Science, Technology, Society: Prologue

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The substitution of human labour with intelligent technologies that has become an ever more widespread phenomenon since the 1990s, has brought about a revival of the social concerns of the nineteenth century, albeit in a somewhat modified form. This development, manifested as a crisis of the welfare state, as a crisis of urban living and the fabric of society, as underemployment and tax evasion, social marginalization and mass poverty, leaves society facing two key challenges—namely the restructuring of work *and* redistribution of the wealth generated by society at large. Both these challenges demand an answer and require learning processes at both institutional and individual level.

The personality theories and learning concepts that came to the fore in the English-speaking world both during and in the wake of the Thatcher era ('There is no such thing as society. There are individual men and women, and there are families') rested on a changed apprehension of man that soon spread to other cultural traditions too. The concept of *portfolio work*, for example, is basically an attempt to come to terms with the change in corporate structures required by globalization and with the new types of work to which these have given rise. The point is not to redefine 'work' as such, but rather the balance that in future will have to be struck between working, living and learning. The term 'work portfolio' here describes all the various different types of work that are required of a person during his or her lifetime, grouped together in such a way as to produce a balanced whole. Handy (1989), who was the first to use this concept, differentiates between five different types of portfolio work, two of which are remunerated and three of which are not: (a) salaried work, (b) work for a fee, (c) housework in the broadest sense of the term, (d) voluntary work, (e) learning. (As we will soon see, German discourse describes not just 'learning' but 'conduct of life', too, as a form of work.) Whereas most people's portfolio has so far consisted of just one type of work, in future, it will have to bring together a number of very disparate factors—

money, security, personal satisfaction, social contacts and the opportunity for personal development—in a coherent whole. It follows that in future, personal income will come from various different sources, including from temporary assignments, rents, bond yields, fees, pensions, sales etc. The crucial issue is whether these incoming sums will suffice to cover the outlays (the cash-flow principle).

The transgressivity concepts of English-speaking authors assume that the traditional career and lifelong employment (in one and the same firm) are definitely a thing of the past. Only 47 percent of English people of working age are currently in permanent, full-time employment. According to Tulgan (1998), another transgressivity theorist, anyone planning a successful career under the prevailing circumstances must take account of the following five 'essentials': (a) lifelong learning, (b) the cultivation of relationships, (c) continuous improvement of 'employability', i.e. individual market value, (d) the presentation of a consistent public image, (e) the ability to live without long-term planning and instead the flexibility to make decisions in line with the prevailing situation.

Leadbeater (2000) calls those with the competences required by these essentials 'independents', A typical 'independent' is critical of the establishment and of tradition. He/She behaves individualistically and has character traits that facilitate self-management and personal initiative in pursuit of self-development and self-fulfilment. German discourse, meanwhile, talks of 'identity work', and 'identity construction' etc. (cf. Ebers 1995; Junge 2002; Keupp et al. 1999). Whereas 'independents' are to be found at all levels of the working population, according to English-language management literature they are most likely to be professionals such as doctors, lawyers, scientists, teachers, programmers and other 'time workers' and 'trapeze artistes'. All these people live on 'thin air', meaning by virtue of their intellectual skills and a 'network that supplies them with information, money and technology' (Leadbeater 2000; 2001; also Peters 2001). Some similar ideas on the transgressivity of working and living, albeit the product of a rather different political climate, are to be found in the English-speaking discourse, for example in Rifkin (1996) or Bergmann (2004). Whether they are of the left or the right, all these authors seem to agree in their assessment of the situation and differ only

in terms of the conclusions they draw from it. Developments that some welcome as an opportunity for greater autonomy and individual creativity are condemned by others as exacerbating existing social inequalities.

