Social and Societal Aspects of the Information Society

Theme IV: IS, Education and Training

The following document deals with the general issue of social and societal aspects of the information society, as an introduction, concentrating on the theme 4 as the main focus.

According to the mandate of the Group, we shall limit our analysis, comments and recommendations to the geographical context of the European Union. This does not mean that we consider Europe as an isolated entity; however, its current situation and interests are different, even if closely related, from those of its major competitors in North America and in the Pacific Rim and also from those of the developing nations in the world, calling for different strategies and policies.

1. Background

1. The Information Society (IS) can be defined as the social area wherein day-to-day life is strongly influenced by information and communication technologies (ICT). This can be taken also as the geographical or geopolitical region wherein these technological effects are strongly felt. Finally, the expression can be taken *strictu sensu,* involving only persons or groups which professional activities are closely linked with the design, development and operation of systems mainly constituted by, or dependent on, these technologies.

2. According to the main objectives of the Working Group, *persons* rather than the physical space on material systems should be the focal point of its attention: not only those providing the facilities or the specialised knowledge but also the current users who get the full benefit of these technologies and, perhaps on an equal footing, persons who do not have economic, social and cultural conditions of access to those benefits. For the sake of

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brevity we shall name **providers** those persons belonging to the first group and **users** those included in the second one. The last ones will be designated as the **excluded** from the Information Society.

3. From another point of view, we shall consider that the IS is not yet fully developed, due mainly to the fact that the related technologies (as powerful as they already are) have not yet achieved the one necessary step beyond globalisation: and this is *trivialisation*. Objects and services only become trivial when their users have forgotten the first time they have actually used the facility and wonder how could they have managed to pass without it.

4. It is a huge task for the providers to trivialise the use of new terminal equipments, networks products and services: they have to invent for them new fields of application and usefulness, in order to attract and captivate the interest of potential users, while showing a determined effort to lower prices as much as possible. Aggressive marketing is a way to do this, while keeping in view the fact that, for an avalanche effect to take place on the demand side of the market, a minimum critical threshold of enthusiastic users has to be reached.

5. Networking within a space as large as possible is another obvious mechanism for trivialisation; networks, however, require full compatibility of standards, high speed and an ever-growing traffic capacity, so that they can cope with an exponential multiplication of users and of occupation times. The "electronic superhighways" aim at satisfying these requirements, at least for some years.

6. Once they are available, everywhere, for institutional as well as for individual users, new applications will become, not only possible, but trivial: multimedia person-to-person or group communication, irrespective of distance; fully interactive entertainment and news; home-based interaction with all kinds of organisations and individuals, for business as well as for civic and social life; telework; education and training at home or elsewhere, this being included within the scope of operation of the new cultural industries.

7. The pervasiveness of the ICT will reach all sectors of public and private productive activity, as well as all citizens' everyday life. New profiles of activity and of qualification will be required, thus absorbing the better trained strata of the active population and also those who can be re-trained for new professional profiles. With the technological explosion, increasing numbers of qualified manpower will become a part of the *providers*; the remaining will either adjust in order to be current *users* or will become *excluded* from the I.S.

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8. Endemic unemployment will be the major source of this exclusion. International competitiveness will impose capital-intensive (and also knowledge-intensive), rather than manpower-intensive approaches for most productive activities, thus leaving out of a job the less qualified. On the other hand, even the better trained may find that their field of qualification is no longer needed in the geographical area wherein they live, their typical sector of activity having become non viable under local market conditions. This may be aggravated even more by the import, through telework, of cheaper (even if very well qualified) manpower from abroad.

9. A possible answer for the dilemma stems from the fact that all knowledge-intensive activities have a large added value, contributing to create more wealth in the nations, despite the sharp contraction of their active populations. Instead of increasing the burden (already immense) of national social security systems by paying a huge number of unemployment subsidies, other types of jobs need to be created by the State. Considered for their intrinsic social value rather than for their economic interest, these jobs aim at providing help and support to children, to the old, the sick and the handicapped, on a person-to-person basis, as a humanitarian response to an increasing situation of neglect (CCE, 1995).

