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Technology and Alienation: The Case of Distance Learning

"Alienation" is a fuzzy concept. As such it is connected with a cluster of different traits that are all present only in cases that represent the typical context. The resemblance between the other cases is only a "family resemblance" (where one shares the snub nose with one cousin and the nervous tic with another, whose smile reminds the grimace of a common aunt). The "alienation" family is, moreover, multi-generational, which gives room not only to inherited differences but also to new mutations, such as technology-related alienation. "Technology" is equally fuzzy, and there are many different theories about the similarity or difference between, say, a hammer and a computer program, a tool and a method, a structure and a function, industrial and artistic activity etc... The fuzziness of those concepts allows some authors to make claims about their interrelations with which others disagree despite their apparently similar premises. In the present paper we deal mainly with our partial disagreement with some of Heidegger's claims, and our total rejection of the hasty conclusions of some of his uncritical "groupies". In order to do it we use, as a case-study, a case of a computer-connected technology.

A short (and partial) history of the "alienation-family" may, however, throw light on Heidegger's position and the claims of his admirers: "Alienation" has old religious origins, but since the end of the 18th century the typical context of alienation is the modern society, with its spreading positivistic views of science, technology, man and society, and its growing criticism of any appeal to metaphysics and magic in general and to religious dogmas, myths and cults in particular. It is a context of expanding industrialization and urbanization, and the transformation of local religious communities into secular "mass societies", where the interactions with anonymous others, directly and indirectly, through market exchange, bureaucratic administration, easier and safer transportation, mass-media etc. are much more important than in typical "traditional societies". The various notions of alienation presuppose a former, non-alienated era, but the foci of nostalgia in the "lost paradises" are in a constant shift.

The German Idealists, in their effort to overcome the Cartesian dualism and the anti-religious implications of a positivistic materialism, applied ancient pantheistic ideas and claimed that the mind-body bifurcation represented a failure to recognize the material "non-I" as a projection of the "Absolute I", and the biography of the individual "I" and the history of humanity as events within the "Absolute" in its redeeming strive for "self-consciousness" e.g. Schelling (1800). They thereby contributed to the "alienation-basket" the typical trait of a wrong identification of something as an "alien". The nature of the "alienated" thing changed, however, from one thinker to another. For the sometimes atheist Hegel, "alienation" meant, among other things, the failure to recognize the "immanence" of God as well as Satan, as aspects of the purely human reality, in collective history and in personal biographies (Hegel, 1807). (The personal version would later be adopted and adapted, under Nietzsche's impact, by depth-psychologists. They would transform "alienation" into "repression", "projection", denial of the "shadow" etc.) It also meant the failure of the "master" and the "slave" to identify themselves "dialectically" - the former as "slave" and the latter as "master" - in their mutual dependence. It is, in fact, the failure to recognize the other as equal to oneself (*ibid*). Marx shared some of those opinions, but put the stress on the alleged failure of idealist philosophers to take seriously the materialistic aspects of human existence, and saw it, according to Engels (1893), as a form of "false consciousness". Under that description "alienation" is our failure to recognize the "materialist" history as our unconscious collective making (Marx and Engels 1845-1846). In the era of capitalistic "fetishism of commodities", it means the workers' failure to understand that their work and its fruits are not just marketable means of production and products, realize, moreover, that they are exploited, and be aware of their real force and ability, in the "materialistically" due course, to shutter down capitalism and go beyond it (Marx, 1867). For Weber, who rejected the common belief of the fore-mentioned thinkers in historical laws that determined the collective fate, the alienating misidentification meant the failure to understand that social states and events are not the working of collective regularities or tendencies, but rather the unintended results, on the collective level, of the interactions between the intended personal actions on the individual level (Weber, 1922). That position applied also to the belief that "history" strives towards the realization of "universal values", or the conviction that the prevailing norms are