It is in the logic of capitalism to minimize human labour and the costs to which this gives rise (a) in *quantitative* terms, either by lowering wages, contracting out production to low-wage countries (so-called 'offshoring') or by using machines to do what was previously done by humans, (b) in *qualitative* terms, by trivializing the skills required to perform a certain type of work. In the 1980s, for example, much of the implicit know-how the branch manager of a supermarket had until then had to acquire through experience was replaced by an abstract system implemented with the aid of tills fitted with EAN-code scanners (Bammé 2003, 269–300). This trend is almost certainly unstoppable in both the quantitative and the qualitative respect, just as reinvesting heteronomous (remunerative) work with meaning is likewise impossible. The societization of production means the division of labour, standardization and efficiency maximization—both that of individual operations and processes and that of tools and skills. A voluntary return to the craft economy is simply no longer possible, no matter how desirable that might be, for the main difference between a global *society* and a local *community* (Tönnies 1979) is that the economic dynamism of the former, much like an autopoietic system, develops behind the backs of those immediately affected by or involved in it. 'Globalization is taking place, that is a fact. The question is not whether one is for it or against it (…) The question is: How should we deal with it? How can we mitigate or eliminate its worst excesses?' (Pelinka 2005, 53). Ultimately, the goal will have to be to reduce each individual's working hours to a bearable minimum by sharing what little heteronomous (remunerative) work there still is among as many people as possible. This, however, would be possible only if the knowledge required for production were implemented in the manufacturing technologies themselves so that the skills required for each type of (remunerative) work could be acquired relatively quickly by any and hence every individual.

The socio-historical process by which global society is constituted—a process that is driven above all by capital (Marx 1971, 354) and that is taking place on top of the technologization of nature and society—is

refashioning the social character of those who perform remunerative work. The 'employee' type still so familiar to us from the Fordist phase of societal (re-)production is rapidly being displaced by the 'contractor'. The salient characteristics of this contractor are as follows: (a) He/She has much more control over his/her working and hence living conditions, (b) is much better at deriving economic benefit from his/her work and competences (greater economization) and (c) conducts his/her life as if it were a business enterprise. The 'worker-entrepreneur', as Voss (1998) describes this type, marks the most recent development in a socio-historical process that has given us three basic types of worker, namely the 'proletarian labourer of the early days of industrialization', the 'specialized mass employee of the Fordist era', and now the 'incorporated individual as the worker-entrepreneur of the post-Fordist era'. Typical of this worker-entrepreneur is his/her 'double economization of the self', meaning (a) an orientation to abstract market requirements (the *individual market economy*) and (b) the active use of individual competences (*individual production economy*). Instead of excluding certain aspects of the personality, as was typical both of the proletarian labourer and the specialized mass employee, (cf. Bammé et al. 1976), the worker-entrepreneur has to cultivate and commit his/her whole personality to the work process. The competences demanded of him/her are therefore (a) specific to him/her as an individual, (b) can be individually steered, (c) affect his/her entire life both diachronously and synchronously, (d) have a direct bearing on daily life, (e) draw on deep layers of the personality that in socio-historical terms have been by and large neglected in the past. Yet these deep layers are essential if the individual is to meet the *six basic requirements* of post-Fordist work, namely (a) the more flexible expenditure of time, (b) the dissolution of rigid spatial structures, (c) the dilution of society's regulatory structures, (d) the active, ongoing pursuit of professional skills and competences, (e) the need for self-motivation, (f) the individual provision of whichever technical means of production are required, i.e. Internet etc. (Voss & Pongratz 1998, 140 ff.).

Of decisive importance here is the fact that it is no longer possible to differentiate between 'working time' and 'living time' as the two are beginning to merge together. Greater economization is causing what was once an organic way of life to mutate into an actively focused, 'systematic

organization of every aspect of life' that ultimately affects everything we do and draws on all our individual resources. How this happens and the extent to which it happens depends largely on the resources available, the competence and potential of the individual concerned, his/her capital, social networks and contacts, living space, technological resources, property and real estate and on the work put in by other people, whether they are spouses, partners, friends, relations or even paid employees. By organizing his/her daily life systematically, the worker-entrepreneur is basically transferring the entrepreneurial imperative from one area of activity to another and in doing so is turning the conduct of life itself into a 'business' whose success on the planned organization of all factors of production. The civilizing, educative function of capital that Marx described with such urgency can therefore be said to have entered a new socio-historical phase, albeit one that is fraught with contradictions.