10. Another structural response to unemployment is to assure, not only a better education and initial training to the younger classes of age, but also that the whole active population be provided with frequent opportunities for acquiring updated, upgraded, broader or re-converted qualifications. This will decrease the probability of redundancy and, should it happen, will provide better chances of getting a new job. Most of all, re-training also upgrades the flexibility and adjustability of the workforce in general and the added value of each worker in particular, for the enterprise and for the individual.

11. Exclusion from the IS may stem from causes other than unemployment: lack of access to networks or terminal equipment due to geographical remoteness or local weakness of technological infrastructures; lack of adequate financial capacity; lack of awareness or motivation. This applies both to organizations and individuals.

12. A petition of principle may also occur: lack of opportunities of access to ICT may cause computer illiteracy and this prevents the individual to take advantage of new opportunities eventually to come. A poor education may be the main cause for these difficulties; but perhaps the major handicap for individuals is a question of having the wrong attitude towards technology. In regions where ICT are currently available, potential users may belong to the two extreme categories of the *technophile* and the *technophobe*

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(Y. Lasfargue, 1995), the latter being militantly opposed to the idea of ever becoming a user. Technophobes come mostly from generations older than the onset of ICT and may never fully adjust to them.

13. One of the biggest challenges for the society of information (besides devising how to cope with the excluded) is, in brief, how to provide education and training, for all, everywhere, at all times.

2. The General Educational Context

2.1. Systems and Organisations

14. Educational systems are mostly designed to take care of education before adulthood, during the infant stage, past puberty and well into adolescence. They aim at transferring knowledge, skills, memories and experiences from the adult to the non-adult new generations, in order to provide them with the capacities and attitudes necessary, when adulthood is reached, to play the many-faceted social roles required by societies they belong to.

15. In this context, we choose to consider arbitrarily 18 years of age as a possible reference for the beginning of adulthood, as it happens in most societies. As typical consequences of this coming of age, this is frequently considered as the threshold for acquiring full citizenship; to vote in national elections; to be considered fully responsible in a civil or criminal lawsuit; no longer to be considered a minor and to be past the age of consent: to join an army; and, of course, to be able to constitute a new family, to father or to conceive children and to become an independent, productive entity.

16. When educational structures are instituted as formal school systems, it is common enough to consider within them, the Basic (or primary) Education stream or sub-system, frequently of compulsory attendance and designed to provide the common educational background judged to be necessary to every future citizen in a given society. Secondary Education is a complementary stage, subsequent to the first level, and frequently branching into different curricula, each one aiming at a definite broad area of knowledge, skill or competence, as pre-requisite for different professions, activities, or further studies. Previous to basic education and operating generally at a much more informal level, pre-school education (or "kindergarten") may be an intrinsic part of an educational system, or exist independently due to State, local, or private initiative.

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17. On purpose, and in purely conceptual terms, we did not include higher education, as well as any other forms of adult education or training, within the present definition of educational system. This is due to our belief that primary and secondary education will keep for a long time their present objectives, target populations and generic organisation, for they address basic, structural and long-term knowledge and culture, characteristic of the societies they serve. Contrariwise, any form of education and training aimed at different strata of the adult population (including the higher education system) needs to take into account short-term evolution, mutation, circumstance and pragmatic priorities within a given society in order to assure, at all times, its social eunomy and economic viability; hence, it is dangerous to mix together the corresponding need for permanent adaptation with the indispensable stability required by the educational systems in general. This is the reason why, in many countries, tertiary education belongs to a ministerial portfolio different from that dealing with primary and secondary education; also, why Governments have a tendency to control tightly the objectives, the curricula and the operation of primary and secondary schools, while awarding a much higher degree of autonomy to institutions and organisations dealing with tertiary education.

2.2 Permanent Educational Needs

18. When reaching adulthood, young persons may have behind them different educational backgrounds and experiences, according to specific characteristics of the educational system in their countries, but also as the result of opportunities taken or missed, as well as options taken by themselves, or by their families. Reaching 18, some of them may have followed a continuous and successful educational path leading to higher education and may now have been granted access to it, and to an academic programme of their choice. A number of years later, they may obtain a certificate, a diploma or a degree, certifying the possession of a high-level qualification, hopefully leading to a successful entry into a fitting niche in the labour market.

