*Full Length Research Pap*er

Educational Goals & Learning Strategy: the Case of E-Learning

Prof. Zohar Ben-Asher

2, Hamarva Street, Binyamina 3051113; ISRAEL
Telephone: +972-4-6181145; Facsimile: +972-4-6181146; Cellular: +972-54-6848845

Author's E-mail: zohar@eu-crf.net

The paper examines the educational (and schooling processes) as related to the overall social, political and economic processes, so as to set the context within which e-Learning has to be explored and discussed. Issues discussed in this paper include the economic implications of the educational system, the extent to which economic considerations and realities that should actually taken into account in curricula building and in the process of teacher training, along with the notion of acquisition of knowledge and/or information. The paper portrays the parameters that are required to create a well-balanced strategy for the developing of e-Learning as a major vehicle for the implementation of the overall social goals of education, of which one essential seems to be lacking at times. This is, of course, the preparation of the system's customer, that is, the pupil, as a critical observer of reality and a careful discriminative customer of the ever-developing consumption oriented society.

Keywords: Education; Learning; Value System; Knowledge; Information; Strategy; Educational; Policies; e-Learning; e-Education; e-Economy; Economics of Education; Economic Implications; Understanding; Social Impact; Schooling; Dissemination (of knowledge)

INTRODUCTION

Discussing e-Learning, much – maybe most – of the literature considers such questions as PLE (Personal Learning Environment) vs. LMS (Learning Management Systems), attempting to determine which might be more learner-oriented or user-friendly and discussing the technological characteristics of each. Many of those who are engaged in the study of e-Learning also address issues of content, albeit more in terms of its use or its availability to users. Other issues that are explored in the literature concern the use of e-Learning in various sectors, e.g., industry or academia. The platforms on which e-Learning should be developed are not overlooked either. Nor is the role of instructors and the training they should undergo. Yet another issue is that of the technological gaps, mainly in Information & Communications Technology (ICT) between countries and regions, or segments of the population. Also, there

is the influence of these disparities on the actual potential of e-Learning and the role they play in educational institutions and workplace. Still another facet in the discussion considers the learning process and attempts to relate it to what is known as "Constructivist Learning Theory."

However, a core issue is evidently absent in the literature and can hardly be found (if at all) in this large-scale debate. Really, it is a series of questions of educational value systems, of social and educational goals, of the very *raison d'être* of education as reflected – or should be manifested – in e-Learning. This chapter addresses some of the issues pertaining to these questions.

Commonly Perceived Educational Goals and Objectives

Almost any survey in nearly any society in the world would turn out several cliché responses as to what education is all about. They would refer to how important it is, what should be the product of the educational process – that is, what do we expect the graduates of the educational system to become – and so on.

The educational scene is inflicted – at least characterised – by a never-ending debate pertaining to goals, roles and modes that should be assumed and practised by the educational system and by educators pursuing education's social quest. The maxim that education is a social process, aimed at social cohesion (or balance) is hardly ever challenged. Yet, somehow the educational discourse seems to be almost entirely divorced from key social issues. To point at one example, the crucial economic processes (and implications) that shape society and its members are hardly ever addressed by the educational discourse. Still another anomaly stands at the heart of the general socio-educational debate: if education aims to change long established and embedded social values and concepts that have over time become undesirable or unwanted (e.g., discrimination, segregation and many more outdated concepts), how can educators, themselves being the products of the system that encourages these archaic ideals, be expected to eradicate or change such values, ideas and practice? Can they be true agents of such a desired change?

The commonly adhered to concept of "equal opportunity" and its derivatives, "affirmative action" or "positive discrimination", manifest the extent of this inherent problem. Here, the idea, noble as it is, to equate discriminated groups of people to those who are considered to be in the mainstream of society (yet another problem, of course). But it is to be achieved through yet another form of discrimination – even if positive and based on good intentions. [1]

When educational systems are thoroughly examined, the discrepancy emerges between desired social values and values implemented in the educational systems. One apparent reason to account for this gap is funding. A quick scrutiny of the budget available to education as compared with other items on the national budget of any country worldwide would easily reveal the issue.[2] Such restricted funding is reflected in budgetary allocations to the physical conditions where pupils spend their entire study time, to the availability of state-of-the-art aides that should assist students and teachers to extract the best of the educational system, and – not least – to the preparation and training of teachers, their earnings and social status.

Of course, there are some, rather few, societies where teachers' salaries are high and gender distribution amongst teachers, from kindergarten to colleges and universities is balanced.[3] But these – if and when found – are the exception.

Gender imbalances and economic aspects of education occupy a rather modest place in the overall educational debate. Many professional arenas, teacher education institutions and other such esteemed forums tend to channel the educational debate to what they regard as the ultimate goals of education. Many a time, they are epitomised in the grand question of how the teaching activity should be looked at – or should be. Is the goal of teaching "what to think?" or is it "how to think?" This dilemma is further discussed later on. But it should be noted that it goes beyond the constructivist debate, which regards learning mainly in terms of the learner's construction, or reconstruction, of his or her learnt information or knowledge. Here, we should only observe that if a student is taught how to think, the "what" will ensue automatically, since the "how" will always determine the "what". If, on the other hand, it is the "what" which is taught, then – so goes the argument – the student might be merely brain-washed. It is striking, albeit not surprising, when teacher education is examined, that none of these anomalies – or polemics – is found in their training courses.

Budgetary issues affect not only the educational process and system but they have a great impact on the pupil's future consumer behavioural patterns – another issue that is absent from teacher training programs worldwide.

Under such circumstances, it is hardly surprising that the debates, discussions and research endeavours pertaining to e-Learning, seem to be scarce in terms of references to such core issues of education. While e-Learning might herald the desired shift towards the learner as the centre, it also harbours some of the more difficult social and educational issues, both in their value-related ethical facets and in the economic implications stemming from e-Learning.

The question of access is not just economic one. Neither is the issue of priority in specific sectors being introduced to e-Learning. Resolving gaps of computer literacy between regions, sectors and populations is not a mere technical challenge. It goes to the very heart of the socio-educational process. It also touches such issues as equality – either in its "equal opportunity" or otherwise. Is it equality in ownership of assets? Is it equality in access to assets – whether social or private? And what should be the normative "objective" (or should it be subjective) measure for equal opportunity, or the threshold for social assistance? And what type of assistance would that be?

Can e-Learning hold that magic wand that would resolve such anomalies and polemics? The *E-Learning Guild* performs annual surveys (Pulichind, 2006) among various users, developers, promoters and other interested parties.[4] The interviewees had ranked issues from 1 to 23. These rankings also represent the views of those surveyed about the direction e-Learning is – or should be – taking. Number one on the list is "rapid e-Learning design & development," followed by "use of e-Learning to train customers & partners." The list continues to itemise technical subjects down to No. 9, "e-Learning bundled with or embedded in products," and No. 10 – "learners assessed on a regular basis." No. 11 might go beyond the technical or practical facets – "use of authoring tools that allow one person to design & produce interactive e-Learning content (instead of differentiated design & production roles)." It is only in No. 12 that we find: "Content management systems," which is still more technical than content-oriented.

According to the rather wide definition of e-Learning offered by Fallon and Brown, e-Learning encompasses "any learning, training or education that is facilitated by the use of well known and proven computer technologies,

especially network based on internet technology" (2008: 4). However, unlike other means used to facilitate "learning, training or education" – 'blackboard and chalk', to mention but one – e-Learning attracts endless discussions about the myriad technical aspects associated with it. Other means remain just what they are: means. This leaves room to examine the very issues of learning and education.

The numerous experts on e-Learning are all truly concerned with the contents administered through the technique of e-Learning. They are as preoccupied as anyone about the "true" mission of education as a major vehicle for socialisation. Indeed, since e-Learning came to be, "the field of education has tried to exploit the web as a communications channel to connect distant learners with instructors and a rapidly growing of plethora of learning material." Yet, the challenge remains: "to ensure that we develop appropriate theoretical frameworks and formal approaches, which guarantee that we do not stop merely at creating technical solutions" (Mudur, 2005). This is not simple, because the main models employed by e-Learning experts in their development of the field, tend to obscure this goal, or challenge.

It is so, because, on the whole, the working model for e-Learning is a pyramidal one, where the body of knowledge (even before it had been clarified) is of the smallest concern. It might appear as follows in figure 1:
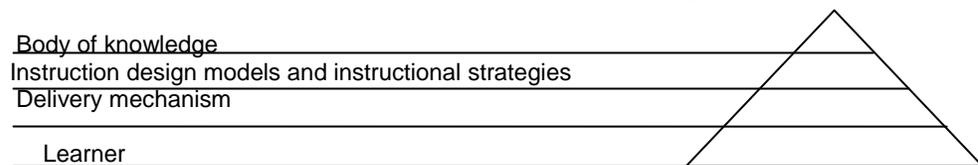
Figure 1: Layered model for E-Learning Environment (based on Mudur, 2005)

The learner is at the base. However, two points must be made here. Firstly, the learner, in this approach, remains the OBJECTIVE – in earnest: as the object of the entire process, not the SUBJECT. Secondly, it is clear that the technical mediating layers dictate the body of knowledge delivered. It is directed at the learner, possibly as a response to his or her demand (a point that will certainly be endorsed by the constructionists). This triggers strategies for instruction, in order to deliver "body of knowledge" to the learner. To be sure, as Mudur explains quite clearly, only a "representation schemes for the body of knowledge" may, or may not, "be such as to permit non-linear access or a strict linear access."[5]

The bias towards technical and technological and even techno-methodological matters characterises many,

if not most of the literature in the subject. In the *Handbook of E-Learning* (Branson, 2008), the word "education" appears about a dozen times, all referring to tools or business or techniques. Not in educational terms, either pedagogical or philosophical. In her chapter, 'Design Strategies for Online and Blended Learning,' Shank refers to "Content Forms," stating the following: "Since the content-experts' time is almost always at a premium, and they often do not know what content is needed, it helps to provide them with forms that help them focus on the elements you need. Developers often use forms to gain content for the following elements: Introduction; Content text and critical points; Examples and non-examples; Quiz questions; Next steps; and Wrap-up" (Branson, 2008:34-35). It seems that there is maybe unbridgeable dichotomy between such technical

experts whose concern is the mediating and educational experts whose domain is the socio-educational philosophy and value system.