Transgressive forms of work force people to consciously and actively organize their lives with a view to maximizing their efficiency, which in turn is now crucial to their survival. The conduct of daily life is becoming increasingly results-oriented. For some, it is an especially challenging task that every individual has to master (Jurczyk & Rerrich 1993), while for others it constitutes work (Behringer 1998; Voss 1991; project group 'Conduct of Daily Life' 1995). Voss (1998) describes the worker-entrepreneur's conduct of daily life as the '*situative* conduct of life'. Although this 'situative conduct of life', like the *traditional* and *strategic* conduct of life before it, does at least try to draw a distinction between professional and private, a lot of things are decided *ad hoc* in response to a given situation. Routines certainly exist, but they can be jettisoned at any time and are treated with great flexibility.

Voss is certainly aware of the ambivalence of such a way of life that is dependent on the available resources. If the professional and private conditions are favourable and if the persons affected have the competences needed to handle the constant intermingling of life and work, then a 'situative conduct of life' can offer considerable scope for creativity. The conduct of life can even become an '*ars vivendi*'—as Voss puts it—that in turn is expressive of an individual lifestyle. If such a 'situative conduct of life' does not succeed, however, whether because the professional and private conditions are poor or because the necessary competences are

lacking, then it could easily be displaced by 'deprived forms', one example of which would be those women who work part-time as and when they are needed and therefore have no control over their working hours. The intermingling of life and work that in the first case made for greater quality of life in the second case leads to an endless series of hectic, short-term coping strategies that aim no further than an overwhelming present. For of this, there can be no doubt, not even among educationists: 'The gulf between the (highly) educated and those who are less or poorly educated or even completely uneducated will continue to deepen: between the skilled and unskilled, the smart and the dumb, the mobile and the immobile, those who speak other languages and those who do not, the digitally literate and the digitally illiterate, those who have work and those who have none' (Dettling 1998, 6). As much as one might condemn the choice of words, there can be no disputing the essence of what is being said—at least not in the foreseeable future (Brand & Raza 2003; Glissmann & Peters 2001; Hirschfelder & Huber 2004; Konrad & Schumm 1999; Pickshaus et al. 2001; Schmidt 1999; Sennett 1998). When management gurus and sociologists agree that there is a need for better educated employees, the first thing we should be asking is whether this is meant descriptively or prescriptively. In other words, is this part of an empirical discourse concerning the situation as it is, or is it part of a semantic or even normative discourse concerning something that has yet to become reality? Facts, speculation and pipe dreams have an unfortunate tendency to get mixed up. And anyway, if the need for better educated employees really is descriptive, then which employees are we talking about? Surely not those who work in the sweat shops of China, Pakistan or Mali!

Similar assessments of the current transgressivity of working and living, albeit from a slightly different political angle, are to be found in the Italian and French discourse on this subject. Negri, Lazzarato and Virno (1998) argue that 'immaterial work', 'social cooperation' and 'non-representable autonomy' offer scope for a *multitude* (Hardt & Negri 2004) of antagonistic subjects to help shape the future of society. In line with the recent phenomenon of 'mass intellectualism', they use the term *operaio sociale* or 'societal worker' to describe these subjects. And if the

society to which they belong is a 'knowledge society', then what this means is that knowledge generally and scientific knowledge in particular are no longer confined exclusively to the privileged institutions created for this purpose, but instead have spread throughout society. More people than ever before now have a scientific education and are in possession of knowledge and skills that far exceed those required for most forms of remunerative work. At the same time, more and more of the knowledge that society has at its disposal is implemented and updated by machine. Knowledge generation, appropriation, application and dissemination are therefore becoming both more generalized and more individualized at the same time. Society is becoming increasingly scientized, i.e. reflective, while science is becoming increasingly societized, i.e. pragmatic.