19. Some other persons of the same age may have been less favoured, either due to structural weakness or inadequacies of the educational system or to some unfortunate circumstances preventing them to pursue a continuing sequence of studies. At 18, they may have received some basic training and, through it, many among them have already entered the labour market and have a profession or activity providing some degree of economic

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sustenance, enabling them to become an autonomous productive entities; others may have had access only to some unqualified work, or still be looking for it.

20. Many individuals, however, may have been much less fortunate, not having been able to acquire any kind of skill or competence enabling them to obtain employment or to demonstrate any sort of social utility; they may be lacking even the more basic understanding or knowledge necessary to be a self-determined member of the society and becoming, for this same reason, a burden to it.

21. Whatever the case, we believe that the economic survival and progress of societies is closely linked to their ability to provide employment, or self-sustaining activity, to all members of their active population; this requires that education and training will be available to all of them, so that the sum of added-values individually produced would reach a comfortable level. This means that, when basic needs have been assured, surplus wealth would be available to increase the general level of well-being and to improve the quality of life in each particular society.

22. The main enemy to this positive situation is endemic unemployment, and this is a plague both for developed and developing countries; although due to different reasons, both may be deep-rooted in the inability of the corresponding manpower to fit, at all moments, into the actual or the potential needs of the local labour market, more and more influenced by exogenous conditions. Globalisation of trade, goods, information and manpower has a tendency to increase the pace of evolution and innovation in technologies, in methodologies and in international and interpersonal relations; this means that professional knowledge, skills and competencies will have to keep abreast of the new needs of a changing world, under risk of qualifications becoming obsolete and loosing their social usefulness and value.

23. Mobility of persons, as well as of ideas, also have the consequence of interfering with the fabric of society itself, creating new types of relationship, duties and obligations, rights or privileges, both among individuals and organisations - all this having the net result of changing day-to-day life. For individuals to be able to play the many-featured social roles needed in this new context, a continuing, lifelong education for all has become a basic necessity for the society to maintain its basic social and cultural equilibrium and long-term stability, despite the accelerating rhythm of change.

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24. These are the main challenges of the decades or centuries to come; and the only way to cope with them is to devise new ways of generalising access to initial, as well as to continuing education and training, for the whole population of a country or region; also, to make sure that learning strategies will become more efficient, more flexible, more quick to produce the desired outcome. Having this in mind, we propose to elaborate on the concept of open and distance learning, as particularly suitable to the education and training of adults in the new century and millennium to come, in three different contexts: higher education; continuing education and training; adult education.

25. This does not mean that independent learning methodologies are not suitable for non-adult populations. Even taking into account that classrooms and teachers are, generally speaking, necessary parts of the process of socialisation that takes place inside the school, there is a need to increase the autonomy of students in what respects their learning processes, providing opportunities for the individual initiative to become as fully developed as possible. Libraries, computer rooms, audio and video facilities, as well as the suitable learning materials for their use, provide the above-mentioned opportunities, on the condition that teachers encourage their free and frequent use by the students and provide the appropriate pedagogic support to these self-directed activities. One may push this argument a step further, by acknowledging the positive results yielded by some quite recent experiences of application of distance education methodologies to very young students working in a pure self-learning mode. However unconventional, this learning regime, made necessary by the scarcity of schools or the unavailability of teachers in remote and isolated areas, has produced good results, thus opening a whole new field of educational opportunities (Tate, 1994).

3. The General Concept of Independent Learning

3.1. Related Concepts

26. When dealing with the parent concepts of distance education, open and flexible learning and related issues, one is led to a teaching/learning methodology that is based on the capacity of individuals to increase their autonomy as compared to that in a conventional classroom situation, through their i**ndependent** access to suitable learning materials, possibly presented in multimedia format; this is called distance learning. "Independent" not being taken here as an absolute condition, different forms of interaction, within the teaching/training system, with tutors and counsellors and with other learners, in face-to-face meetings

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or through telecommunication conferences, should provide the adequate environment for productive and efficient learning. Open Universities, Open Learning Institutes and Training Agencies, Distance Education Networks and Distance Education Schools, in operation in different parts of the world, provide convenient paradigms of successful use of distance learning methodologies, possessing altogether a high level of conceptual homogeneity, despite the specific designations each one of them have adopted. We believe that, with more than two decades of experience in the operation of distance education systems of very credible status in terms of recognised quality of performances, we can afford to unify designations for the sake of simplicity, even with some necessary loss of accuracy and coherence.

