TECHNOLOGY'S IMPACT ON RELATIONSHIPS BETWEEN GENERAL 
EDUCATION AND EDUCATION FOR CAREERS

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Europe went to school in the 19th century. At that time the Industrial Revolution multiplied material goods for domestic consumption and export. Overall prosperity increased. It is easy to see the correlation between the spread of compulsory education and industrialization. But which is the cause, and which is the effect? Or can we find a third common factor explaining both of them?

The Industrial Revolution was a mechanical revolution which mechanized craft skills into mass production techniques. Machines took over the mechanical skills and muscle functions of the labourer. Working for wages broke the family as a traditional unit of socialization. Work processes and the social organization of work changed the way of life of the workers fundamentally. Both at work and outside it new kinds of skills and abilities were demanded. The systematization of compulsory primary education was needed to create the job qualifications of the new era, the Second Wave, in individuals. This put an end to the old image of education with its inherent value.

Education was transformed into a commodity with use value, because schooling was able to create skills that one needed in word processes, i.e. work qualifications. A young Finnish scholar has analyzed, in his doctoral thesis, what these qualifications could have been.

1) intensity qualifications refer to punctuality, endurance, achievement motivation, competitive spirit, belief in the inviolability of private property, etc.
2) productive qualifications refer to manipulative skills (machines, raw materials) and skills in human relations, e.g. empathy and cooperative skills
3) innovative qualifications refer to the development of work processes by increasing productivity.

The first group consists of more or less general qualifications and the second one, which is usually meant in connection with industrialization, consists of specific skills. The emphasis is of
course a bit different according to the target group, whether it is wage labourers, non-productive wage labourers or non-wage labourers.

However, general schooling was more socio-political than pedagogical or economic in nature and more political (educating citizens for nation states) than emancipatory. In fact, skills needed during the time of the guild system exceeded those of early industrialization. One has to give a broad meaning to the term 'qualification'. It refers also to individual competences which are prerequisites for activities outside the labour process. Legislation against child labour made children a functionally unnecessary stratum. It was school that rescued them. School was a means of conquering poverty and sloth. It was the best possible agent to indoctrinate children with nationalism and new political ideas. It was the institution, which was created just at the right time, to give legitimacy to inequalities of awakening democracy.

How relevant have the skills which have been taught at school been to the progress of industrialization? The dual theory of work argues against functionalism. It says that qualifications are culture bound and characteristics of jobs, not workers. Education is mainly a screening device for social differentiation. It cools down individual aspirations and expectations and builds up an educational hierarchy to match the social and economic inequalities. Education has even lost its use value. It is a commodity to be sold and bought for its exchange value. And now we are experiencing an excessive supply of the commodity. Education and training have an unattainable goal. But we do not suffer from the inflation of education, but the inflation of degrees and certificates. We are almost dying of credentialism and degree disease.

Nevertheless, school has become and continues to be the gate-keeper to the world of work. But wage-work is becoming scarce. People talk of the crisis of the work society that is organized according to the Protestant work ethic. In the first phase of the transition, agricultural and industrial workers, rendered unnecessary by automation and rationalization, could be replaced in service industries. The second phase was brought about by robots and automatic data processing. But still the redundant workers could find jobs, after quite a long transition period it is true, in the budding information society producing, manipulating, circulating, storing, and even planning to make a profitable use of information. But each new generation of computers, each new device of communication, each new crisis in the world economy etc. reduce the demand for labour even in the tertiary sector.
Producers have to remove the risk of human error, i.e. to remove human beings. The public sector can no longer absorb either the younger generations of highly qualified graduates or the older less highly trained workers, because the magic combination of three letters, GNP, no longer shows green. The massive socio-political reforms, initiated in the period of rapid growth in the 60's and 70's start to show up in national economies with all their power exhausting the resources of the Welfare State. And, nevertheless, political pressure to go on with reforms is as strong as ever before. So the politicians keep selling education as an investment for a better life in the world of work. They still believe in production, and production believes in formally qualified manpower. It must be most productive in the "Third Wave" jobs in post-industrial information society.