Traditional academic science established itself over the centuries by excluding four aspects of practical knowledge, namely the oral, the specific, the local and the temporally limited. The current situation, therefore, can be characterized as a fourfold return—to the oral, the specific, the local and the temporally limited (Toulmin 1994, 60–69). Post-academic science, i.e. the 'general intellect', is becoming central to what Italian discourse calls the 'immaterialization of work'—even if this process is by no means exhausted by this. Politically decisive 'are rather the polymorphous forms of *lavoro autonomo*, the emergence of a type of intellectual worker who runs his/her own business, is involved in a constantly shifting process of exchange and in spatio-temporal networks in the throes of change' (Negri, Lazzarato & Virno 1998, 51 f.). The affinity to the arguments of Handy, Leadbeater and Voss is obvious. Immaterial, or rather virtual work such as is becoming increasingly characteristic of the post-Fordist phase of (re-)production is 'the result of synthesizing *know-how* that combines intellectual skills with a cultural or informational content with such craftsmanship as brings together creativity, imagination, technical expertise and manual skills; ultimately, it will also include the ability to make business decisions, to participate actively in society and to organize that form of social cooperation, of which the individual's own labours form a part. This immaterial work is constituted collectively; one could even say that it exists only in the form of networks or currents'. Production can no longer be equated with the factory. 'Immaterial production' is

located *in* society, is spatially dispersed and temporally unbound. Lazzarato in Negri et al. (1998) calls this 'the "basin of immaterial labour". It is here that we find the small and smallest units of production, in many cases consisting of just one person, which come into being and regroup in a seemingly *ad hoc* fashion depending on the needs of each project and may even exist only for the duration of such a project (…) meaning that as soon as the "job" has been done, the unit will dissolve back into those networks and currents that facilitated the capacity for (re)production and social expansion in the first place. Precarious employment, hyperexploitation, extreme mobility and hierarchical dependence are all typical features of this metropolitan-style immaterial work.' What makes this so remarkable, says Lazzarato, is 'that under the aforementioned conditions, it is becoming increasingly difficult to distinguish between free time and working time so that in a sense, living and working are beginning to coincide' (Negri, Lazzarato & Virno 1998, 46 f.). The dividing line between being on the job and off the job, between working and training, between private life and the *vita activa*, between being on standby and being at work are becoming increasingly blurred. Much like Moldaschl and Voss (2003), the Italians also interpret the metamorphosis that work is currently undergoing as a collective learning process: 'Workers are expected to become "active subjects" (…) the directive—and hence the slogan of Western societies—is therefore "be subjects". The top level equivalent of this is participatory management, the point of which is to constitute and control the process by which people "become subjects"' (Negri, Lazzarato & Virno 1998, 42). Our attention is drawn to the fact that this process is highly ambivalent in another sense too: 'Schumpeter's entrepreneur, who derives his legitimacy from his capacity for innovation, no longer has a leg to stand on. The capitalist entrepreneur produces neither the form nor the content of immaterial work, nor is he innovative. The only option open to him is prescriptive or regulatory intervention or the attempt to control at least technically the communication and information technologies required for immaterial work' (ibid., 63 f.).

A quantitative reduction in heteronomous (remunerative) work of necessity implies an expansion of the autonomous sphere. Both presuppose the uncoupling of work and income (cf. Büchele & Wohlgenannt 1985;

Opielka & Vobruba 1986; Vobruba 2000). 'If the creation of wealth is no longer dependent on human labour, then people will starve before the gates of paradise—unless, that is, we are able to respond to this new situation with a new incomes policy' (Leontief 1982). André Gorz (2000), meanwhile, feels that what really counts is that both areas, meaning the *heteronomous* as also the *autonomous*, are mutually compensatory. The possibilities for the development of individual creativity and community work opened up by the autonomous sector, he argues, will make people more resistant and hence better able to cope with the demands made of them by heteronomous (remunerative) work. Spending four hours a day on an activity the sole purpose of which is to obtain the financial means needed to secure one's own reproduction, but which in all other respects is devoid of meaning, is almost certainly easier to bear than having to sacrifice eight hours of potential quality time. On the other hand, the limits imposed by the heteronomous sphere on the build-up of emotional pressure and interpersonal tension that are the product of excessively integrated communities such as the (nuclear) family or similarly close-knit units allow each individual to break out of the strictures of such a community and so prevent it subsiding into autarchy and self-sufficiency. Being mutually compensatory, 'society' and 'community' could in fact prove beneficial to the psychological equilibrium and personal development of the people affected. Unilateral demands would no longer have to be met or suffered to excess.