27. It is a well-known fact that the foundation of the pioneer British Open University was aiming at the deep-rooted goal of democratising higher education, making it available, not only to the largest possible number of users, but also to those lacking the formal academic qualifications normally required to attend higher education institutions. «Openness» meant, in the founders' mind, the attitude of breaking down any barriers which normally limit access to higher education, either in terms of the requirement of previous qualifications or the current imposition for students to attend classes at given times and precise locations - and thus introducing the concept of "flexibility in respect to space and time". Other distance education universities created just after this successful initiative, like for instance the Spanish Universidad Nacional de Educación a Distancia and the German FernUniversität, did not adopt the «Open» designation in their names (although operating fully in a distance education mode, as is implied in their identifications), for their respective national laws were incompatible with the waiving of full secondary education qualifications for entrance in a public university. More recent universities use the word «open» in their names, even if their «openness» (in terms of lack of entrance requirements) is of a variable degree: such are the Dutch Open Universiteit, the Universidade Aberta of Portugal, in the European Union, among many others in the world.

28. In the United Kingdom and other countries another kind of institutions or special programmes, mainly dedicated to training, have adopted the word Open in their designations, e.g. Open Tech, Open College, Open Learning Foundation, etc. However, we believe that «Openness» in these contexts is more related to flexibility of operation and the adoption of a student-centred learning methodology, than to the waiving of any entrance requirements, as this is slightly irrelevant for the kind of organisations involved.

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29. Another not less polemical dichotomy is taking shape, as far as designations are concerned, rooted in the underlying intent of appealing to the more fashionable technologies that might be used in distance education: instead of just mentioning «educational technologies» or «multimedia technologies» where they apply as tools for facilitating or enhancing learning, there is an increasing tendency to qualify these facilities with the addition of qualifying words like «new», «modern», «advanced», etc.. From our point of view, this is not negative in itself, for it is expected that innovations in technology should have a positive impact in all processes that relate to improving the communication capacity between agents and users of education; but it should not be stated, or implied, that the newer technologies (like satellite broadcasting, interactive compact disk, hypermedia, computer conferencing, etc.) have made obsolete and old-fashioned the written materials and the audio and video terrestrial broadcasting or cassette recordings, whose usefulness is far from being exhausted in the distance education field.

30. Other dichotomies of designation are nowadays of considerable less relevance than they had some years ago: using «learning» instead of «teaching» is conceptually right in putting the accent in the user, instead of in the provider of education; but this is no longer a hot subject of discussion between educationalists, most of them having taken for granted a student-centred philosophy. Using either «education» or «training» according to a given precise context is still relevant in dealing with the initial part of these general processes; but they lose contrast when one organisation is acting in the fields of recurrent education or in-service training; or in the cases of eclectic institutions dealing with a large-spectrum panoply of educational services and activities.

31. We have a feeling, nevertheless, that a number of peculiarities we find in the designations of some distance teaching systems and organisations may have purely sentimental or historical reasons; while some of the newly-adopted ones may have been chosen for reasons of current fashion or political appeal, or just to increase the apparent market value of the services they offer.

32. We may add, as a final remark, that if some of these designations are quite clear in some languages, in terms of their semantic content, they do not translate well into other languages; thus, the need for some international (multilingual) consensus as to the adoption of an inclusive, all-purpose designation, even if we have to disregard strict accuracy in favour of universality and simplicity. For these reasons, we shall take as roughly equivalent, throughout this document, the expressions "distance education and training" and "open and distance learning".

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3.2 The New Actors in the Educational Field

33. Cinema, radio, television, the press and publishing in general are conventional services provided to the public under the generic heading of "cultural services"; but one can include in these the activity of museums, the organisation of travel and many other leisure activities like organised trips and visits, debates, conferences, exhibitions, etc. The corresponding products include books, revues, newspapers, software, cassettes, slides, kits and so on, besides all the corresponding hardware; equipments and products may be bought, leased or maybe just used once and then thrown away. The so-called cultural industries support the existence of all these services and products and are consistently growing in size and in power, almost everywhere in the world, and in many cases becoming multi-national enterprises.

