggle between self interest and collective interest is a real battle. What I do not understand is that a few hours of examination can take away my qualification to study. There is nothing I can say except that all my ideal is now totally destroyed by my productive labor. This is the only point I want to stress.

I am recommended to join in the study group according to the new enrollment policy. The teachers here in the school will remember that I was a good student in terms of academic preparation. The questions today are not difficult by my impression are practical. With one day of intensive preparation I can guarantee that I will give a good answer to every question.

My political attitude, my family background and my relation with the society are all good. As a kid from the city I have learned a lot during the past few years of struggle. The practical experience has changed my World outlook. Here, I have not answered the questions as required (this is not a way to demonstrate my analytical and problem solving ability) but I do not feel ashamed. I do not feel happy about the whole thing. The only thing that makes me happy is that the poor and lower-middle peasants have recommended me to take the examination.

Examinee Chang T'ieh-Sheng
of the Pait's commune

June 30, 1973

*Translated from Jen-min Jih-pao, August 10, 1973, by Yang Shao-hua.

For Chang Tieh-Sheng the ending was happy--he was admitted, blank answer sheet in science notwithstanding, to higher study in an agricultural college. On the other side, from the person who did not get in, though he may have answered the examination questions in science, there is silence. The effect of this on the future of knowledge development, learning and science in China is unknowable, but it is at least possible to suggest from the well publicized incident that China has not solved all problems of education and work. In fact it is precisely the conflict between political purity and scholarship requirements that seem to be working under the surface to continue the unending dynamics of change in Chinese education. Next year education may be different in China.

4.0.0 Education and Work in Other Countries

In the United States, and more shockingly in India and Sri Lanka, the first problem of work and education--the provision of work for people if and when they are educated--has not been resolved. In the United States the Humphrey-Hawkins proposal may not solve the problem, at least within economic limits that are tolerable to those who will decide on it, but at least it may bring the issue forward for badly needed debate, and hopefully debate that is informed by more persuasive economic and social policy analysis than currently prevails. At the moment it is difficult even to frame employment issues in a form suitable for analysis, although the general statement of some of the basic questions is possible:

4.1.0 Employment and Social Costs

What are the social costs of sustaining an economy that does not provide work to all who need it, want it, and are capable of performing it?

What are the economic costs in sustaining such a situation?

What are the economic costs of changing it to provide work for those who need, want and can perform it?

What are the political, economic and social concomitants of moving toward such a change?

Buried somewhere in the last question are questions which will guide the shaping of education to fit the requirements of work, and the shaping of work to fit the requirements of individuals with free choice.

4.2.0 Combining Education and Work

Given the basic provision of work and employment, the response of education must be built from some combination of general or academic schooling, vocational or professional education, and guided experience of work itself. In education and work there are paradoxes which make it difficult to write a simple prescription for combining general education, vocational education and work experience. For mastery of the practical arts work experience seems fundamental. Most people have learned their work and mastered their jobs by doing them. This has been true in history and it is confirmed in current experience for much of work and for many jobs, even under high technology. Workers still learn to master complex tasks, without benefit of literacy, numeracy, or knowledge and learning skills developed through general education.

On the other side of the education/work problem, graduates still leave schools with general education of a high order and no preparation for work. There are persuasive arguments that general education enhances the capacity of the worker to learn on the job, to master the task requirements of his immediate job and to go on to more demanding jobs. There are also arguments

that vocational education promotes general learning equally well and permits transfer of skills across families of similar occupations. Neither position affects the argument for the necessity of work experience as part of training and education. General and vocational education are not substitutes for work experience, but are supports, sometimes powerful ones, of on-job learning. Experience is still necessary for mastery of the art and the job.

4.2.1 Work Experience and Schooling

If schooling is to contribute to preparing people for jobs and work, some experience of work must be blended with that of schooling, whether academic or vocational. This is a lesson, it seems, which must be learned and relearned in western countries. In China too, where blending has been accomplished, the cyclic movements toward work/education and then back toward academic and formal schooling, indicate that the lesson is not easily learned or long retained. History of reforms of schooling, where work and education have been effectively combined, the nai talim in India for example, demonstrate that such reforms do not last.

It is difficult to combine work and academic schooling effectively; yet mastery of the practical arts through performance and practice is the ancient and traditional pattern, as well as the newest approach to preparing people for work. In earlier times, learning came as an incidental, or by-product of work. Next, apprenticeship was introduced, to reduce the waste of materials and time that result from learning-by-doing, to preserve standards in the performance and quality in the product, and to regulate entry into the craft. When large numbers of semi-skilled workers were

required in the work force of the United States in the last quarter of the 19th century, vocational education was introduced as a more rational alternative to apprenticeship. Vocational schooling, as it became isolated from work and production, tended to obscure the importance of work experience as a necessary part of training. In recent years reforms have pushed both vocational and general education back toward work and experience; but in this, the western systems lag far behind China.