Gorz, who has had such a formative influence on French discourse and to whom we owe the concept of the dual society, is basically concerned with enlarging the sphere of autonomous, self-governed, non-commercial and self-determined activity (cf. also Bammé et al. 1982 and more recently Bergmann 2004 and Semler 1996). To put it in a nutshell, he would like to see more community in society (Opielka 2004). There is more to his argument than just that, however. What we are talking about here is the constitution of tomorrow's society and the rediscovery of the political. The term *life politics* describes this new phase of the political: 'Life politics centres on the problem: how shall we live after the end of nature and the end of tradition?' (Giddens 1994, 246). The term rests on a very broad definition of politics. It refers not so much to political institutions in the conventional sense—meaning the state, political parties and other

organized bodies—but rather to all such forms of decision-making as seek to reconcile conflicting values and interests. It follows that even private lifestyle decisions are political (Berger 1995, 448).

'Nature' and 'tradition' have both lost their automatic claim to truth—and not just at the 'rarefied level of philosophical reflection', but in the everyday life of society too. Decisions have to be made, lifestyles have to be consciously chosen, identities knowingly forged or consciously moulded (Giddens 1987; Hildebrandt 2000). The question: 'How should we live in future?' is a question that not just society as a whole, but each and every individual has to answer. Existential questions about life, disease, death and individual identity can no longer be referred to experts and banished from everyday life. Active participation in political decision-making processes, however, presupposes an understanding of the issues, spare time, economic independence, and interest as well—preconditions that the average member of society is far from meeting. Committing time to further training and personal development (not so much for the sake of the heteronomous work for which we are directly responsible as to be actively involved in society), ongoing exemption from remunerative work, the redistribution of the wealth society itself generates—all these things will become unavoidable.

As industrial work processes become increasingly transgressive and diffused throughout the environment and as this, in turn, causes work to extend 'deep inside the individual', covering 'the full breadth of daily life' and 'the full scope of the individual's biography', so education and training will in future have to embrace more of the learner's everyday experience and become more diffused throughout society (Schlutz 2002). They will have to break out of their historically founded, institutional frameworks and restructure locally so as to be both highly specific and to a large extent individualized. Including more of the real world and more learning by doing in the existing system of education will not be enough. The relevant learning processes will also have to be outsourced and tailored to the biographical requirements and personality of the individual. A 'multiple system consisting of a wide variety of learning locations and learning methods' would have to provide scope for self-defined, self-directed and self-organized learning and would have to facilitate those learning

processes whose objectives and methods are based on actual practice and which are designed for lifelong learning. The claims of individual education theories, it seems, will have to be retracted at least to the extent that the traditional, subject-oriented premise of intentional learning is faltering as the flow of events in daily life infiltrates human consciousness and intentions and in doing so tips them off balance (Giddens 1987, 86 ff.). These days, it is not just machines that possess intelligence (D'Avis 1994); the talk is increasingly of 'learning organizations' (Argyris & Schön 1999; Sattelberger 1991; Senge 2001). Clearly, what we are dealing with here is the transgressivity of traditional learning processes and with them the terminology allocated to them—and that in several different respects and at several different levels: (a) the transgressivity of content: abstract, systematic knowledge is replacing or rather supplementing age-specific experience (scientization), (b) physical transgressivity: learning is no longer peculiar to humans in all their myriad individuality, but is something machines can do too (artificial intelligence), (c) temporal transgressivity: relying on the rise of the younger generation as a transfer mechanism for the communication of knowledge is now obsolete (lifelong learning), (d) spatial transgressivity: learning is now something that can be done anywhere (distance learning), (e) institutional transgressivity: learning can be informal and 'on the side' (home teaching and hidden curriculum), (f) professional transgressivity: qualified teachers are no longer the only ones who are responsible for learning; these days, they are joined by management consultants, journalists, organizational sociologists and mediators (i.e. a wide range of experts), (g) terminological transgressivity: individuals are not the only ones who can 'learn'; groups and organizations can as well (learning organizations), (h) functional transgressivity: in addition to classical knowledge acquisition, there are various other functions that have to be addressed in the daily process of identity creation (the modification of conduct, identity construction), (i) nation-state transgressivity: the global spread and standardization of educational qualifications, quality assurance and accreditation procedures will eventually permit cross-cultural comparisons (an audit culture).