34. We believe that education and training, in whatever shapes they may assume (formal and informal; initial or continuing; general or specialised) will be absorbed into the generic cultural industries, not only by reason of coincidence of the shape and nature of materials produced and of the ways used for their dissemination, but mostly due to the fact that education and training represent a huge market of potential users willing to pay for the added value they need to integrate in their lives.

35. Stiff competition will set between these industries and the institutions (many of them integrated in national, public systems) which used to consider education, or training, as their monopoly within a given country. Although protectionist measures may be able to prolong the life and the activity of these institutions for a long time, the existing tendency for the opening of this field to the private initiative in many regions of the world and even the possibility of privatisation of public educational systems will increase their vulnerability to be taken over by the generic cultural industries.

36. A reverse solution has been tried in some countries, by the State taking the initiative of launching and operating a "national" industry of culture, thus preventing being kept aside from any other decision power in this field. The risks of this solution are of budgetary order and lay in the difference of priorities that this field presents, from the point of view of the taxpayer, when compared to sectors related to satisfying the more basic needs of the population, like health, employment and housing.

37. There is a clear risk of these "new cultural industries" becoming the monopoly of global communication networks, possibly of non-European origin. Internet may be considered as such an experiment in global communications, both individual and institutional, and its

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"almost free" access may turn, in due time, to a "pay-toll" regime designed to make it a huge profit-making mechanism, taking into account its unquestionable utility.

38. Within such an "Internet-like" environment, *users* and *providers* of information will have their frontiers more clearly defined in the future, the latter being more likely to act under licence, or as sub-contractors from the network owners, and the former being charged for all kinds of service they receive, be it entertainment, structural information, cultural services or education and training services and products – or just person-to-person communication.

39. Consequences of these new cultural industries in the field of education and training will be dealt with in separate sections, according to their specific natures.

4. The Field of Higher Education

40. Democratisation of the access to higher education, which has been achieved in various degrees in a number of countries and which is still a significant priority for many regions of the world, has led to the considerable expansion of existing conventional higher education institutions, together with the creation of many new ones of the same nature. A different approach to the same desideratum led to the onset of a new type of institution, designed to take care of large number of students not required to attend conventional lectures in classrooms, along the academic year, and using instead *distance education methodologies*. The corresponding operational mode has been pioneered by the British Open University since the early 70's; similar "single-mode" institutions have been created since that time in many countries of the world.

41. Another tendency has been observed, in different countries, to try to improve the social response and to increase the quantitative output of conventional universities by their providing access, besides regular students, to large numbers of extra-mural students and by teaching them through distance learning methodologies. These "dual-mode" institutions (using conventional classroom approach for some students and distance education methods, supported by telecommunications and information technologies for the others), represent a half-way approach to the question of massification of students, as compared both to the pure presential universities and the "single mode", Open University-type approach acting fully in a distance education regime.

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42. We believe that a further convergence of the two conceptually-distinct types of institution - the purely conventional and the dedicated distance education ones - will lead to a more hybrid type of methodology, based on the postulate that the pure "independent learning" mode will be used for those subjects, courses and parts of courses, for which such an approach provides good enough learning efficiency; while the remaining courses will be dealt with in more conventional ways - and this for the whole population of the students, without distinction. This "mixed-mode" operation will become the common paradigm, we believe, for both old and new higher education institutions, in the years to come.

43. There are many reasons for this evolution, related to a relative loss of the educational priority that have been given, since immemorial times, to universities as national institutions assigned to the task of creating and diffusing advanced knowledge. The former elitist point of view of providing top-level education to a few chosen has been changed into a "democratic" perspective, aiming at extending the benefits of higher education to whoever wants to take it - and this means providing, not only basic but also secondary education to the whole population of young people. This means a shift in priorities of State budgets from higher to general and technical secondary education. Furthermore, while in the past, State-supported universities only had to cope with very limited numbers of students paying modest tuition fees, or no fee at all, in the present most governments are becoming unable to support this burden when student populations increase manifold, thus having to increase tuition fees closer to the level of actual costs. In this way, the conceptual distinction between public and private universities becomes less and less obvious.

