Imbedding Independent Learning Methodologies in Mainstream Education*

1. General Panorama of Distance Education and Training

1.1 The Instability of Jobs

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.

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.

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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.

1.2 Initial and Permanent Training

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.

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.

The only possible solution to the dilemma is to provide readily accessible and relatively inexpensive ways and means for the individual to improve their 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.

1.3 The Independent Learning Approach

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.

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 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.

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.

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, may 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 to 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.

2. The Evolution of Higher Education Systems

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.

In many countries of Europe, higher education has been mostly taught within the scope of public universities and, at a slightly lower academic level (through programmes of shorter duration) by the currently called polytechnic institutions. In some countries, governments tried to cope with an increasing demand for qualifications by opening the higher education sector to the private initiative; in some cases, however, significant increases of input did not yield corresponding good results in terms of quality of the outcome.

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 unable to attend conventional lectures in classrooms along the academic year, and using instead distance education (or independent learning) 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 all regions of the world.

Another tendency has been observed, in many 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.

We believe that a further convergence of the two conceptually-distinct types of institution – the conventional universities 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 hybrid or "mixed-mode" operation will become the common paradigm, we believe, for both old and new higher education institutions, in the years to come.

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 leads to 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 will become less and less obvious.

We may even reach the point where government yield to the temptation of abandoning this most important sector of public services by postulating the privatisation of public universities, following the same rationale that has already been applied, in many countries, to airlines and railways, public health systems and telecommunication networks.

Another issue 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 academic - and sometimes even professional - accreditation to their students: certificates, diplomas and academic degrees were taken at face value by employers, both public and private, thus 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 accreditations, 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.

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.

Duration of degree programmes may also become an important issue for countries where university tradition impose 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.

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.

Another possible solution to cope with these general trends may lead to universities giving more and 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.

3. Continuing Education and Training

3.1 On the Nature of Training Services and Products

Contrary to formal education, which sequence of curricula fits an integrated, holistic pattern of organisation, leading to a limited number of alternative output options, vocational training has the intrinsic characteristic of an extreme diversity of goals, profiles and levels of qualification, each possible combination of these leading ideally to a specific response to a wide range of professional training needs. Technological, methodological and organisational innovation demand a permanent addition of new subject matters, and to shuffling new possible combinations of contents.

On the other hand, adequate matching of the provision of training services to the extreme diversity of the actual potential and demand, requires a very rich "menu" of options

for the user to choose from; but, from the point of view of the provider, the high cost of developing products and services leads to the need to seek economies of scale, in order to decrease the price of services by increasing (enormously) the number of their users.

The obvious solution to this intrinsic difficulty is to divide objectives and contents into small modules or "units of learning" (this concept of size including both length and complexity of contents and estimated duration of the corresponding learning process); they should hopefully be self-contained in terms of stand-alone characteristics, so that a quick, even if comparatively small benefit would be obtained by the user in a short time. By combining a number of these units and establishing their sequence, an appropriate training curriculum can be designed in compliance with the precise specifications of the output profile, while allowing for the alternative between an intensive training programme and a more diluted one.

A collateral advantage of this modular approach, equivalent to cutting a given subject into a set of thin "slices" of qualification is linked to both the psychological attitude of the individual trainee and the interests of companies in avoiding losses of productivity due to prolonged training initiatives attended by their employees. From the individuals point of view, the frightening prospect of a lengthy involvement in learning something new and possibly alien to their previous experience or knowledge, creates obvious mechanisms of rejection - while a short course may come through as comparatively easy and, hence, motivating to take. From the company side, the management of a long-term training strategy is easier to plan and to implement without significant loss of productivity when dealing with short-time, albeit frequent and generalised, involvement of their employees in training activities.

3.2 Adjusting Supply to Demand

In world-wide terms as well as in national ones, the market of training services and products is still far from being structured; this is due, on the one hand, to the extreme diversity of training needs, objectives, outcome profiles and actual contents, and to an obvious mismatch between supply and demand, on the other hand.