determined by social laws. The illusion that things are done, or should be done, because that is what "one" (in German: *man*) – i.e. the unspecified and anonymous "everyone" - is supposed or ought to do it would be later the essential aspect of alienation in Heidegger's early writings. But while the latter (Heidegger, 1927) attributed that alienation – i.e., the flight to the anonymous "*das Man*" rather than being "authentic" in a "resolute" and "responsible" way - to "existential anxiety" – Weber, who was not convinced that *all* values were reducible to individual attitudes to conventional norms, was interested in other aspects of the modern *malaise.* He put the stress on the experience of "disenchantment" that accompanies the realization that the power of a charismatic figure or institute is just a temporarily working illusion, whose effectiveness depends on the faith of the individuals in the alleged "charisma" (Weber, 1968). In the specific case of the developing capitalistic-industrial mass society, it was the realization of the participating individuals that the institutions that they had established in light of their protestant ideals actually imprisoned them in the "iron cage" of impersonal and imperfect "bureaucratic" social organizations, without the personal guidance of a venerated leader or the aura of a sanctified institution (Weber, 1904-1905). Other sociologists have added to that experience personal "disorientation", "not feeling at home in the world" (Berger, 1990), "loneliness in the crowd" (Riesman *et al.* 1963) or "isolated anonymity" (Hall and Whannel, 1965). Existentialist philosophers, sociologists and psychologists added to the "alienation-basket" the sin of "inauthenticity" - i.e. the denial of one's freedom to choose his way among his "infinite possibilities" and one's responsibility of the choice (Heidegger, 1927; Sartre, 1943), or the suppression of one's "true self", and the self-identification with, or at least the presentation of, a conformist "false self" (Winnicott, 1960; Laing, 1959), in compliance with the opinions and wishes of others. That addition was supplemented by a parallel denial of the other's freedom and responsibility, as if he were a causally determined "object" and not a deciding "subject" (Sartre, 1943). Some post-modernists re-interpreted those sins as misidentification of oneself and the other as members of different groups: The failure to understand that the "essentialist" characteristic that are attributed to members of the group of the excluded "others" (and thus turning them into "determined objects") are projected unknowingly by the members of the excluding "dominant group", who are not aware of their own determination by the ideology of their group, and of their ability to free

themselves and the "others" from that oppressive "mythology" (e.g., Foucault, 1961; Barthes, 1970)

"Technology" was added to the list of alienating factors in the 20th century. The conception of man as a machine goes indeed back to the 18th century (La Mettrie, 1748), while the idea that another person's body can be used as a tool for another person's ends is as ancient as the practice of slavery and prostitution. But even in the 19th century, when "technology" meant neither machines nor tools but rather the know-how that determined, in any generation, the available methods for the production of goods and services, it was not considered as the cause of alienation. True, the debate about the connection between the technologically determined capital/labor ratio in the input and the "due" profits/wages ratio in the distribution of the output was the occasion for Marx' contesting the "bourgeois" treatment of the "dead work" of machines and the "living work" of human beings as alternative marketable "means of production" (Marx, 1967). By the failure to distinguish between their contributions to the "value" that was added by their combined activity to that of the initial raw materials and tools, work as the human-specific activity and thereby man himself and the fruit of his creativity were misidentified. But that was the fault of capitalism and not of technology. The latter acquired the reputation of an alienating factor during the 20th century: The introduction of the treadmill techniques, with the ensuing division of labor and the monotony of quasi-automatic movements (Chaplin, 1936) with no personal initiative or sense of responsibility and authorship, contributed to the accusation that it was responsible for the modern sense of purposelessness and meaninglessness. Fantasies about human-like robots and, later, with the introduction of computers, about artificial intelligence and life) added the accusation of a false reduction of humans to machines (Céline, 1932). The technical ability to mass *re*production of unique objects or events by photography, sound-recording etc. and their repeated presentation out of their original spatio-temporal, cultural or biographical contexts gave room to claims about self-detachment not only from that context but also from the "aura" of cult and tradition (Benjamin, 1936) and even one's own body (Pirandello, 1915). The technical ability of the mass-media to present, by biased editing of the detaching reproductions, a "virtual" or "simulated" reality as if it were real, gave room to claims about the detachment from any reality (Baudrillard, 1981). The technical ability to produce destructive weapons that one can operate

from a distance by "a cool push of a bottom" has been presented as responsible for the denial of one's moral responsibility, while the environmental damages that might be caused even by (or for) the constructive uses of modern technologies, including the biotechnologies, is interpreted as detachment not only from next or past generations, but also from Nature if not from God. The ability to identify, analyze and elaborate "data", program and simulate processes by computers enhanced the ancient fear of a "Golem" that ignores the intentions and authority of his creator (Kubrick, 1968). And finally, distance communication and the acquisition as well as the exchange of information through the internet are held responsibly for isolated anonymity (Bernstein, 2002) where social communication is falsely reduced to an interchange of abstract messages.