44. The second reason relates to the situation of quasi-monopoly that higher education institutions (and, in more remote times, only the public ones) had, in respect to the power of awarding accreditations to their students: certificates, diplomas and academic degrees were taken at face value by employers, both public and private, opening the doors to the work market. This is no longer the case in many regions of the world, wherein enterprises, as well as the public sector, have a growing tendency to distrust academic accreditation, possibly due to the unequal credibility of a large number of awarding institutions. The observation of current practices shows employers submitting candidates to procedures of "ad-hoc" examinations, irrespective of type of degrees presented; enterprises postulating a period of in-service intensive training, subsequent to admission of new staff; even the creation of an autonomous infrastructure of higher education and training within the enterprise itself.

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45. Another important question relates to the relevance of higher education programmes: the specific needs of the marketplace in terms of new qualification profiles tend to move faster than higher education institutions can adapt to it by creating new curricula, objectives and output profiles. In this context, enterprises have a tendency to underrate the more basic academic diplomas, which seldom fit exactly the qualification profile they require.

46. Duration of degree programmes may also become an important issue for countries where university tradition imposes many years of studies to obtain each of the different levels of qualification in higher education. The general tendency seems now to be a convergence towards the Anglo-Saxon format, with short duration steps leading from bachelor, to master, to doctoral studies, while students are still in their early twenties.

47. Given the above trends – clearly visible in the more developed countries – the long-term survival of universities, in this context of massification of students, of shrinking budgets and of relative devaluation of diplomas, may lead them to search for new ways of increasing their productivity – while keeping adequate standards of quality – so as to be able to face competition from a non-institutional private sector of higher education. The answer may be the forced adoption of a mixed-mode regime of operation by most universities, combining conventional and distance education methodologies, thus being able to expand their capacity without a proportional increase of their operation costs.

48. Another possible solution to cope with these general trends may lead to universities giving more attention to the non-higher education sector, as they did in a very remote past when the *Universitas* was the generalised source of all knowledge within its sphere of influence. To support this argument we should look into the present panorama of needs in the fields of vocational training and continuing education, where universities might be motivated to intervene in a more systematic way.

49. A complementary approach requires the creation of new "niches" of activity and social usefulness for universities. One of them is to focus their priorities on the advanced training of top-level specialists and scientists, of which modern societies will have an increasing need. Another one requires a shift of emphasis from diffusing knowledge (which is the essence of the activity of teaching) to the actual **creation** of new knowledge through the reinforcement of research activities, followed by a systematic effort of **authoring** new learning materials, to be introduced as high-quality products in the generalised cultural market of the future.

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5. Continuing Education and Training

5.1. The Instability of Jobs

50. Some time after leaving school, young persons face the critical process of entering the labour market. Initial training opportunities may have been available to them, thereby providing a certain amount of immediate added-value to the potential employer or prospective client. Working experience, as well as organised on-the-job training, will provide increasing levels of qualification, leading ultimately to a well-defined professional profile. This is not, however, a permanent asset, contrary to what happened trivially one hundred years ago, when professions where life-long and even transmitted as inheritance from father to son, and jobs were secure enough to last for a whole active life.

51. One of the major consequences of the globalisation of trade, businesses and financial operations has been to increase the instability of local markets, due to the effects of international competition: raw materials may become obsolete, or too expensive, or of negligible value to be exported; products may lose their usefulness due to the creation of new, more attractive or less expensive ones; whole industries and enterprises may become non-viable, due to a number of reasons, among which their inability to adjust to fluctuations of demand, to increase productivity in order to face competition, or to cope with changing conditions regarding the cost of production factors. The instability of the productive sector leads to the same kind of consequences in the labour market: jobs are becoming less stable, and professional profiles may lose their usefulness due to de-qualification induced by changing technologies and work processes, or simply due to the decline of an economic segment of activity. Thus, most professional profiles will be increasingly subject to quick change, due to the accelerating pace of innovation affecting technologies, materials, methodologies and the structure and fabric of societies themselves.

52. In order to face and to succeed in the individual and collective struggle against unemployment due to the erosion or loss of market value of professional qualifications, there will be an increasing need for re-qualification, this meaning updating, upgrading, diversifying or re-converting profiles for the whole of the active population - and this should take place probably more than once throughout the professional life of each person. Adaptation to the (essentially transient) requirements of the job will be a major issue affecting the labour market, forced to a permanent evolution to be able to survive in a world of changing needs and of changing answers to these needs.