This exposition accentuates the need to formulate concept of socio-educational goals and a concept of core value system that would define education. These should be disseminated amongst members of society in general - reaching those who are in their early stage of socialisation in particular. E-Learning, if subjected to these concepts, could become a leading vehicle harnessed to this end.

Socio-Educational Ends and Aspirations – Explicit and Implicit Issues

Debates pertaining to educational processes look, more often than not, into teaching techniques of particular subjects. At a somewhat more basic level – these debates might examine noble goals as "preparing pupils for life", "instilling" values in the youngsters, discipline and order, or any other attributes considered desirable. Just examine school corridors and class walls, with their mounted slogans. Almost always they depict such motifs as "respect the elderly" or "patience is bitter but its fruit is sweet" and so on. These might be truly noble aspirations of society and of schools and their surrounding communities. But some highly important questions are still missing altogether from these debates and from the educational – or schooling – processes. Indeed, one can easily ask: how such goals coexist – or coincide – with competitive and economic, market life? How can survival in the current highly competitive, fast-moving, market economy be reconciled with deep and thorough research which is still considered as the most effective practice to gain and master in earnest serious knowledge? How could an atmosphere of quick and pressing decision-making be compatible with a thorough examination of multi-level options for comparative and historical learning and acquisition of knowledge?

These are but a small number of questions that can be raised, or that one might expect to see addressed. They should dominate every serious discussion concerning the development of what has become so popular a term – "knowledge-based society." They should be at the heart of the discussion about education which is supposed lead towards attainment and realisation of the answers, once agreed.

Schooling and education are perceived as "pure" and "clean", unblemished by the harsh reality of cruel, inhumane competition, rivalry of people and groups, untruth of politicians and marketers, greed and other such social maladies. But is it really so? Are schools and the educational system really divorced – can they be divorced; should they be detached – from life? And if they are divorced from it, how are they supposed to "prepare" students for life (and – are they really equipped to do it)?

If schooling is supposed to produce "useful and efficient members of society" it cannot be shun away from real life; from the tensions and disparities between various segments of society; from influences of political and economic realities on educational agendas and schooling praxis.

It has long been agreed by most educationalists and social scientists that the main goal of education should be to raise students' awareness of the world around them. It really means that they should become subjects of the world, rather than objects.

There are schools of thought, for instance the one adhering to the teachings of Freire (e.g., 1985; 1987), that argue that this goal can only be achieved through what they call 'teaching students to think democratically,' which in turn means provoking students' thinking by perennially posing questions which would help them to make sense – and meaning – from what they learn (Lyons, 2001).

But learning, like knowledge, is a social construct or process. Learning cannot be mechanical if the student is supposed to 'make sense' (or meaning) of the world as a result of the process of learning. This cannot be a process where a collection of facts is deposited in the student's mind and kept "as is" until such time – examination, for example – when it is withdrawn. In this fashion, learning only constitutes transference that would at best yield machine-like memorisation. Since life is dynamic, knowledge cannot be a stagnant, tradable commodity. Freire (1985; 1987) goes on with this assertion to say that teachers should discover how their students develop their understanding of the world as a key to finding out and understanding how the student learns. Thus, learning– like knowledge – must be contextual and dynamic. Moreover, if knowing is a social process, then learning is the process where knowledge is presented to the learner as a raw material that must be then formed in experience-related terms into understanding, enhanced by discussion and reflection.

There is, of course, the issue of the credibility of the source of knowledge. Every social formation has such a traditional source – be it religious or other authoritative structure. Maxims originating from these sources are instilled onto members of society through the various social institutions, aimed at enhancing their own self-preservation. But like other historical processes of change, they don't last forever). They might change through a revolution, collapse of a system, or by a gradual evolutionary alteration in interpretation, which

eventually creates a critical mass to effectuate the birth of a new order.

It is only natural that those in charge in any social formation would be heard best and loudest when they preach changes, since they have the easiest access to public means of communications. The same goes for preaching preservation, if this is what they would prefer to promote. But even if they truly mean it, those whose task is to carry through the change, are still marked and haunted by the norms and "true knowledge" that had characterised the old system - the one now being challenged Moreover, in many occasions such calls for change are no more than a lip service, masking an ulterior motivation to preserve the essence of the old order. In any event, the actual agents of change, those whose job is to bring it about, are still tainted and locked by the values, practice and language that must now be eradicated.

The learning process is really the crucial preparatory stage for knowledge. While learners must be equipped with tools that enable them to read and write properly and effectively, they should also be provided with analytical capabilities and contextual understanding of the world. These tools should include what might have been somewhat neglected – literature and comparative text reading aided by literary instruments (e.g., lingual, etymological and philosophical dictionaries, thesauruses, encyclopaedias, etc.) and, of course, a broad basis of socially and educationally related subjects, including economics, ethics, etc. They must also include scientific know-how, at least to a minimal operable degree. Some would also argue that these tools must have additional cultural and cross-cultural studies. The list could be endless. The lack of such tools is reflected in the poor results of international examinations of reading comprehension, of sciences and of the level of use of native language of students. Techniques, it turn out, do not suffice.

If learning should make learners productive subjects who can construct meaning - or understanding - of objects, they must first become thinking subjects. As such, they must be aware of the learning process they undergo so that they can actually immerse themselves into active and intimate intercourse with their learning process. Such awareness can bring them to gradually know what they did not hitherto. This is a very concrete experience and not a mere theoretical abstract. Learning, thus, cannot be divorced, from previous knowledge. Concrete experiences of teaching and learning relate to - and depend on - content already taught, learnt, and processed. This experience constitutes the existing understanding of the learner. It is true for every level of education. Any attempt to place a "piece" or a "body" of knowledge, independent of prior knowledge of learners,

can only result in a temporary knack to cite mechanically some pieces of un-related information.

Another issue pertaining to socio-educational ends and aspirations concerns the so-called "equality of opportunity" that educationalists all over the world tend to uphold so eagerly. The concept seems so appealing that it is easy to fall in the word trap it presents. Indeed, this simple slogan manifests two concepts, both of which require some attention. How do we define equality, or opportunity? How can we balance the variance in circumstances (financial, educational, social, cultural, etc.) that we each have in our lives when we strive for "equality"? Or is it for "opportunity"? Take, at first 'equality': Equality in what? How does this relate to the uniqueness of each and every person on earth, which is the most basic premise of humanity? Or is it a mere technical equality of certain starting point or certain economic level? And if so, how – if at all the unequal pace of advancement of different individuals should be – or can be – equated? And regarding opportunity – where should it begin? What are the criteria for the threshold? How differences in background, prior accumulated social benefits, personal dispositions and other such considerations are to be weighed?

Take a person in a second or third generation to formally educated parents. Take their educational performance, which has been perfected with experience (e.g., reading speed, writing skills, etc.). Such a person would have enormous advantage compared with a person who is first generation to family education. This holds true even if the latter is better endowed in terms of talent, IQ or other such measures. The only way to resolve this imbalance is to consider equality in terms of access to social amenities according to self-determined needs. But this is not quite a quantifiable criterion. As to the issue of opportunity, there the problem is even more complex. Unless it is also defined in unquantifiable terms and regarded in the personal level of each and every individual. It has been mentioned earlier (note No. 1), that "affirmative action" - an intimately related concept stemming from "equal opportunity" – was rejected as discriminatory by the European Court of Justice. Reservations on this issue are not limited to this body or to Europe alone. In the USA, black professionals as well as women professionals had raised the argument that affirmative action tint them all. If they had reached a senior position, they feared it might still be looked at as if they got there thanks to some 'affirmative action,' which is just another form of discrimination.

The concept of citizenry might be the key here, albeit not a real solution. To be a citizen not only means to be able to exercise one's abilities. Rather, it means to retain access to social amenities in such a way that would consider the citizen's relative advantages or

disadvantages as well as his or her capabilities and dispositions. This really makes the fact of inequality recognisable. This is even further accentuated when society has become – or is aspiring to be – what is known as "information" or "knowledge" society, characterised by 100% computer literacy (even if, at the same time, with lower rate of comprehension and literal literacy).

This discussion is not devoid of economic influences, or political and social realities operating on the educational process. Nor can it ignore such socio-educational issues as the stated goals of pupil-moulding or what makes a student useful (and hopefully participating) member of society. Attending these issues is necessary to achieve coherent compatibility between the educational process and "real life." Here, also, economic issues that many times are ignored in the educational debate – and reality – have to be explored. This economic influence is further explored below, in section 0, on page 8 below.

Hidden Agendas: Conformity, Acceptance, Rules, and Codes

Behind highly acclaimed educational goals sanctioned by various social organisations, there is a harsh historical reality. It keeps "haunting" the educational scene until this very day. Inauguration speeches at schools in the late 19th century are illuminating. These schools were mostly established by the Church – many times in collaboration of local "well-to-do" and "good hearted" "outstanding members of the community". In some of these speeches, the truth could not be hidden. How good is this school, one could hear the speaker says - and how appropriate its structure is. Suitable to the places where its graduates will spend their lives: the manufacturing mill and the prison. Indeed, more than any other institutions, schools and prisons are so easy to recognise, be it in the USA, Turkey, China or the UK. They all seem to have been planned and built as if inspired by Goffman's analysis of total institutions (1957).[6] While schools are not total institutions, they share many of their characteristics. During the time pupils stay at schools, they are more often than not exposed to such processes as described by Goffman, even if not as severely or at the same extreme application. Just consider: uniforms (which are still apparent in many countries, particularly at the elementary level); forms of regimentation; the fact that any staff member has almost endless power over any of the "inmates" – pupils; the artificial time setting (lesson durations are set in most countries to time units of 45 or

50 minutes and not as the clock would suggest – an hour); the reference to pupils by their last name rather than their given names – and the list goes on.