Many of Heidegger's present "groupies" belong to the circles that seem to oppose, for some of those reasons or all of them, modern technology as such. But Heidegger, like Marx, does not condemn technology itself. He criticizes the modern avoidance from questioning about the "essence of technology" (Heidegger, 1949). He claims to have dis-covered that "essence" in the two ancient uses of the Greek word '*techne*' – i.e., the art of the artisan: his non-theoretical know-how , and the art of the artist: his ability to create beautiful things (including the good teacher's ability to foster "beautiful souls"). According to his analyses '*techne*' in either sense is involved with dis-covering, letting the still "covert" potentialities and possibilities of things emerge and appear, which according to his etymological analysis of the common Indo-European root of the word "be" – appear, emerge - means "letting them be" without "enframing" them in our pre-given and fixed conceptual frames, and, according to his interpretation of the Greek word for 'truth' - '*aletheia*' – "uncover their truth". The modern attitude to technology is, however, not an attitude of "letting be" but rather of "controlling". Modern man is alienated because he sees himself as well as the world through the frame or prism of controlling, instead of being aware of the possibility of the "letting be" attitude. The failure "to ask about the essence" is a failure of modern man to be aware of himself as being capable of choosing alternative attitudes and taking responsibility for his actual choice.

Heidegger claims that the "controlling" attitude to technology is "essentially" if not historically prior to modern science. In his variation on a theme that has been already developed in Bergson's theory of "*spatialization*" (Bergson, 1889), he claims that the presuppositions

(e.g., everything is a form of energy), the categories (e.g., causality, either in the sense of "efficiency" or in the sense of statistical correlations) and tools (e.g., ordering, quantification and measurement) of modern science are all dictated by the "controlling" attitude. Modern science, mathematics and logical thinking are all involved with "instrumental" thinking, which means, in Heidegger's jargon, not only thinking in terms of means for the purposes of controlling, but, in accordance with the etymology of *instrumentum*, also in terms of "piling up", i.e., thinking of things and living beings as if they were merely *Bestand*, i.e., "reserve" of "energy" in "stand by" for technological uses. Thinking of them in that *Gesell*, "frame" (of mind), means ignoring their present individual particularities and their emergent, frame-transcending, potentialities and possibilities. That ignorance is involved with the denial of their *aitiologia* - "causality" in the ancient Greek sense - i.e., misidentification of the co-"responsibility" of matter and form, together with the agent and his end, for the "technic" activity and its result.

In the "letting be" approach one does not look for uniformity and generality, but rather attends to the specific material with which one works and dis-covers in the process its emergent facets as well as the emergent possibilities of the specific form that one chooses to give it according to the specific end. When the "material" is a "soul", as it is the case in education, the "letting be" means the art of enabling the student to actualize his "authentique" possibilities rather than to indoctrinate him into thinking in "frames"

Heidegger rejects the assumption of uniformity and predictability as mere tools for controlling purposes. He does not deny the ability of scientific laws, measurements and calculations to provide us with correct predictions; but insists that "being correct" is not "discovering the true", for the predictions that are correct now do not take into account latent possibilities that might emerge in the future.

Many of Heidegger's admirers tend to ignore the fact that the opinion that is emerging beyond Heidegger's idiosyncratic rhetoric - the demand to be constantly attentive to the world, look for its emerging disagreements with our predictions, and be ready to change our categories and paradigms is quite similar to those expressed by Bergson (1907), Whitehead (1925), Popper (1963), Kuhn (1962) and others. They are therefore unaware of the possibility of criticizing, like him, the mechanistic conception of science, the traditional conceptions of mathematics, the engineering orientation of the positivists, their