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5.2 Initial and Permanent Training

53. The above argument leads to the conclusion that providing opportunities for permanent training has nowadays almost the same priority as the one allocated to initial training, both in economic and social terms; nevertheless, while the latter only concerns a small number of contiguous classes of age of the young population, the former should cover most of the active life of the worker.

54. It is not realistic to postulate the regular return of a qualified worker to a conventional training facility, in order to enable him/her to remain fully adjusted and competitive at all times: there are just too many persons requiring the same effort of continuing learning and too few institutions able to provide it. On the other hand, enterprises cannot afford to part regularly with a significant fraction of their workforce for training purposes, for this would decrease productivity and competitivity in an insufferable way.

55. The only possible solution to the dilemma is to provide readily accessible and relatively inexpensive ways and means for the individual to improve his/her qualification profile, so that adaptation to a changing or a new job will be possible at all times. This requires the massification and the dissemination of good training services and products, designed to be offered to a huge population of end-users on the basis of acceptable price for good value.

5.3 The Independent Learning Approach

56. Providing training services to massive and geographically scattered populations, mostly working on a full-time job, requires flexibility of place, of time and of learning content, in order to harmonise with all different individual needs and degrees of freedom; this is clearly the realm of distance learning methodologies and of the independent learning regime.

57. State-of-the-art information and communication technologies ensure already that this regime is efficient enough for this purpose; any evolution or decisive innovation in the field can only enhance the potential of independent learning. Good quality, attractive and self-explanatory written materials can reach the user both in printed form and on a computer screen; broadcast television and radio, through satellite or terrestrial, from antenna or via

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cable, can be received by whoever is within the footprint of the former or is linked to the latter, gaining access to information carried by sound, moving image and teletext; conventional telephone networks provide audio and data links and, in spite of reduced bandwidth, allow for compressed video transmission - while the "electronic highways" of the near future will provide the telematic networking needed for high capacity, high quality full multimedia data transmission.

58. Computers are improving in speed, power and capacity, this being specially relevant for educational purposes in what concerns personal computers, made increasingly accessible by lower prices. Interactive software is becoming more and more complex in architectural and design terms, while improving friendliness to the user; portability of information is enhanced by higher hard disk memories, combined with "compact" formats of laser disks, allowing for random and instant access to the information therein contained.

59. On the other hand, teaching strategies are successfully adjusting to the new tools made available to their conceptors. An isolated student or trainee, studying at home or close to the work-place have now ready access to basic didactic materials in written or multimedia format; to applications, exercises, questions and all kinds of simulations in interactive form, ensuring pedagogic feed-back; and even the use of self-assessment tools, designed to provide guidance and supplementary motivation. Student support can be provided by video or computer conferencing linking students at a distance to tutors or counsellors, while allowing for communication among the students themselves, thus breaking the typical loneliness of the distance student of the past.

6. Adult Education

60. This segment of educational activities relates directly to insufficiencies of educational systems as instituted networks of schools and their inability to provide basic education to all members of the new generation of societies. Basic adult education is a remedial way designed to cope, many years later, with failure of education in the earlier years of life. Analphabethism is just one of the consequences of this failure; many others relate to lack of common knowledge necessary to cope with everyday life, like understanding health and nutrition, interpersonal relationships, the organisation of society, civic rights and duties, as well as the increasing complexity of living in a technological society.

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61. Providing motivation to begin to learn in a systematic way, long past the usual age for doing so, requires ingenious ways of relating, in the mind of the learner, knowledge hard to get and immediate benefit, obvious progress and full satisfaction. This is the reason why basic adult education often incorporates training as well in such a way that the individual may judge positively the added value of learning.

62. Motivation also comes from putting together education and plain entertainment, for it usually takes place in leisure time, after a full working day, in order to minimise the sacrifice involved; in an ideal situation, learning should take place at home or in communal spaces, in order not to separate the adult from the current environment of leisure times.