4.3.1 The Nature of Work and Work Rewards

The weakness of formal schooling as a preparation for work is based on paradoxes in the nature of work, as well as in the nature of education. Formal schooling has become more general and abstract, with less relevance as a preparation for mastery of the practical arts and production; but work itself has also become formal and abstract as it has been rationalized and organized in modern economies. To prepare for formal and abstract work requirements, formal and abstract schooling is about as good a preparation as any. In many situations there is no more meaningfulness in work than in the schooling which prepares for it.

However, within the emptiness and abstraction of much of work, there is a kernel or core of work, in the physical and social sciences, human services, creative arts and higher level technology, that though abstract in nature is still meaningful. Preparation for this kind of work requires a general education that provides knowledge and science which go far beyond anything which can be learned by doing. It is in addressing this part of work, a small part but withal critical, that Chinese education seems less successful than education in western countries. The blend of education and

work experience in China prepares well for mastery of the practical arts for those jobs which require this. In educating for the small number of jobs which require more than mastery of the practical arts, which depend on a foundation of general knowledge and science, it is not clear that Chinese education is better or even equal to education in Japan, Western Europe, Russia or the United States. Evidence on which to base a judgement is not easy to come by. As a statistic Chang T'ieh-Sheng's letter is not very impressive, but as a well publicized example of Chinese official policy toward education it is interesting counter-point to the lyrical descriptions of visitors on the undoubted merits of Chinese success in preparing for the practical arts.

4.3.2 The Psychic Returns to Schooling and Employment

Formal schooling in the west provides high psychic return and self-actualization at least in anticipatory form, because it seems to be preparing for those few jobs which provide psychic return and opportunity for self-actualization. But these jobs are few, even in a complex economy and society such as the United States. In India there are even fewer opportunities for such work, but still the school systems go on churning out graduates, and students persist, whatever the employment odds, because the school experience itself and student status seem to confer an expectation of entering such jobs. Thus there is psychic return in the schooling and dashed hopes in the outcome.

5.0.0 Lessons Learned on the Reform of Schooling and Work

There are a few lessons to be learned for the reform of schooling and work. If schooling is to be designed to prepare for work, and it has other

ends as well, then education should be blended with experience of work itself. For some, this mixing of work and schooling might destroy the attraction of academic education, because as the training for a specific job becomes more narrow and vocationalized the possibilities of self-actualization, the promise and not the reality, would become less clearly apparent. This would in the long run be all to the good, but confronting this truth is not an easy public policy for leaders in most countries, any more than it is in the United States. Where the prospect of getting satisfying work is unlikely the possibilities seem to be mobilization, so that work becomes self actualizing as a social experience; or reform of work, as it exists in all countries, west and east, north and south, to make work more likely to provide psychic return. Critics of policies and programs to guarantee full employment point out that however high unemployment rates rise there still remain jobs with no takers. As these jobs are now structured there will always be no takers unless people are forced into them to survive.

6.0.0 Summary of Education-Work: Issues and Paradoxes

In societies where there is no clear or universal basis for mobilization because the power of transcendent goals has faded and there is no ideology to provide a pervasive ethic of work acceptance, the organization of productive activity and the nature of work may have to be changed. First there must be work for those capable and desirous of performing it. With work provided for all, the address of education to work can be improved, up to a point, by determining the requirements of work through manpower planning, and shaping schooling accordingly. The response of education can then be improved by moving schooling closer to work and production; but in this there is paradox.

As schooling is made more vocational it becomes specialized and narrows, not alone in content and form but also in promise and in psychic return. When work is substituted directly into education it may make schooling even narrower and less promising, unless work itself provides the same sense of promise, or self-actualization. As organized, much of our work and many of our jobs do not provide either promise or realized self-actualization. The reform of schooling, within its limited objective of preparing for work, first requires the reform of work.

Improvement of the material conditions of work may serve up to a point, but increase in the psychic return from labor may also be necessary. The solution would be to provide self-actualization through work itself. This seems straightforward, but since the causes of the failure of work to satisfy are many and varied, approaches to the re-organization of production and redesign of work must be equally varied.⁸ Work re-design trials indicate that increase in self-actualization may come with greater autonomy in jobs, flexibility in routines, participation in decisions affecting work, and fulfillment from completion of demonstrable tasks in the production of what workers perceive as a valuable product or the provision of a useful service. In turn, jobs may have to be linked into career lines that provide greater promise of advancement, and within the links greater self-actualization. How this can be done generally is not easy to specify, for changes that increase satisfaction for one worker may have no effect or a negative effect on another. Some workers may prefer the freedom and challenge of self-employment, and others may see in it only the risk of failure and, therefore, prefer security, anonymity and the routine of a regular job. Whether worker

paradises can ever be created in an open society is unclear.

The trials of work re-design and enrichment are as yet few and scattered, pilot level projects and showpieces for the most part. In this they resemble the Chinese show pieces where work and education have been most successfully blended, Tsinghua University and its communal shops and factories, and Shanghai Tool, with its blended schools and training programs. If education as a response for training people for work is to be reformed in the countries of the west, short of the mobilization alternative with all its costs and less than full success, then work itself will have to be reshaped. Work on work has just begun.

FOOTNOTES

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