This is not really surprising. Schools and the educational systems in general, are expected to instil conformity, to assure acceptance of society's demands and enhance the adherence to social rules and codes. This, at least, had been the case until the recently - certainly during the 19th century and also during many years of the 20th century. Supposedly, this has no longer been the case at the later part of the previous century. At that time, the freedom of the child to develop unhindered has become a leading slogan, along with the adaptation of a more individually-suited coaching approach rather than mere teaching. Active and inter-active instruction was supposed to have replaced frontal instruction and study through play won the day.

But if the experience described is something of times long gone by, the reminiscence of it seems to be very much alive and kicking. It is as related to economic realities and social structures as the old experiences were. This tight correlation can be seen in numerous works of the best of scholars who examine various aspects of education, such as Peters (2006), Cook (2002), Quah (2003), Hildreth & Kimble (2004), etc. The economic facet of the educational process becomes even more accentuated in issues such as digital literacy or digital learning. Economic considerations are crucial here since the economic facet is no longer a playground for governments and government budgets alone. Commercial and corporate interests bring forth such measures as profitability, efficiency, ROI and their like. Commercial parties require that expansion of digital literacy be measured not only in terms of achievement, comprehension or skill nourishment, but also in financial terms. At the same time, political and social demands for better e-inclusion or universal access to education also place their demand on what they would refer to as "contribution to society".[7]

The economic facet presents an interesting point, even if it not really surprising. Economic realities, pressures and interests – both apparent and hidden – have been so influential on the development of the educational systems around the world. However, they somehow escape the educational classroom debate (indeed, even staffrooms and higher level educational discussions) and they never really appear in the curricula taught in most, if not all, schools around the world. Even when economic aspects are tangled with technological issues it is the latter rather than the former that tends to be dealt with.

In many ways, the story of e-Learning reflects this amalgamation of economic consideration and technological quests. It does, however, combine other

drives as well, such as intellectual curiosity of university professors and possibly also professionals from the field of human resources. The idea of remote teaching appeals to university officials who wish to expand the studentship body. They want to reach prospective students that cannot come to the main campus and stay there for the duration of their studies. This consideration has been valid for institutions of higher education in the west as it has been for African universities[8] and has not gone unnoticed. Scholars researching e-Learning had touched this issue. The first statement of Holmes and Gardner (2006: 1) purports, that "e-Learning is 'mission critical' because of globalization of economy and citizenship and the recognition that the economy must become knowledge-based." Later on they observe:

While deriving its underpinning theories from such notable scholars as Plato, Rousseau, Skinner, Dewey, Vygotsky and Piaget, to name but a few, e-Learning is arguably eclipsing their impacts as the most dynamic development in education ever. Even with several decades behind us, there seems no end to the innovation and development that stretches into the future for e-Learning. For now and the foreseeable future, e-Learning remains 'mission critical.' It has emerged as an unparalleled explosion of innovations, creating opportunities for enriched experiences in traditional education for enhancing the breadth of opportunity and content for lifelong learning. The scope for e-Learning future development is so wide that it is with some trepidation that we attempt to paint the picture of the future (Holmes and Gardner 2006: 147).

These researchers hope that "future development of e-Learning will be dominated by the social and technological dimensions of e-Learning" as a "change catalyst." But they also recognise that it could, at best, "improve" learner's awareness of design (*ibid:* 149). They dare not hope for an improvement in awareness of values.

Core educational values are absent in much of the body literature on the subject. Most experts, who discuss developmental prospects of e-Learning, look at the engineering or technological issues associated with the construction of e-Learning systems and structure (e.g., Gilbert, 2008; Lim, *et al.*, 2005). Others relate to the financial facet of distance learning (e.g., Barmble, 2008) or to specific prospect sectors of e-Learning, including corporate experiences and attitude towards e-training (Tai, 2008; Kim *et al.*, 2005; Beach, 2002). While issues pertaining to instruction or methodologies are discussed by some (Clark & Mayer, 2008; Marriott & Torres, 2008; Boon *et al.*, 2005), the issue of content receives little, if any, attention. Even Carliner & Shank (2008), in their broadly encompassing work, present no discussion that

even remotely examines educational contents or learning goals.

Currently, a major concern of the educational debate about e-Learning revolves around learning environment and, more specifically, its personal aspects and perspectives. Schaffert & Hilzensauer (2008) discuss these attributes of e-Learning while comparing learning management systems (LMS) and personal learning environments (PLE). They propose seven aspects which they refer to as "crucial" (2008: 2-3), the third of which is "content." What they say in this regard is highly interesting. Under the heading LMS, they state that content is "developed by domain experts, special authors, tutors and/or teachers." In relation to PLE they regard educational subject matters as "the infinite 'bazaar' of learning content in the Web, exploring learning opportunities and services." The "challenges and shifts" they perceive are the need for "necessary competences to search, find and use appropriate sources (e.g., weblogs)."

Even these researchers admit: "From our point of view LMS and PLE are both technological concepts that both allow several pedagogical methods or personal learning strategies." (Schaffert & Hilzensauer, 2008) Their attitude is clear: technology "allows for" pedagogy. Moreover, "the technological concepts limit or guide the concrete learning settings" (*ibid*: 3). They endorse the transition from environments that "instruct" to environments that would "influence" the structure of the learning process so that organisation and adaptation are preserved. In this they accept, at least partly, an argument developed earlier by Knuth & Cunningham (1993: 167), while attempting to construct a constructivist justification for the lack of educational value content. This, of course, is not new in the wider debate about education. The argument has been rather popular since the 1970s in unloading responsibility over education from society and pressing it onto the threshold of the learner. It was supported by such slogans as "self-direct learning", where the initiative for learning remains solely in the hands of the learner (e.g., Knowles, 1975).

But constructivism did not really divorce itself – or its teachings – from the social arena. According to constructivism, "the learners construct knowledge for themselves." But they do not, indeed cannot, do it "by themselves." Moreover, they really construct meaning socially, not just individually. It is unlike Plato, who might have suggested that learning equals remembering previously perceived "perfect ideas" (Hein, 1991: 1). This social nexus which Hein considers as necessary (even if not sufficient), presents a rather precarious situation for the learner, since it implies that it is really how he or she are guided, how the "fabrication" is made for him or her,

that meaning is constructed and perception formed.

Constructivists have been aware of this anomaly and have therefore also attempted to harness social formations to the educational structure they suggested. Siebert (1998) argued that learning "needs stimuli and challenge from others." Wenger (1998; 2002) developed what is known as the "Community of Practice" approach, whereby learning is thought to happen only in social networks on the basis of shared interest, interaction and a repertoire of tools and resources, that is, social processes. This brings us back to the core of the discussion: what ARE the premises on the basis of which education is supposed to be practised and what are the true goals that go beyond any sectarian interest of this or that group within society?

In our context, the development of e-Learning must be examined from two viewpoints. The promise e-Learning harbours must be intertwined with the societal problems that might be associated with the uneven spread of the technique. Clearly, e-Learning manifests the great philosophical, economic and social attributes that are associated with the concepts of information and knowledge-based society at large, and more so of a perennial learning society. Yet these attributes bring us back to the political issue, in its most acute all-inclusive civic (rather than ideological, party-like) sense. Foremost amongst these issues, which bears consequences to all the other aspects of this discussion, is, again, the economic realm in its widest, societal and civic perspectives.

Economic Preferences and Realities: The Economics of the Educational Process

When teachers or students in teacher training schools are asked if education has anything to do with economics they tend to say "no". They seem to be surprised when they are asked to calculate – through a simple simulation – the size of the market for textbooks alone (without considering other market items such as drill books, other books, notebooks, writing and drawing instruments and materials, school bags, school activities, trips, and so on). Once they realise this, they seem to fall into total shock. This shock is even greater when they begin to consider the contents of school textbooks, when they realise that publishers would prefer to publish books that they think the systems might prefer, so as to increase their share in the market. After all, it is a captive market. Pupils must have these textbooks. Either they buy the books themselves (funded by their own family money) or the books are paid for from taxpayers' money, as part of the general school or local authority expenses. In any event, the market encompasses hundreds of

millions of whatever currency, even in relatively small countries where school population is limited to, say, only one million pupils in grades 1-12. Publishers, however righteous, would rather have their books recommended by the system than not. Their business aims at profiting from books. So the primary consideration of the publishers cannot be the educational contents of their books. It is rather the contents preferred by those who would eventually decide that these, and not other books, are the ones to be used within any given sub-system.

Those who produce school uniform – where they are still customary – consider fashion trends so that their version of the uniforms will be more attractive to their potential customers – the students. Those who manufacture school bags, do the same. The list is endless. The important thing here is that considerable amount of money revolves within and around the educational system. It influences choice options available to pupils and parents. Eventually, this simple economic equation influences the nature of education and even its contents. Not as a result of any informed decision-making process that is based on educational or social considerations; no, the process is driven by capital market considerations.

It is important to stress that in itself the economic drive, aiming at financial gain and looking at market considerations in relation to the "business" of education, is a legitimate factor. It is the estrangement between this influence and the system being influenced that is baffling; it is the blind eye turned by educational systems towards this factor that reduces it legitimacy. No school devotes even a single class to examine the phenomenon, nor do any teacher training institutions make it a topic for its students to consider and deliberate on.

The issues mentioned above are only the tip of the economic and financial iceberg in the world of education. Issues related to budget are even more pressing and cannot be ignored. Since teachers normally constitute the largest body of state employees, each cent that is added to their individual salaries amalgamates into many millions in the overall budget.

Then there is the indirect expenditure. School buildings and their maintenance cost money. Municipal contribution (direct and indirect) to the educational systems within their borders (e.g., in terms of property tax reliefs, etc.). The list of such expenses can be stretched almost to infinity. But, none of these issues seem to capture the interest of the overall majority of educationalists and education researchers. At best these issues are left for the treasury economists to dwell upon.