While large-dimension companies invest heavily in the permanent updating, upgrading and re-conversion of qualifications of their workforce by creating their own training facilities

and programmes, small and medium-size enterprises may not have the financial strength and the appropriate know-how to do so; individuals by themselves certainly do not. Under the circumstances, SMEs and individuals both need to adjust their own training requirements to whatever is being currently offered by the existing providers of training services and products. From this point of view, it can be said that market is being driven by supply, rather than by demand as it should.

Another complicating factor arises from the fact that sometimes enterprises, and most of the times individuals, lack the technical background and expertise necessary to evaluate and to specify precisely the profile of their own training needs. Suppliers, aiming at selling their training services to the more powerful clients, frequently neglect to give appropriate attention to small collective bodies or to individuals, failing to include them in their marketing initiatives. The net result is an overall lack of appropriate, explicit and complete technical information reaching the whole spectrum of potential users, thus actually preventing the structuration and the full development of the training market.

3.3 Costs and Prices

The fee of a qualified trainer is naturally expensive and increasingly high in proportion to the level of qualification he is expected to provide; good training materials are extremely costly to develop and to produce and need also to be paid for. The only possible solution to lower the cost of training services is to use a capital-intensive, rather than manpower-intensive approach in order to reduce, as much as possible, the need for face-to-face training; this may best be done by using independent learning strategies.

Crucial to the success of this approach is the quality of the training materials which have to be designed with the intrinsic characteristic of their suitability to an independent learning process; they need to be self-explanatory, attractive and user-friendly, besides having a definite capacity to provide learning feedback to the trainee. The use of multimedia and interactive learning components, as well as adopting a modular strategy, are current generic features of high quality materials.

All these requirements add to the cost of developing and producing such materials; and the appropriate way to keep the correspondent market price from soaring is to increase manifold the number of their users, by adopting mass communication strategies. From our point of view, for the training market to become fully developed and adequately structured,

it has to possess the ability to reach all the elements of the public in general, by making training services and products readily available to the generality of citizens.

The recent advances in the field of virtual reality may provide exciting new possibilities in dealing with massification of prospective learners. A "virtual teacher" lecturing in a television studio to one *a priori* unlimited number of actual classrooms linked to the former by telecommunications, can still cope with some degree of two-way, on-line interaction with the end-users; this solution is no longer an experimental one, it being currently used in actual training initiatives. The concept of "virtual classroom" is an extension of the previous one, by providing each isolated student with a technological environment that simulates a classroom situation, through the use of telecommunications and computer technology (L. Rajasingham; J. Tiffin et al., 1994).

As a final synthesis, by considering training products and services as common goods, made inexpensive by mass production and by the fragmentation of objectives into thin slices of added qualification, we are led to the solution of using non-conventional means of dissemination through the extensive use of systems of telecommunication and information technologies. The consequence of this is a tendency for some degree of de-institutionalisation of the training prerogative, making it the task of non-traditional producers and operators.

3.4 Cultural Needs and Continuing Education

Having defined training as a permanent need for both organisations and individuals, as a pragmatic defence against loss of competitivity and the risk of unemployment, we cannot ignore, from another point of view, the pace of change in most societies and how this may cause misadjustments between individuals and the society they belong to. Globalisation of trade and of international relations; increased mobility of persons in geographical terms, from countryside to cities or from one country to another; technological innovation, causing major modifications to occur, even in everyday life; changes in the relationship and interaction between State and civil society, creating new responsibilities, new duties and new forms of participation, are just some of the issues to be considered. As a synthesis, the ways of living have changed beyond recognition in most areas in the world and are expected to change even more quickly in the future within the span of a single generation.

There is a situation of positive feedback induced by the circulation of the information flow around the world, whereby the fact of knowing about occurring changes accelerates

the process of changing itself; this is due to the pervasiveness of the mass communication facilities, disseminating everywhere news, facts, events; ideas, problems, conflicts, debates and controversies; old knowledge and new science; projects; fantasies and utopias, as well as the actual creations of the imagination in the fields of design, architecture, arts, literature or philosophy; pure entertainment, irrespective of any further purpose.