The transgressivity problem has two implications on very different levels: (a) In what is fast becoming a truly global society, it is only a matter

of time before we will see the 'global institutionalization of education (…) with more cross-border homogeneity than one would assume to exist, given the sheer variety of nations and cultures there are' (Meyer & Ramirez 2005, 221; as also Redeker 2005). The standardization brought about by surveys on an international scale—such as the PISA comparison of primary and secondary schooling worldwide—is greatly adding to the pressure to homogenize exerted by international organizations such as UNESCO and hence to the delegitimization of national practices. Meyer in Meyer and Ramirez (2005) discusses this in his world culture analyses ('world polity'). (b) Responsibility for the content and success of learning processes is at the same time becoming increasingly individualized—in other words, delegated to those immediately affected or involved. This aspect owes its didactic profile to the concept of self-directed learning: The idea is that self-directed learners should develop their own competence profile and acquire the knowledge they need to tackle the problems they themselves are facing. Open communities of learners, learning networks and *e-learning* are among the many new forms of access the knowledge society has at its disposal and hence will become increasingly important in future—and not just to work, but to life as well (Bammé 2004, 155 ff.). That the concept of self-directed learning is currently enjoying such extraordinary popularity is almost certainly attributable to institutional causes as well. Not only does it have the backing of UNESCO, but it also has the support both of the long-term 'Concerted Action for Further Training' initiated by the German Ministry of Education and Research and an initiative by the Lisbon European Council of March 2000.

When educationists argue that the dualistic distinction between the utilitarian concept of training and the humanistic concept of education is obsolete (Arnold 1994; 1995; 1997; Arnold & Gieseke 1999; Brater et al. 1988), they often cite the results of empirical studies in industrial sociology in support of their claim. Kern and Schumann (1984), for example, reported that the use of modern information and communication technologies in production would result in more intricately structured and hence more humane jobs with greater scope for individual decision-making. Such jobs would in turn require more creativity, imagination and commitment on the part of the employee (cf. also Baethge 1999; Beckenbach &

Treeck 1994 on this point). What this implies for education is that the teaching of key qualifications and core competences now deemed so essential could in fact bring about the reconciliation of the humanist tradition of education and economic utilitarianism. Far from being a pipe dream on the part of idealistic educationists, therefore, the end of this long-standing dichotomy would rather be a direct response to what the economy itself demands.

I, too, am among those who presume that we are about to see a transgressivity of these two aspects coupled with an increase in the importance attached to competences of a general nature in which the two are combined —and not because this is what the capitalist production process requires, but because the importance of this process itself is being relativized. Something else is now becoming even more important, something that is described with terms such as 'life politics', 'the reinvention of the political' or 'remoulding society'. The requirements one has to meet simply in order to be recruited are often much more exacting than those needed to perform the job in question (Holzapfel 2005). It is the 'self-organization of heteronomous work' (Wolf 1999) and the personal skills required to reconcile autonomy and heteronomy rather than the productive activity itself that are likely to make the most demands of the persons affected (Brand & Raza 2003; Glissmann & Peters 2001; Hirschfelder & Huber 2004; Konrad & Schumm 1999; Pickshaus et al. 2001; Schmidt 1999; Sennett 1998). The literature likes to describe these competences as key qualifications or core competences. What we are talking about here is (a) professional competence, (b) methodological competence, (c) individual and personal competence, and (d) social and emotional competence (Bammé 2004, 149–173). Despite all this key qualification rhetoric, the fact is that in many areas of production, simple qualifications geared to the task in hand continue to dominate. Not even computers require 'new' and more holistic types of activity as a rule. On the contrary, here, as elsewhere, most of the work required is routine work such as the keying in of data (Gruber 2001, 163). 'Most state-of-the-art management and organizational structures (work processes) consistently aim (…) to be independent of the individual characteristics of the person who implements them' (Berka & Hochgerner 1994, 8). Most of those who work in such