Interestingly enough, a glimpse at the list of over 100 research papers[9] published in the last few years by the highly regarded institution of the Centre for Economics of Education of the London School of

Economics, shows that not even a single paper deals with the monetary influences of the economy at large, or any specific aspects of it, on education or the relationship between these factors and the setting of educational goals. The same result is true for the list of papers published by another LSE Centre, the Centre for Economic Performance.[10] The Centre's "Education and Skills Programme" states that it:

"...addresses questions to do with the acquisition of education and skills and their impact on economic outcomes. It is heavily oriented towards providing empirical evidence on key policy questions in this area.

"The programme covers the following two main research areas: The Economics of Education section details the research agenda on education at all stages of people's lives from the classroom to the workplace. It gives information on the various strands of research being undertaken. 'Skills for All' outlines the work being undertaken on skill acquisition and its links to the policy process."[11]

A search among papers of a third highly acclaimed organ, the Institute of Education (IoE) of the University of London, returned similar results.[12] No research seems to have been carried out here either concerning the financing of educational aids and the relationship between such financing and educational programmes. Neither does any research seem to have addressed the reflection of educational priorities in educational budgets.

UNESCO's list of publications[13] is refreshing in this sense, as it contains some papers that examine the way in which education systems – or sections within them – are financed. These papers, however, tend to focus on the need to define the stakeholders and the ways by which these stakeholders should be informed of their rights. UNESCO's papers also address the rights of children to be educated, involvement of parents and various community functionaries and so on. A third thread discussing interrelated financial and educational issues concerns the involvement of the private sector in education systems, focusing mainly on aspects of government subsidies (e.g., Pénao, et al. 1997: 179-186).

Bray (2007) brings illuminating statistics about the involvement of the private sector in the provision of education. He concludes that since "the nature of supplementary tutoring varies; different policies are needed for different societies at different points in time." Consequently, "the range of possible interventions is wide" (*ibid*: 84). While not specifically dealing with e-Learning, he observes: "… private supplementary tutoring… is a mechanism through which individuals can expand knowledge and through which societies can accumulate human capital." e-Learning is not, however, free of social costs. It contributes to the decrease of

governmental control in the arena of education, while also promoting "social stratification and elitism." Good or bad, says Bray, "in many settings this shift is viewed with ambivalence. Governments may have positive reasons for withdrawing the dominant role that they have played in many countries; but in some societies the rise of private tutoring appears to be social response to inadequacies in government quantitative and qualitative inputs. One result is an exacerbation of social inequalities" (*ibid*: 84-85). Private tutoring, then, is established and geared to cater for particular clientele, characterised by special needs related to such realms of religion, language or ethnicity. Distinction should be made between this type of tutoring, on the one hand and, on the other hand, private tutoring that develops as a response to excess demand. This would mostly be the case in industrialised societies but such a response might also appear in less industrialised societies.[14]

The educational endeavour is increasingly more complex. Indirect costs, as mentioned above (p. 8), as well as budgetary allocation to education, comprise only a part of this complexity. Add the costs associated with development of new techniques of mediation, other economic interests. Then there is the political concern about the spread of access to new technology, which should also be quantified. The same goes for the democratic ideal of participation. The overall globalisation and the spread of inexpensive communications also make up a significant factor, both financial and cultural. Just consider the spread – as the result of it – of English as the new "*lingua franca*" of the computer and internet age – and so on.

The result cannot be too surprising: confusion. And this is further accentuated in view of the lack of change in teacher training concepts – even if now the students type their assignments or even submit them through electronic means. The training curricula did not change. The internship schemes do not involve any exposure to economic or bureaucratic or civic or administrative – or even communal – experiences. The classic works of educations are still taught divorced of the new reality characterised by text-messaging dominated by the monosyllabic "NewTalk" dictated by cellular communication, which is so readily available now.

New technologies in the areas of communications and the transfer of information have been introduced to daily life and changed it rapidly. This has enormous impact not only on people's activities but also on the way they conceive of these activities. This had happened along with some other mega-processes, such as the collapse of the Soviet / East European bloc, the expansion of the European Union, the development of such huge economies as China and India and so forth. It left little, if any, time for intellectual absorption of these

changes. Remote instruction, distance teaching and E-Learning, thus, epitomise, in many ways, the phrase coined by Marshall McLuhan (1964): "The medium is the message." McLuhan had argued that the medium, regardless of the content it carries through, has become the real message - and therefore acts as an agent of change. Because of its own characteristics it would become a "message" in its own right, since it creates, by its very innovation or use, a "change of scale or pace or pattern" (1964: 8).

Production and distribution of educational content is mainly dominated by private enterprises. It has long since had been argued that it is "for the most part unregulated, with the exception of copyright regimes." Revenue here is drawn from direct public funding, such as school budgets, grants to colleges and universities, library budgets, grants to museums, etc. Other sources are corporations, which use materials for their own learning or training endeavours. There are also, of course, some purchases which are made by individual users. The materials purchased are determined almost always by the clientele, that is, educational institutions and corporations (Downes, 2005).

Digitisation and increased capacity, however, may pose a threat to such players, should demand for commercial educational content decrease. This is not just theoretical figment of the imagination. Suffice to see the abundance of free online material sponsored by various public organisations[15] or educators, who publish their course notes or other content on the net. And, of course, there is the almost limitless amount of private production of content – some of which can certainly be classified as 'learning' material. Downes (2005) suggests that this content affluence may undermine commercial publishers, mainly because "the nature of their product has changed into one that can be reproduced for fractions of a cent." Moreover, even though reproduction of learning materials might be prohibited, it would not always apply to individuals producing and distributing their own non-commercial material. "Consequently, even if the commercial product remains untouched, it faces increasingly significant competition from the non-commercial sector" (Downes 2005).[16] This might lead to the weakening, if not the collapse of the entire educational content market.[17]

Of course, private interests are not blind to the process. Certainly they (but also governments, possibly for other reasons), do not welcome such a scenario. This might explain their rather heavy lobbying, accompanied, many times, by sponsorship of - and board membership on - colleges and schools and by their expressed concern with quality-assurance and quality-control issues. Or, even more interestingly, the mounting of existing (and increasing) copyrights defences. Also

apparent is apprehension they express with regard to royalty-holders within the educational system, or to issues of marketing and distribution of non-commercial content, etc. It would not be too surprising if it turned out that all of these result from the fear that the private, commercial content providing sector might go under and disappear.

But if we pursue this line of reasoning, it should become even more alarming for those concerned with the private commercial providers' future or sustainability. Because even if such a collapse does ensue, it does not mean necessarily that there should be less educational content available. In fact, it might well be that the opposite will happen. With the appeal of non-commercial content, its acceptability will only increase and it will be spread more widely. Content and content tools become available and cheaper - or free - and more user-friendly. It only stands to reason that the number of voluntary contributions to the world of content would grow. However, the traditional authority attributed to educational content would wane gradually. The result can be seen in the development of a technological or technical market, possibly secondary market. A market of immediate or short-term nature with main thrust geared towards software tools designed to produce (or re-produced), distribute, manage and display content.

Such a portrayal of the e-Learning market would probably not be grossly mistaken, to put it mildly. This type of process, however, is not unique to e-Learning or to any other mediating technology. It would be characteristic of the e-economy as a whole.[18] The focus of spending on learning would shift from the purchase of commercial content towards in-house or self-production of content. Aiming for wide dissemination, it will concentrate on the technological aspects of its delivery. This represents a challenge in the application of knowledge. With a weak history of cooperation, practitioners and policy-makers should now begin to "direct producers of knowledge in collaboration with researchers" (ECE, 2008: 6). With the growing incorporation of e-services, particularly by the authorities, more and more contents is expected to be distributed freely, available to all. Encouragement, by authorities, of wider distribution of content will eventually be part of the e-activity expansion. It can then become also a tax item, most likely as tax credit earner.

The business world does not lag in understanding the wave and its direction. Suffice to see how much energy and resources some big corporations attach to the development of freeware and open sources.[19] Also, the content and content-related market or that of e-Learning more generally is not really heading towards extinction. To the contrary, various specialising niches are more likely to flourish. There would be a whole range

of technologies that are now at the core of the developing efforts. They include such endeavours as classification, indexing, summarisation, as well as dynamic relational database.[20] Amalgamation of different types of content is also at the height of the technological agenda, e.g., linking content, textual, audio and video units into seamless sequences of content, which can be analysed as a whole and so on.

All of these changes allow the entire educational market to leap sunlight years, from the manufacturing age to the service era. Digitisation has allowed consumers to produce their own learning content and thus brought down millennia-old monopolies. Herein lays a true shift in the balance of power, from the authoritative institution to the individual, who many times has power now, but no knowledge of how to use it. This is also the shift from production based economy to maintenance, service and support. It creates educational space which is much less regulated and which is much more activity oriented and self-managed by the learners. It seems that it is a point not fully grasped by many educational officials and by governments – local and national.

In economic terms, the *per capita* expenditure on learning (*cf.* teaching or maintaining schools) is decreasing, this allows for market expansion. From the system's point of view, this should enable greater variety of contents accessible to a greater number of people. Theoretically, this is heaven on earth to governments, which would now be able to increase educational opportunities. In the business sector, these developments can allow SMEs, which hitherto were unable to bear the costs of independent internal educational or training endeavours to access affordable contents and means to mediate them to their employees.

These realities are well in evidence. But not the issue of "nature" of education, the "education-ness" of education, to use the style coined in Gilbert Ryle's *Concept of the Mind* (1949). Here, things are far from being settled, or even clear. As stated by the EU official policy document, when discussing the issue of knowledge mediation. "Although the spread of the internet has given us unprecedented access to vast amounts of information, much of this is not subject to quality control. This increases the risk that irrelevant or questionable material may be taken up in the policy-making process and valuable evidence may be lost in the 'noise'" (CEC, 2008: 7).