To fully understand and to actively participate in the changing society and in the process of change itself, the individual of the new millennium needs to keep abreast of everything that is going on, everywhere, at all times. An important portion of the leisure time at home (however short it may be) will be currently dedicated to absorb this kind of information, through the reading of the printed word and using radio, television or computer networks – and this is true both to older and to younger generations, even if the latter seem to prefer using communication facilities possessing some capacity for interactivity.

From this point of view one may state that, to become a "well informed citizen" and to maintain this quality along the time, the generic individual of the new millennium needs to collect structured information at a daily basis, through whatever means he may have access to. In these conditions, when looking at the nature of the information vehiculated by the mass media, it will become more and more difficult to distinguish exactly between what is pure entertainment and what may be more properly considered as informal continuing education, this including general and specialised information, news, cultural and scientific programmes. The criterion of explicit, recognised value and cost of access to the input is not enough as a distinguishing parameter between these two kinds of information, for paid channels may deal indifferently with the one or the other.

The resulting conclusion is that mass communication systems will become, from a conceptual point of view, providers of independent learning services, thus becoming something similar to a distance education operator; this identification will become almost complete whenever feedback and user support facilities will be provided trivially by those systems.

4. The Changing Roles of Higher Education Institutions

The previous analysis may lead us to conclude that Universities will have to adjust to a changing social context of education and training needs, as well as to a shift of priorities

in the allocation of public budgets, so that they can, not only survive, but also make even more obvious their social usefulness. As a kind of final synthesis, we may conclude that:

- To cope with the pressure of an increasing demand of qualifications, most universities need to adopt more cost-effective models of operation, the "mixed-mode" approach being the more pragmatic one.
- The relevance of higher education programmes and contents needs to become an even-present task for university, faculty, and department authorities, by adopting the concept of adjusting their supply function to the outside demand and not the reverse one. Diversity, as well as flexibility of curricula will be major assets in this process.
- Massification of higher education cannot imply a significant sacrifice of quality of the outcome. Research activities aimed at updating and upgrading course contents and increasing their relevance, as well as at finding the ways to increase the efficiency of learning, should receive adequate priority.
- Tied with the reinforcement of the research activity in Universities, increasing the capacity and creating new advanced programmes for the training of top-level specialists and scientists will receive higher priority, as modern societies will require increasing numbers of these highly skilled professionals, to work within and outside educational institutions.
- Taking into account the foreseeable expansion (or even explosion) of the new cultural industries, universities need also to be considered as the "natural" conceptors of learning materials for education and training at all levels, irrespective to the fact that some other type of organisation may take care of huge numbers of persons seeking qualification, education or, simply, updated and structured information. The function of "authoring" all kinds of learning materials will become a most interesting "niche" of opportunities for the universities of the future.
- To cope with all these kinds of adjustments, universities need to establish alliances among themselves, within region, country and extended geographical, cultural or linguistic area, by taking advantage of present facilities in mobility of persons, products, information and ideas. Other powerful allies to seek will be found in the productive sector, mainly among enterpreneurial large organisations in permanent need for upgrading and updating staff qualifications.

- Transnational telecommunications systems and networks are very special, strategic partners for universities to try to associate with, for they will provide the key to widening the scope of intervention of higher education institutions, as well as to the modernisation of educational technologies; they will be, possibly, the major clients for the provision of educational products that universities are uniquely qualified to develop.

All of the above goals are easier said than achieved, for universities are in general entities difficult to reform and to change their ways, aims and perspectives. Their large autonomy, which spreads currently from the top of the whole body to the descending levels of faculty, department and chair, makes difficult to reach consensus and to obtain full adhesion from all the members of academia to the purpose of changing; students, sometimes, seem to be even more conservative that professors.

This is the reason why important debates like the one that took place at the FernUniversitat at Hagen have a major role to play in the formation of opinion of all concerned, from academic authorities to students, from governments to the public in general – so that the *Universitas* can survive, and flourish, in this changing world.