63. On the other hand andragogy, or the science of understanding the adults' learning process, has known a much lesser degree of attention than pedagogy, due to current low priority assigned to it in most regions of the world; we believe that an intelligent, open-minded and resolute effort of research and development of learning tools and strategies will increase significantly the efficiency of adult learning through innovative educational technologies designed for this purpose. However, technology is not the only answer to adult education: the many mental and social barriers preventing adults from effective learning will be reduced by a multi-channel approach, mobilising all the possible agents and resources to contribute in helping the learning process, from the community to the families, from books to any other kind of printed matter, from broadcasts to group discussions, etc.

64. We expect that, in the years to come, computer literacy will become one of the basic skills recognised as necessary for all citizens and will be included trivially in the basic education curriculum. Nevertheless, older generations may not have acquired this competence; so, this will become a must in adult education programmes.

7. Related Side Issues

7.1 Technology versus Equity

65. Opportunities of access to more or less sophisticated technologies suitable for education and training are not homogeneous from continent to continent, from country to country or even among individuals pertaining to the same society. Powerful systems, networks and equipments necessary to create, to feed and to operate a distance education

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system are expensive to install and to maintain. From the side of the end-user, some technologic facilities, like radio, terrestrial or satellite television receivers or recorders, telephones and computers may be necessary for the learning activities; but they may be inaccessible to large segments of population, for purely economical reasons or due to the lack of an appropriate technologic infrastructure in that particular region.

66. Thus a dilemma exists: a distance education-type approach is suitable to increase the geographic and social radius of opportunities for equitable access to education, while the intrinsic technological requirements to make possible its operation may prevent the less favoured to benefit from it. More education meaning in general a better opportunity to climb the socio-economical ladder, this loss of opportunity can only deepen the gap between the haves and the have nots, in terms of individuals and between developed and developing regions of the world, in collective terms.

67. The way out of the dilemma is not to solve it terms of achieving universal equity, but to minimise the consequences of the lack of it, while it lasts. In this precise context, an open distance learning-type of system may be designed for the situations in which it is not realistic the requirement of private possession or private access, for each one of the end-users, to the technologies necessary for this kind of operation. Instead of a tele-communications network linking the central structure to the multitude of locations of the individual end-users, a more limited one can be established between the central point and a restricted number of fully equipped Study Centres wherein the access to learning facilities and products can take place in adequate conditions; a team of qualified tutors working in these locations will provide the necessary guidance and support to the users of the Centre.

68. A related problem concerns the very expensive technological facilities and the sophisticated know-how necessary for the design and production of the learning materials to be used in the independent learning mode. Nevertheless, many existing open distance learning systems have adopted, with totally acceptable results, the pragmatic solution of importing existing materials from another such operator, preferably from the same linguistic area, to avoid costs of translation. Adaptations such as may seem necessary to achieve a precise curricular matching and to assure contextualization and full compatibility with the cultural background of the new users may become very expensive but they can be kept within the limits of the budget allocated for this purpose.

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7.2 Financing Independent Learning

69. Continuing education and training services and products of high quality are really expensive under present market conditions: whenever video, computer software and full interactivity are involved, both development and production costs weight heavily on the final prices. The use of telecommunication networks and terminal equipment add to the burden to be carried by the final user.

70. In order to lower substantially the cost of training facilities, so that trivialisation can occur, a huge increase in the number of users is required. An aggressive marketing strategy designed to raise the awareness of potential clients and to draw their attention to the benefits associated with lifelong education (namely as an efficient strategy to increase workers' value and to avoid redundancy), needs to be combined with a corresponding effort of national and transnational authorities, entrepreneurial organisations and professional associations.

71. Furthermore, we believe that the full benefit of permanent training should be focused on the individual, rather than on the employer: job mobility being one of characteristic features in the present labour market environment, the initiatives of training should belong much more to the professionals and less to the enterprises they might work for a given time – but not necessarily within a near future. Moreover, it is not certain that motivations and ultimate objectives, both for the employer and the employee, are convergent at all times.

72. A consequence of this argument is that the training agenda should lie on the generic individual so as to give him/her the freedom of choice of short and long term objectives of learning and, subsequently, of choice of employment. Recognition of permanent training as a social right in itself, made possible by regular financial contributions, both from the workforce and the enterprises, may lay the foundation for a generalised strategy of permanent education and training for all the active population, in every country.

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