The Student as a Non-Particular Consumer/Shopper – Present and Future

In 2007, a survey was conducted amongst more

than 700 economists from over 80 countries attempting to identify the level and strength of evidence on the basis of which – or regardless of which – policies are adopted. Four areas were of particular concern and interest: economic growth, namely, GDP; knowledge economy (research and education); labour market (employment); and social conditions (poverty). It can provide real evidence to policy-makers, substantiating policies with true data. While the value of certain policies varies based on one's outlook, it was only the extent to which these policies are anchored in reality and are based on factual evidence and data that was measured by the survey (Figure 2).

Unsurprisingly, in the area of economic growth (GDP), policies are based to a considerable extent (76%) on solid and concrete databases. Policies pertaining to the labour market and the level of employment are less substantiated and also less supported by factual evidence (to an extent of 54%). Policies dealing with social conditions, or poverty, are even less based on fact, rated at only 37%.What might come as a surprise is the result of knowledge economy policies, which were rated lowest, at 29% only. This is a surprising low result concerning the rhetoric around these issues and their seemingly increasing importance in recent years. As shown in Figure 2, the combined "undecided" and "no" answers in relation to the knowledge economy (71%) portray an ominous picture.

When examined in a much wider perspective, some severe questions immediately rise. The first and major one is simple: how can people – leaders, teachers, parents, students – take informed decisions if they are not really informed? How can they draw conclusions if their knowledge base is deficient? How can society be at all a knowledge based one if decisions pertaining education and research are not based on factual evidence and informed contemplation? How could priorities be determined and a developmental path set to allow society enter prepared to the knowledge era?

It has already been asserted that the educational system does not actually prepare its pupils to successfully participate in the various aspects of economic life; neither as future workers nor as future – indeed also current – consumers. In the age of instant messaging and multi-channel television, let alone advertisement infested internet, there is little doubt that it has become absolutely necessary to train youngsters to become particular and careful consumers. Not only with regard to commercial offers but also to non-commercial potential temptations lurking there and harbouring risk.

There is an argument that the educational system does not actually realise its potential. Because of the pressure laid on it by the political echelon, or the general public, to improve its output. In actual reality, standard
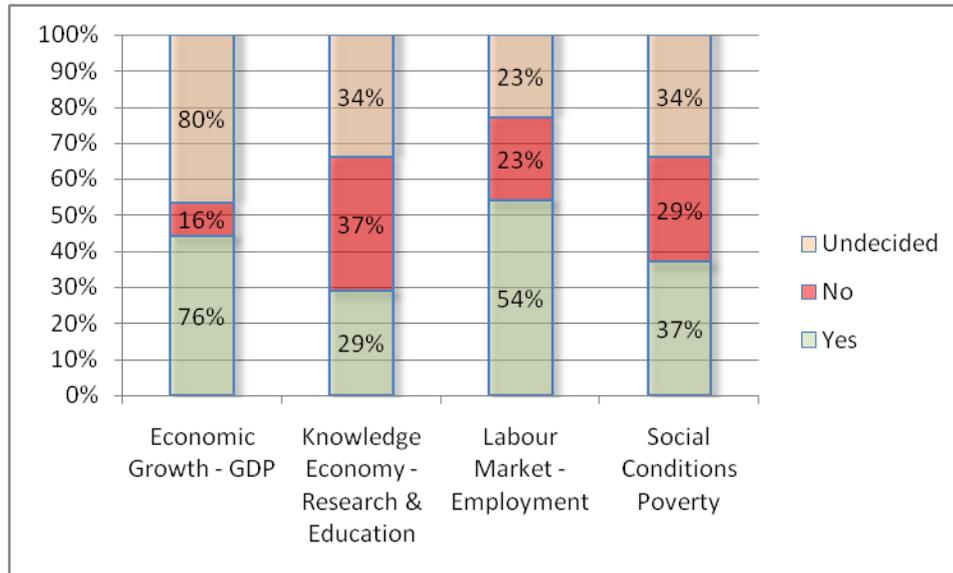
Figure 2: Evidence base for policies in various areas (based on CESifo, 2007: Fig. I)

international comparative tests show deterioration in most of the measures, criteria and study subjects tested, such as language skills, mathematics and sciences. But there are also unmeasured aspects like the extent to which the educational system prepares its graduates to real life. It is also questionable if it trains them adequately to tackle economic and market realities; or to live in an atomised society and to survive by means of competition. If such criteria were applied, the failure of the educational system would have been even greater.

Dissemination of knowledge amongst professionals in the education sector, teachers, is much slower and less profound than what is found in other industries like health (doctors) or planning (engineers).[21] Moreover, unlike other sectors, education seems to have "little scientific knowledge to underpin it, and not a strong enough body of research evidence about what works to inform it." Knowledge about advances in medicine reaches millions of doctors throughout the world within a short period of time. On the other hand, in education, "if practitioners' and policy-makers' learning were as continuous as it is, by and large, for doctors, then they would be able to continually update their knowledge of educational practices so that they could acquire and apply these new techniques as they developed." (Hargreaves, 2000)

To attribute it only to the public apathy vis-à-vis education would only be a gross over-simplification. Also, it would be wrong to copy development drivers in ICT or health 'as is' (or even in a "modified" form) into the educational field. A simple observation of the differences in R&D data between education and, say, high

technology (mainly ICT) and health and medicine would suffice. It reveals enormous gaps in R&D expenditure in these industries (or sectors). In the high tech it is very high level; in health and medicine it is high to very high level. In education, it is low, or even very low level. And it does not end here. Gaps are observed also in other criteria. The level of quality of R&D is high in high tech, varied in medicine and low in education. The level of success in knowledge creation is, respectively, very high, high and low. Speed of new knowledge mediation is very fast, fast, slow and speed of the implementation of such new knowledge is very fast, varied, slow to very slow.

Of particular importance are the third and the last points - the level of success in knowledge creation and the speed of the implementation of such new knowledge. The data for the educational sector, low and slow to very slow respectively, imply two things. Firstly, that it might be deliberate that education is kept at bay. More importantly, whether because of this or not, the conditions within the educational sector and possibly also the level of the practitioners in the field are not conducive for the creation and development of new content of value and relevance. Such that would indeed suit the quest of training the graduate towards fuller understanding of - and proficient adaptation to - current social and economic dynamic realities.

The issue of content or knowledge creation is crucial, regardless of the medium through which such content is transferred to its customers. Of course, the less informed are the customers, the less will they be able to judge its quality or to put it to ample use to advance themselves. This means that customers must be prepared to

understand the terms of consumption before they are exposed to such content that they system might wish to mediate to them. But in a situation where ICT knowledge creation and speed of implementation is so much superior to the educational body of content, it would only be expected that ICT knowledge products – the means, the media – would become the new content. It is rather convenient to those in leading positions, both within the educational echelon and without. Let us get everyone to a stage where they are computer/ICT literate and then they will be able to look after themselves. But is it really so?

It has long since been established that the level of investment in R&D is reflected as a direct proportion in the level of quality of knowledge in the field. According to OECD studies, the level of expenditure on R&D within the entire expenditure on education is less than 0.3%! (CERI, 2003: 10).

It is beyond the scope of this chapter to look into the balance of interests which perpetuates this situation. But the situation itself is the issue here. Absence of informed basis for decision on educational priorities is certainly one reason for the fact that the educational process does not prepare its clientele, i.e., the pupils, to be informed, agile and selective customers. It is particularly so in a context of highly fast, competitive market. The "contexts of knowledge production and use in society are diversifying and new models of research are being developed to respond to these challenges" (Furlong & Oancea, 2005: 6). Education cannot be isolated from this process. When considering the level of investment in R&D, this statement becomes clearer. New innovations incorporated into the educational process, such as e-Learning, are born out of endeavours which take place beyond the boundaries of the educational discourse. Which for all practical matters, does not really exist and if it does – it is certainly neither relevant nor contextually related to real life.

One of the educational goals is to prepare students to become more particular in their consuming patterns, more informed in their decision making and more attentive to the various contexts within which (or next to which) they operate. Under these circumstances, only two courses of action are open. Either real change occurs in the educational system, starting with the will and decision of society and its leadership, or the contents to be used to this end must be imported from other areas. This is further accentuated when considering the data pertaining to educational R&D. OECD indicates that it is of "generally low levels of research capacity, especially in quantitative research," and draws attention to the "weak links between research, policy and innovation" in the realm of education (CERI, 2003; 2007).

It is clear that learning is no longer a monopoly of schools and universities. Also, life experience is increasingly accepted as a valid source of knowledge-related evidence. However, teachers, hence students "and other practitioners are seldom trained in how to make use of research and evidence and therefore they have a weak capacity to apply evidence-based knowledge." (CEC, 2008, 28) There seems to be here a vicious circle. Teacher training requires high level research-based pedagogy and knowledge construction. But this cannot be attained under the prevailing circumstances. Moreover, teachers at school must keep themselves updated, at all times, on recent developments in the subject matter they teach. And, of course, they have to be able to "teach different learners in different cultural and societal contexts" and settings (Hargreaves, 2000). With the rapid changes in world economy, technology, social settings and nature of inter-personal relationship, they also need to be well informed about these changes and the powers behind them. Of course, they also need to know how to harness and incorporate them into their teaching routines. They also need to be able to avoid falling into the trap of substituting the medium for the message.

One last note in this regard. The introduction and rapid deployment of digital technology has also induced organisational and cultural changes. Modifications occurred in internal and external procedures of firms and other subscribers to the ever developing digital world (Castillo-Merino, &. Sjöberg, 2008, 4; Foray, 2004). These included not only means but also management systems and styles, ways of communications, language used, flexible working hours and locations, working environment design and employee involvement schemes, decentralisation and more participatory decision-taking practices; teamwork, knowledge management, work arrangements, flexible compensation and so on.