The rapid development of a new technological culture and the impact of technological change on the economy and jobs must be reflected in educational programmes. So almost every country has instituted more work-oriented curricula, has expanded vocational education programmes, has set up efficient guidance and counselling services, has adopted Computer Assisted Instruction Systems, etc. But often this is not planned action but reaction to the change that has been initiated somewhere else. There are no alternatives, because "we must not fall behind our competitors". In a way technology has got out of the hands of its users. It has become a closed circle: all the answers to the problems caused by technology have to be found within technology. Thanks to the ingenuity of man we are about to step from the Welfare State into the Fulfillment State.

But as far as education is concerned there exists a great disequilibrium on the one hand and a widespread reluctance to make changes on the other. Vocational training still rests on Taylorism although most people make their living in service industries. Many planners still believe that there exists a 1:1 relation between work and training. Many politicians still make the Young believe that the more people are educated the more job openings will show up. No reform of education, no extra provision for education can by themselves provide new job openings or a better match between qualifications and a changing labour market. And it is not a question of scarce job openings resulting from economic recession. There will be only a limited number of work opportunities demanding skills in high technology and in information processing. Polarisation is not just a sociological concept. It is reality. People have still to labour at routine tasks in huge white and blue collar bureaucracies.
Of course we need our experts and specialists. We must have all education for some, although demanding elite educational may sound like blasphemy, because education should be the great equalizer. But we also need some education for all. To be a specialist one has to be a generalist. The top jobs at the high level of technology are often relatively narrow and untheoretical. This means that the skills very easily become outdated. To renew their knowledge base experts must be innovative, they must have a high level of general education. And so must ‘the ordinary people’ who have to make sense of the changing world.

The key issue in future education is not technology itself but change, of which technology is only a part. The old idea of education as a device for building patterns of behaviour must be rejected. We must always be prepared to cast out old patterns and adopt totally new ones. In fact we have to forget what we have previously learnt. Political, economic, and labour institutions are changing drastically. So must education change too, but not because of the world of work. Education must prepare us socio-politically for a new society, as it had to do 150 years ago.

If productivity is the be-all and end-all and machines and electrons are more efficient in achieving it, we have to revise what we mean by work. The Industrial Revolution didn’t increase leisure for the working class, but the Information Revolution will. What we need now is a non-work ethic as the late Lord Ritchie-Calder put it. And non-work doesn’t refer to sloth, the deadly sin of the Protestant work ethic, but to retirement, redundancy, unemployment, a shorter working day and week, longer holidays with pay; it means time for ourselves, to be personally creative and productive.

Ritchie-Calder reminds us that our freedom from the slavery of paid jobs may first tempt us into self-indulgence and wise idleness, but then we start to seek virtue in our duty to our fellow men and in service to good causes. Job openings will be permanently lacking, but many meaningful activities will be found. Education must prepare us for that, for the uncertainties of life and of the whole world. We must learn to anticipate life’s rapid changes. Instead of what and how-questions we must ask more often why. The purpose of education is not to produce masses of specialists at the age of under 20 or 25. In many countries children and young people spend more than 16 years in full-time initiated education. Some do not enter the work life until they are middle-aged, some never enter it. So half a life is spent in preparation for—nothing! Instead of that, school should cultivate the natural curiosity and doubt in every child so that he keeps
asking questions throughout his life, not for production but for himself, to make his life meaningful by coping with and anticipating the changes of society.

One has to make a deep and meaningful distinction between education and training, and I needn't say which comes first. If education is going to regain its use value, it has to give us more life skills instead of job qualifications: risk-taking and decision making, self-reliance, persistence and tolerance, problem solving capacity, creativity, understanding of self and society, manual dexterity, language skills, both leadership skills and cooperation skills, flexibility. Job qualifications can be built afterwards on these broad qualifications on a life-long basis. Learning is an ongoing process, never complete. So is the world of work. It may be wisest to see employment and training policies, general and vocational education, in terms of social integration, connecting individual aspirations and lives to life opportunities and social institutions. We must remember that education is not a political concept, as schooling is; it is pedagogical and emancipatory. It is not a group concept, it is individual. Schooling is an input in the modern socialization process. We must take care that the output will be education.

References