jobs therefore experience them as 'systematically unchallenging, technically and linguistically impoverished activities. (...) There are usually operational reasons, especially in strongly hierarchical structures, for keeping the requirements of certain jobs at a consistently low level in hopes that this will prevent any problems arising in the first place' (Kutscha 1992, 6). It is not by chance that the satirical analyses of Scott Adams (1999) and Corinne Maier (2005), both of whom are so adept at poking fun at many an illusion of the relevant management literature, have proved so popular and sell so well.

Even those studies in industrial sociology that supposedly prove the need for higher qualifications do not disprove any of this. Most of them are based on carefully selected industries, certain advanced technologies and the industrial landscapes of Central Europe, which are still structured and protected along the lines of the nation state. As globalization gathers momentum, it is becoming increasingly difficult to extrapolate generalizations on the basis of research results obtained in this way (Castells 2001; Guillén 2001; Hardt & Negri 2002; Wobbe 2000). And why should cars *partout* be produced in Wolfsburg or Graz when it would be much cheaper to manufacture them in Cochabamba or Timbuktu? In this respect, Luhmann is undoubtedly right. To be able to make sense of globalization and the various phenomena to which it has given rise, the reference category 'global society' should be defined as a global system now affecting all social systems and characterized by the gradual disappearance of territorial frontiers and communicative limitations (Luhmann 1975, 51 ff.). Ultimately, it is this system that is responsible for the nation-state transgressivity of traditional learning processes (cf. Meyer & Ramirez 2005, 212–234).

Contrary to the usual key qualifications rhetoric, one of the main purposes of which is to underscore the necessity of improving education and training in line with the ever more exacting demands of production, Weingart (1976) attributes the acceptance of lifelong learning in large parts of the population to two completely different sets of motives. One of these is the spread of job dissatisfaction in what have traditionally been viewed as the more pleasant professions, extending even as far as management. This dissatisfaction can in turn be traced back to two needs that are not being met as a rule—namely to the individual's desire to

shape his/her immediate environment and secondly to the wish that his/her own work may be important enough to make a difference. What is evident here is a desire for greater individual autonomy at work or, to put it another way, for more opportunities for self-fulfilment, which many people, irrespective of their status in the hierarchy, try to satisfy through further training or personal development. The second, and far more important, set of motives rests on the realization of just how important and universally applicable knowledge is, the value attached to knowledge generally and demand that this knowledge be shared. This, far more general change in awareness, which is no longer directly tied to the individual's immediate job prospects, may be the result of an enlightenment process that began with the debunking of the perception of talent as genetically determined. Biographical factors such as gender, social class, education, professional status, opportunities for political involvement and role-specific allocations of function are no longer regarded as a result of fate and therefore immutable. They are rather understood to be socially determined and hence subject to change. Professional expectations that in the past were at best reserved for the next generation can now form part of the individual's own future prospects. Greater participation in public life, phenomena such as grassroots initiatives and *non-governmental organizations* (NGOs) all point in the same direction. Underlying them all is the awareness that social structures, social conditions and changes in the same can be understood and, through the acquisition of the relevant expertise, competences and skills, ultimately mastered and even shaped to our liking (Weingart 1976, 224 f.).

Neither critical analysis, nor emphatic commitment can therefore release education from its obligation to enable its 'clientele' to live and survive in contemporary society. Not only must it resist the imperialism of the *excessive* utilitarianism spawned by unbridled capitalism, but it must also guard against the other, no less perilous extreme, namely the *Utopian* ideologems of the pathetic-platonic realm of ideas posited by the humanities ('Humaniora').

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