None of these had happened in the educational system. This suggests that even if it does perceive of itself as "digital aware" sector, it has not adapted itself to the elements comprising the digital productive culture. It is, therefore, unable to participate in that productive aspect which should have been its "natural" domain, namely, content production and dissemination, including content for e-Learning. Under such circumstances, the educational system is also unable to offer its clientele, its students, a systematic training instruction and experimental space for them to learn, within the system, how to produce content and how to judge its validity and assess its effectiveness as an educational material.

Exposure to Information or Knowledge?

One of the major issues that have long since

engaged the educational system goes to its very foundation and definition. This is the question if education's task is to guide its customers to acquire further information. Or is the delivery of knowledge which should result from the educational experience. And if this is so, to what extent which such knowledge is authoritative and final, or non contestable. This, of course, has to do with the way learning – and teaching, or instructing - are carried out.

This core question is not that different when e-Learning is considered. E-Learning is mainly associated with the relationship between humans and computers and other means of transfer of information (or knowledge). The question, therefore, is which of the two potential tasks (or is it both) should be at the centre of this human/machine interaction. Another closely associated question here concerns the definition of either option in relation to the e-Learning process - both in terms of goals and of capabilities.

The subject matter of education (beyond any particular subject or discipline) is the creation and dissemination of information. This might differ, somewhat, from the process of production and distribution of other commodities which happens in various other markets. This assertion has led many to think that because of its special nature, educational processes cannot survive, let alone compete successfully, within the frame of open market conditions without external – governmental – assistance.

This also led some experts to argue that "information is not a commodity, at least not in the way the term is used in neoclassical economics or understood in industrial society." It is accentuated when compared to industrial commodities, which are "produced in discrete, identifiable units, exchanged and sold, consumed and used up." When an industrial commodity is sold, or bought, a physical item is exchanged. However when information, or knowledge, are sold, they still remain with the producer. Moreover, "It is a collective good in that once it has been created it is by its nature available to all" (Bell, 1980: 513). This argument is easily refuted, of course, particularly when the existing market of intellectual property is considered, or that of scientific and technological developments is examined (Walberg & Bast, 2003: 208).

Furthermore, incentives for production of knowledge or information are as apparent and tenable as they are in the market of tangible commodities. Maybe even more, if we judge by the amount of money which is revolving in the "breaking news" market alone. The difference between "announce-able" and tangible commodities seems to lie in the consumption end. Unlike tangible commodities whose value for the user do not necessarily diminish with repeated use, news of just one hour ago is normally of no value at all or of very limited value. Yesterday's newspaper is only good for wrapping fish in the market; television set is valuable as long as it is used.

And yet, it appears that unlike educational produced information or knowledge, other types of information is capable of generating huge amounts of money. Without feeling threatened by the growing quantities of free share available to the public. Already a decade ago, in 1999, the value of US market transactions on software and hardware alone was, respectively, $ 157 bn. and $ 800 bn., or total of $ 957 billion.[22] Additional tens of billions of dollars were spent on pharmaceutical R&D.[23] These figures do not take into consideration other knowledge-based industries such as biotech, engineering, telecommunications, broadcasting and telecasting etc. Nor do they include the auxiliary and supporting services that also require knowledge base, such as law or management. Thus, these data show clearly that information – or knowledge – end up as consumable commodities, even if of particular nature.

But the above mentioned assertion regarding the non consumable nature of information is not entirely baseless. There are forms of information which are not evaluated in market money terms. Such as that in data collected by governments in the course of service they provide citizens with, defence, social security, civil registration, educational services and so on. Such information is used by governments for the greater good of society, as it is perceived by them. It is on the basis of these data and information that governments make their theoretically informed decisions as to the allocation of resources available to them, regulatory policies, distribution, etc.

As a matter of fact, also such information or knowledge can be priced. It is only because it is so abundant and because it is not obliterated once used, that it is thought to be available to all freely and conceived as costless.[24]

It thus becomes clear that in fact, that production of information or knowledge is an activity that can only happen within the constraints of ample investment, organisational structure and competitive environment. Yet, when it comes to schooling, many, including leading scholars, tend to look at this procedure as a metaphor, borrowed from other economic activities rather than reality (McCloskey, 1985: 40-51; Cobb, 1992: 1; Henig, 1994: 13; Fiske & Ladd, 2000: 312).

However, as has already been asserted, schooling is part and parcel of the information industry with all the characteristic of commodity economy. To begin with, in every country in the world, expenditure on education is normally the largest item on the national budget. Hundreds of millions are spent on K-12 schools alone, mostly on teachers' salaries. It continues with the market

of books and other paraphernalia items associated with schooling. And no less, with the financial wavers accorded to school buildings or activities by the various authorities.[25] It ends with the fact that providers and consumers in the market of schooling (or the education market) perennially face and have to make choices and decisions between alternatives, in view of limited resources and budgets, like they would do in any other economic activity.

We still have to determine what – if any – is the difference between knowledge and information. We also need to ascertain what is, could be and/or should be delivered in the educational process in general and through e-Learning (or should it be referred to as e-Education?) in particular.

On the whole, it seems that information is easier to define. Many scholars would regard it as related to human participation in the purposeful organisation of raw data. This includes "organised data" (e.g., Saint-Onge, 2002); "data endowed with relevance and purpose" (Drucker, 2001); or "interpreted data" (Probst et al., 2002).

It seems to be harder to define knowledge. The Greek word *episteme*, from which the concept derives, means "absolute truth" – in itself a somewhat difficult concept. Already Aristotle and Plato dwelt on the issue of its origin and scope, not necessarily with great clarification. It is impossible to plunge here into the lengthy philosophical and etymological debates pertaining to the concept. We shall therefore only point at empiricism, as another major way in which learning and acquiring of knowledge occur. What these two attitudes share is the presumption that knowledge can only reside in one's mind. And is the result of human experience and reflection, based on a set of beliefs shared by both individuals and the collective in which they belong (Gordon, 2002). A variation on that regards knowledge as a structure, originated and applied within individual minds to evaluate and incorporate new experiences and information. This structure consists of a mix of non-distinct values, experiences, contextual information and intuition. Here, knowledge "is true and justified belief." (Nonaka & Takeuchi, 1995) This assertion attributes a key role to humans who, in fact, are the creators of knowledge, its carriers and users. As opposed to information that can occur outside and regardless of the human domain.

This also means that management of either knowledge or information would differ from one another, albeit the tendency to mix the two. Information is easier to identify, organise and distribute, unlike knowledge, which is inherent in the particular mind of a particular person. Managing knowledge, therefore, would be

confined to the setting up of ample learning environment for individuals. It will be done through the use of information, supported by and supportive of individual and social experiencing of the world. Knowledge, then, can be transformed into relevant information.

This distinction is not dissimilar to that implied by denotative definitions of related terms. The term "data," denotes at facts serving as a basis for reasoning, discussion, or calculation. "Information" indicates transferring of knowledge or intelligence. "Knowledge" implies the understanding of facts or information retrieved through experience, or the comprehension through reasoning of truth or fact (Bouthillier & Shearer, 2002). Information, it turns out, "carries the connotation of evaluated, validated or useful data." While knowledge implies "a higher degree of certainty or validity than information," having "the characteristic of information shared and agreed upon within a community" (Meadow, *et al.* 2000: 35, 38).

There is yet another way to look at it, but it does not really change the nature of the definitions. Information can be regarded as organised facts and data depicting a specific state of affairs. Knowledge would then be considered as a collection of concepts, perspectives, truths, beliefs, judgments and expectations, organised in a methodological manner based on formerly gained know-how (Wiig, 1999). In other words, information is data that by context-related arrangement becomes meaningful. And knowledge is data that create sense through the reliance on experience (or at times, inference), pertaining to the interaction between actions and their consequences. Thus, it also has the capability to guide (Mitchell, 2000).

The conclusion is obvious. Information is concerned with answers to questions such as who", "what", "where", and "when." Knowledge is the domain of the questions of "how" (Ackoff, 1989).

If this is the case, then the subject–matter of any means of mediation, whether human or electronic, should indeed be information-related technical facet. Questions regarding PLE (Personal Learning Environment) vs. LMS (Learning Management Systems) should only confine themselves to the technical aspects of the delivery of contents to the e-learner. There is another question which the mediating agents (or rather, those dealing with it, either in research or as practitioners) should concentrate on. How the means of transference adapt themselves to the educational content, rather than creating a situation whereby the content should adapt to the means of mediation. This, unfortunately, does not happen, or does not happen enough, as numerous publications easily suggest.[26] What does happen is that the major attempt in the field

is to confine and adapt the pedagogical and even the very educational philosophy so they become deliverable. No heed would be given to the ability of the learner, in terms of his or her prior knowledge and ability to process information. In such a situation, delivery would be lacking and insufficient. It would not allow real understanding. It would also not provide tools to act on educational, social or economic hindsight, retrospection and premises.

On the other hand, various technologies that have been developed in the realm of mediating information, possibly also knowledge, do offer understanding and other capabilities. Moreover, such developments enable the harnessing of the technologies developed, to advance dispersion of knowledge or even mere diffusion of information.

This is important. For amassing information, it is enough to collect data to which contextual and relational connection gives meaning. But this is not the case for knowledge. Knowledge is not merely the collection of information, nor is it just a process that seeks to create added value of usefulness. Knowledge requires a true cognitive and analytical ability. It must encompass understanding and aptitude to incorporate into the mental processes – intellectual and emotional – also prior or "stored" knowledge. Even for the sake of answering questions

Understanding itself involves an interpolative and probabilistic processes, as well as observational capacities, used mainly in comparative nexus. In fact, it is the process of distilling and synthesising new knowledge. This is really the true sense of learning as it enables the undertaking of useful actions, based on the synthesis of the new knowledge, now rendered dynamic. Understanding, thus, can build on information, knowledge and understanding itself new constructions which are not only conceptual, but which are also capable of inspiring action. This is different from instrumental processes, such as mediation of pre-set materials, or artificial intelligence and machine learning, which can manipulate, for example, digital texts but cannot change the course of events on the basis of dynamic understanding.

The Classroom

The notion of classroom and its physical layout, along with the activities within it, have changed greatly during the last hundred years or so. Or has it really. It is necessary to examine if such changes have been material and qualitative. Or were they mere lip-service

paid to the notion of progress while no true change has really been implemented. The answer would be highly important when examining the extent to which e-Learning can be incorporated into classroom practice and on what terms.

The physical layout of a class can encourage or discourage the interaction which takes place within it, affecting thus the process of learning. But there is more to it. It is important if this question is addressed and discussed as part of the class intercourse, amongst participants (whether children or adults) or between an instructor and those instructed. If the question of the nature of the interaction sought is raised, it would in itself be a factor in the physical layout which results from such a discussion. When the class is composed of participants who are used to traditional class layout, it might even convey and arouse in them hopes for new and different class experience.

This is, of course, part of the overall ongoing communication process that happens within the set-up. One element in communication must, however, be observed here: the unmediated eye contact. It would be even further accentuated in a setting of e-Learning (even when the process involves elements of vision). This is, because eye contact is considered as an essential key in the establishment of human rapport (Argyle, 1975; Miller, 1967; Ornstein, 1972). This, of course, is also an important tool that can be, indeed is, employed by instructors, even if unconsciously.

Consider the conventional, or traditional, classroom layout, dominated by rows. This arrangement allows the instructor to maintain eye-contact with all the participants. [27] It eases delivery and interaction (e.g., questions and answers). It is an arrangement where the central role (and position) of the instructor is evident.

In a scenario of electronic delivery, the audience might still see the instructor. They could possibly also interact both amongst their membership – and even with other remote audience. However, the eye contact will be intermediated and will lack the direct, human and unmediated experience.

The centrality of the instructor is assured by such a class layout. But the participants are not in a position where they can communicate with one another, exercising eye-contact. They are in rows, thus looking at the backs of their fellow classmates.

In Small groups' class situations there is, many times, an informal arrangement of sitting. Many times the set-up is of only one desk/table around which some four or five students can sit. This encourages group exchanges and relationship building, along with small-group-atmosphere which is considered as conducive to effective learning. Eye contact in these situations,

encompass all the participants and even if the instructor is still in the centre, the intercourse is all embracing.

Another popular layout is the "U"-shape arrangement, which is more often than not used for larger groups in general discussions situations. Whether behind tables/desks or not is an issue in itself. But as it goes beyond the scope of our discussion it will be left out of it. In any event, this situation is considered to have an advantage in that it retain the central role (and position) of the instructor. It still enables the group to interact amongst their membership, as well as with the instructor, without too many difficulties. Semi-circle arrangement (normally when there are no tables/desks), would be more efficient from the eye-contact enabling point of view. This is because it overcomes the difficulty of looking at a fellow class-mate who is sitting in the same line of the "U" arrangement. The lack of barrier which tables or desk create, invokes two somewhat conflicting effects. On the one hand, it eases and frees the atmosphere as there are no barriers. On the other hand, however, it brings into play a measure of embarrassment which results from the fact that those sitting have no "protection" (which tables or desks would have offered), which might cause them to feel exposed and therefore vulnerable.

In e-Learning set-ups, where vision is either absent or if existing, it covers generally the head alone, this is not an issue. In fact, even if the vision encompasses the entire room, it is still mediated. There is no direct exposition to the naked eye which makes it much less "threatening" and also much less personal.

"U"-shape set-ups are the norm in board rooms or corporations' conference rooms. There, the participants are sited around one table. In this, it resembles more the "small group" set-up than the class-room's "U"-shape arrangement.

The arrangement of classrooms has become an issue only in the last few decades. It was accompanied by changes in teaching methods that either initiated alterations in class layout of followed it. But it is highly questionable whether such re-arrangements of classrooms had also considered the procedure of knowledge acquisition. C. A. Mace has long since clarified it. As early as the beginning of the thirties, he wrote:

The natural order in the acquisition of knowledge is from the vague to the precise, from the rough outline sketch to the detailed picture, from the provisional and inaccurate approximation to the refined and balanced truth. This, too, has practical implications (1932: 43).

One implication that needs to be looked at pertains to the relationship between the physical layout of the place of study and the extent to which it is conducive to better or more efficient, acquisition of knowledge.

Learning efficiency depends also on the level of free flow of interchanges, particularly if they are moderated. It depends no less on the richness and fullness of knowledge which is the subject matter of that flow.[28] But it seems that the role of knowledge base eclipses and that of the free flow. The strength of the source of knowledge transferred in a learning session is also of the utmost importance. Thus, it seems that we are re-directed towards the question of contents. But it should be reiterated: the knowledge transferred must be full and complete, authoritative, standing on a wide and solid basis. It must also be transmitted confidently. The human element in the transmission is extremely important as it can encourage or daunt the learners.

This can support the incorporation of e-Learning in its different appearances and phases into the classroom. It could constitute an essential and more importantly, natural ingredient of day-to-day classroom activity. However, the trend to employ contents as servants of means could only lead to the deterioration in learners' capability to conceptualise and intellectualise whatever subject matters they are exposed to. This is further accentuated in view of the importance of the human contact that must be part and parcel of the learning session. Even such deficient modes as the frontal arrangements of classroom layout can convey it. The e-Learning tools that should be introduced into the classroom, must therefore overcome the alienated nature of the electronic contact. Emphasis thus must be placed on the other component of the learning process, the knowledge base. Harnessing the mediating technologies to its service instead of the other way around, might compensate for the difficulties of the electronic mode of communications. This can happen if we would agree to retain the less glamorous goals of classroom activities, like social conformity, discipline and obedience and, of course – enriching students' knowledge.

Individual Learning in e-Learning World: Exchange vs. Uni-directional Instruction

What happens to educators when they have to turn to practices which are diametrically opposed to values and traditions they were brought up on? This might happen if those trained to execute one-directional instruction or teaching, begin a journey of not knowing, of exploring, of exchange and dialogue, instead of the traditional monologue which characterised the practice of instruction and teaching.

Learning at large and e-Learning in particular, demand certain attributes of teachers and educators, which are not necessarily part of their training curricula.

There are attempts, maybe not enough, to change these curricula. Some of these, however, are only lip service demanded by the political echelon. It is, of course, the source for the financing of education and of teacher training institutions which are part of it[29].

Historically, education, whether of the more privileged or of other segments of the population, aimed at the training of the students to act in accordance to their standing in society. This would assist in maintaining the social strata intact. Society could thus resist and fend of all threats, real, potential and imaginary to the prevailing social order. One of the means employed was an educational system characterised by a highly rigid structure and discipline. Obedience defined the success of the educational process. The transmission of whichever educational contents that ruled the day had to be authoritative and one-directional. It must have also demanded precision in performance and execution of tasks by students.

With the alterations induced by changes in the socio-economic realities, corresponding modifications in the teaching – and learning – experiences followed suit. But these had mainly changed the contents and eluded adaptation of new means of mediation. Students were still expected to perform accurately – more often than not in a mechanical way. The overall expectation of society from its educational system was to prepare the graduates to be good and useful citizens.

The debate about the role of individuals within society and about individual capacity vs. social expectation of individuals had its origin as early as the 18th Century with philosophers such as Rousseau (if not earlier, with Plato). It had produced a new insight which characterised the 20th educational thought. Here, the main thrust was that a child should be nourished to develop his or her individual unique capacities while retaining his or her position within the social context and codes.

However important and interesting this debate was, it neglected to catch up with the economic and technological developments and changes. A lag developed between the educational system and the techno-economical realities. It was only in the last decade or two of the 20th Century that the alarm was sounded. And even that, mostly because parents became less and less satisfied with the lagging of the educational system. As a result, an almost hysterical rush began, to incorporate ITC into the educational system. The balance between individual and society no longer mattered. Exactly as the social interaction no longer scored highly as an educational goal, even though it deem necessary to induce efficient learning combined with social awareness,.

The excuse was readily available. Educationalists had heralded individualism for quite a while. Mainly as a response to the automatic surrender to social decrees which characterised the education of an era bygone. Promoting the score of person-machine relationship to the top was rather easy.

There seemed to be a ritual of canonisation of ICT – and before that, of individual learning. Unfortunately, it lacked a thorough inward "soul searching" that would produce, or at least re-define educational values and contents. It also lacked the development of curricula that would enable the understanding of the economic and technological realities. And also explore the relationship between these realities and the educational values and experience of the student. Educational environments cannot be considered isolated from the educational processes. Also, they cannot be detached from the target groups and stakeholders who are part of that environment. This means that the learning process assumes a mode of negotiation (Ehlers, 2007).

Since e-Learning was introduced and began to gain force, the concern of those dealing with it (and also of those researching it) was much less to the issues and relationships mentioned above. Rather, it was the mechanistic features of the means of delivery. And the delivery techniques that were in focus, at least to a considerable extent. In many - or most - cases where educational content issues are discussed or addressed they would be subject-specific rather than general.[30]

It has long since been recognised that learning scenarios should allow for (and adapt to) different contexts, situations. They should also consider personal and environmental conditions. The emphasis shifts to individual learning surroundings and requirements. The use of technology in learning becomes more prevalent. As a result, PLE (personal learning environment) turns to be more central in designing learning processes. But while attentive to the changing of technologies – mainly "the emergence of ubiquitous computing and the development of social software" – this is still deficient and less than satisfactory. This is because hitherto existing "forms of learning" cannot be merely "reproduced" in a copy-cat manner (Atwell, 2007).

One way to overcome the problematic situation of the content issue is the development of "social software" which might "narrow the divide between producers and consumers… through creating and sharing." This would pave a way for "a new ecology of 'open' content, books, learning materials and multimedia, through learners themselves becoming producers of learning materials" (Atwell, 2007). But noble as it is, this attempt to address the difficulties of contents production and availability bear no answer to the questions of values or to how to

prepare students to independently understand through educational tools, socio-economical and cultural realities.

It is true that technology can – and does – offer vehicles and methods for exchange and sharing. But it is not that clear that they can, in themselves, actually enrich the instruction, let alone the contents. Some thinks that for this reason the "hype about e-Learning will decrease rather than increase in coming years" (Davey, 2007; an interview with Prof. Ulrich Hoppe) While advocating "intelligent tutoring" - which is the mainstream of education related AI (Artificial Intelligence) - Hoppe maintains that it "has more difficult relationship with Computer Support for Collaborative Learning (CSCL)." He also suggests that "a potential conflict may exist between restricting the role of technologies to facilitating human-to-human communication, and Intelligent Tutoring Systems (ITS) that are often seen as active agents to steer human learning." Possibly because of these, he recommends that technologies should be subject to educational scrutiny and approval (Davey, 2007).

There is no doubt, of course, that e-Learning can enhance learning through exchange and elevate it to a much higher level. There is also no doubt that there are no "risks" in technologies as such. However, like every other platform, it is the contents it carries that would render it useful or harmful. Educational scrutiny and approval will not suffice. The real challenge for the next e-Learning developmental endeavours can be defined as follows: Developing new concepts and methods to deliver contents deriving from educational materials, value systems and understanding of socio-economic and socio-cultural realities and goals.

The Need to Re-Define Educational Objectives and the Potential Offered by Information Society and Information Technology

The evidence presented in this chapter clearly shows that educational objectives must be reformed – or redefined to suit and harness –technological developments and economic processes, notably globalisation and digitalisation. While some changes can already be detected, many are no more than mere technical adaptation of what might be regarded as more convenient ways to do the same which was done hitherto. Only by addressing the core issues of education and the social expectations and demands of education, could the latter truly enjoy the whole range of benefits that can be found in information technology and information-based society. Moreover, only in this way can education become part of the overall social and socio-economic development warranted by information

technology. Educational objectives are the basic goals as set, accepted or agreed, by social consensus, which determines where society expects the educational system should bring its graduates. Such objectives go beyond the technical taxonomy, as suggested by Bloom (1956). These objectives are thus anchored in society's most noble aspirations while also embedded in the socio-economic and socio-cultural realities.

The internet has imposed a wide range of changes on value systems and instigated a lively ongoing debate concerning these issues. Value systems are affected not merely in terms of the internationalisation of culture and the diminishing of local uniqueness, but also in terms of morals and other aspects of the value systems adhered to by various societies. The role of generation gaps, religious gaps, language gaps, and other such cultural attributes is changing, albeit at a different pace in different locations around the world. Notably, there is a call for new definition of participation, of civil and social bonds, of civil and social responsibility and so on.

While e-Learning currently presents a mediatory nature, it can very well go beyond the current role it occupies. It can indeed grow and turn into true e-Education. Such a transition, however, is dependent on a transition in social outlook. Only if society enters an ongoing debate, in which all segments of society participate, could such a transformation be achieved. This in itself proposes what might be the first educational objective – to widen e-literacy to the entire population. Such a goal would necessitate changes in the allocation of resources and in the budgeting of education; a change in the mode of communications between governments and their citizens. Within the educational field, such a goal means a radical change in the way teachers are prepared in their various teachers' training institutions. The amended curricula to be pursued in such institutions will, as a matter of course, change the quality and professional (possibly also the psychological) profile of the new teachers. The direction of e-Learning development, would take an upturn signified by the ability to harness ICT (Information & Communications Technology) to create vivid and viable contacts between basic educational goals as determined by civic society on the on hand and, on the other hand, by socio-economic and socio-cultural, as well as environmental realities (in their widest sense, not just in its natural sense).

Notes:

[1] This issue has reached the European Court of Justice, which ruled against affirmative action, which is perceived as merely another form of discrimination and is hence illegal. Neither the court not other who debated the issue have been able to determine how to balance between the need to encourage less privileged members of society with the equally important need - to enable other members of society to move on and advance in their own pace.

[2] The official EU document on the development of education system aimed at the enhancement of knowledge-based society states: "The challenges relating to the creation of knowledge on education and training are related to concerns about its relevance and quality as well as low levels of funding available for such research. This appears to be more of a concern than in other policy fields, such as social care or employment policy…" (CEC, 2008, 6)

[3] The issue of gender distribution is, in fact, highly important and goes well beyond the political correctness or the social ethics (which are, of course, also important). Experience shows that whenever a profession undergoes a process of "feminisation" – that , is, women become the majority of its occupants, not only do salaries in this profession, or sector, plummet but also, the social status of the profession deteriorates. Those who practise the profession are regarded less and less as primary household "bread winner" and in overall social terms, the clients of this profession no longer enjoy a balanced attitude towards the problems treated by the profession, as half of the population is no longer represented in the profession adequately. This has happened to the teaching profession in most countries and it can now be seen in some other professions, notably in the public domains of the legal services (prosecution services, etc.). Such degradation also occurred in several countries in relation to junior academic appointments. Interestingly enough, "feminized" professions tend to hold feminine majorities only in lower professional levels while the higher echelons of these professions remain masculine at large –yet another facet of the imbalance in gender distribution.

[4] Including personnel affiliated with higher education comprising (17%), commercial training or educational service (11%), financial services (9%), healthcare (8%), professional business or consulting (6%), insurance and government (5% each), manufacturing (4%), and others.

[5] For years this issue has been widely discussed as a technical issue that warranted technical solutions. See, for example, Capuano *et al.* (2000) as well as others.

[6] For some interesting and illuminating discussions following Goffman's analysis see also Davies (1989), Becker (2003), and Smith (1999).

[7] See, for example, Junge & Hadjivassiliou (2007) for the issue of measuring, Casacuberta (2007) and Benigno *et al.* (2007) for the issue of e-inclusion and Ala-Mutka & Punie (2007) for the issue of expansion, particularly in view of the phenomenon of aging society.

[8] As was the case in the early years of the current century when institutions such as Kampala International University and other privately owned universities in Eastern Africa had sought to set a widely spread remote teaching systems in order to increase their income from remote students.

[9] Published at the following address: http://cee.lse.ac.uk/pubs/default.asp.

[10] http://cep. lse.ac.uk/_new/publications/default.asp.

[11] http://cep. lse.ac.uk/_new/research/education/default.asp.

[12] http://ioewebserver.ioe.ac.uk/ioe/cms/get.asp?cid =11652&11652_0=11659.

[13] http://www.unesco.org/iiep/eng/publications/recent /rec8.htm.

[14] China might be an interesting case at point. In the last two decades or so, private education has sprung and grew significantly, as parents decided that they wanted to enabled their children to stand out as "different", better cared for, believing that if they paid for their children's education they might receive indeed better tutoring and possibly also richer curricula. In many cases this belief was indeed justified.

[15] E.g., *BBC*, *SchoolNet*, NYPL, MIT OpenCourseWare, to name but a few.

[16] *Wikipedia* might be the most striking example. Also, consider such products as *Google Maps* and *Google Earth*, or the free content of the *Live 8 videos*. They all show that this impact will be widespread.

[17] Downes and other estimate that such a collapse, if not adequately tended to, might happen within a short period of a few years.

[18] Consider, for example, the economy of audio creation and storage technology and how it had so quickly developed into a huge free, open source shared non-commercial market, albeit the tenacious battle waged against it by the various interested parties in the audio related industry, from creators to producers to performers to marketers. Or, consider the blogging market, with the disappearance of sorts of Typepad or Userland which were replaced by free blogging services. This particular market has also implications pertaining to

the e-Learning market, certainly in the domain of content.

[19] A case in point is the development of Linux by IBM and its new corporate strategic direction, to leave behind production of hardware or even software and become instead consulting and integrator service provider. Likewise, consider *Google Maps*, *Google Earth*, or the free content of the *Live 8 videos.*

[20] All of these featured in EU funded projects in FP5 and much more so in FP6.

[21] It might be interesting here to point at yet another anachronism: education is always referred to as "sector" whereas other domains, like health or engineering, are "industries".

[22] *The Economist*, 14.4.2001, p. 4 of "Software Survey"

[23] $ 30 in 2001 (PhRMA, 2001, 25)

[24] This, of course, is not limited to the information collected by governments. Consider television. While there are quite a few programmes based on "pay per view" arrangement, so called "free television" is still the most common way to consume this medium. Yet this "free" watching is entails a numerous expenses, ranging from the purchase of the set through subscription fees to the satellite or cable operator, or the state's television fee or license, etc. and we have not mentioned here the cost of the competition associated with the production of the programmes watched…

[25] Including property tax wavers, as well as other tax breaks, VAT wavers, etc.

[26] E.g., Clark & Mayer, 2008; Tai, 2008: Delrio, & Fischer, 2007; Kastis, 2007; Wild *et al.*, 2008 – who argue that "learning environments and their construction as well as maintenance make up the most crucial part of the learning process;" Gonella & Panto, 2008 – which discusses 'e-Learning 2.0' and the incorporation of 2.0 technologies and tools into the new mechanism of LMS, as a major didactic endeavour; Aviram *et al.*, 2008 – in their discussion of the iClass; Tüker & Zingel, 2008; Banyard & Underwood, 2008, which examine the relationship between digital technologies and learning mechanisms; and many more.

[27] How effective or efficient is such an eye contact – which in order to include all the audience require a gaze and movement at a narrow arc of vision – is beyond this discussion.

[28] See, on this subject, discussions in Ryle (1949/19964), Borger & Seaborne (1966/1976); or Thorndike (1931/1968), particularly in regards to the centrality of knowledge base for the conceptualisation process and also the value of freely flowing exchange in the human learning process.

[29] See, for example, the discussion with former ministers of education, in Boyle & Crosland (1971); or Jackson & Marsden (1962); Rubinstein (1979), particularly Halsey (1979); Cosin (1972); etc.

[30] For example, Godejord (2007); Tuparova & Tuparov (2007); Korte & Hüsing (2007).

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