practical aims, their obsolete version of determinism, their illusion of bias-free objectivity, their claim to be able to arrive at a comprehensive and ultimate theory of nature, their disregard for the "stubbornness" of "brute facts", the irreducibility of the individual and the subjective and their denial of the possibility of the emergence of the new, as well as the misuses of statistics and the misunderstandings of its role in scientific criticism, and yet believe in the progress of science and the evolution of new perspectives rather than in a regression to ancient worldviews and the rejection of a rational dialogue about it. The also seem to be unaware of the fact that possibility of choice between alternative attitudes to reality had been mentioned before Heidegger by James (1890), Bergson (1889), Schutz (1945) , Wittgenstein (1953) etc. Many of Heidegger's admirers seem to be unaware of *that* freedom, for they seem to be convinced that one *ought* to adopt the "letting be" attitude. They are unaware of the possibility to welcome the "letting be" attitude of the artisan and the artist in certain contexts but discuss rationally the practical price and the moral value of its application in other contexts. Whatever are the arguments for or against that, the blind adoption of Heidegger's onslaught on "controlling", via environmentalist ideologists or, in the political realm, via Foucault, Derrida, Said etc., does not necessarily lead to a responsible protection of nature, the removal of political controls or the cure for the alleged self-alienation of oppressed "others".

Instead of raising abstract arguments we prefer, however, to use a small scope case study in which computer technology is involved with learning - a domain in which both the ability to work with acquired tools within conventional frames and openness to emergent novelty are of great importance. As we have already mentioned, Heidegger himself was concerned with the "technical" fostering of the "beautiful soul" by the good teacher, and, being etymologically oriented, he was surely aware of the closeness between *instrumentum* and *instructio* , for their common root, *struere*, which means "piling up", means also "building" in the sense of fostering of a personality, as we can learn from the German term for education, *Bildung*. We shall discuss the relevance of technology in our case study to the issue of alienation, and examine whether it supports the sharp dichotomy between "instrumental" approach and "letting be" attitude.

When one talks of learning and computer three different pictures come to mind: the computer as a "learning machine", learning by means of computers and learning about computers.

We shall start with a comment about the "learning machines": The claim of Artificial life (AL) is that it will reveal, just like Weber's city, something new in kind that differs from the interactions between the non-intelligent atomic mechanisms. In these circles, that inverted metaphor supports also the view that the intelligence of the human individual as well as his consciousness and ability for self-consciousness, are themselves emergent systems with new abilities, that are the outcome of interactions between the activities of non-conscious and non-intelligent biological sub-systems (which emerge from interactions between the activities of biological agents) (Minsky, 1985). According to that approach the presupposition, which is common to many of those who complain about the era of alienation, that before that era people did not misidentified themselves or the product of their activities, is false, for people know themselves only very partially, and do not understand the non-conscious mechanisms of their thoughts and behaviors just as they fail to be aware of the unconscious contents and processes that interfere with their conscious awareness. The AI and the AL researchers aim to inject the computers with learning abilities that will be capable of identifying not only the known typical patterns that we want to teach them but also novel patterns that emerge from new data and, moreover, of developing in the process of their learning unpredicted new systems (Koza, 1992). A more daring question is whether these will develop into new potentialities of intelligence and knowledge processing and leading to "mind" and "life" (Langton, 1989).

If and when they succeed their "learning machine" will be an intriguing counter-example to Heidegger's dichotomy between the modern technological orientation and the ancient "technical" approach, the "controlling" and the "letting be", the "known scientifically" and the "appearing". We have already learned a lot about ourselves, our cognition, our logic, our language and linguistic capacities (and disturbances) from our modest attempts to program computer simulations of our intelligent activities, and their by-products, such as the elaboration of the notion of "fuzzy" concepts and logic, or the replacement of the notion of the calculative intelligence, which deals with quantities, by that of ordering intelligence, which deals with symbols, seems to make some of Heidegger's claims about "modern science" somewhat obsolete. But as the intelligent "learning machine" themselves has not as yet emerged, we decided to discuss

human learning by means of computers and take as a case-study the experience acquired in the so-called distance.

We shall examine, from our different points of view, whether it fosters the approach that is recommended by Heidegger or the one that he criticizes, whether it decreases or increases “alienation” relatively to the conventional frameworks of academic education, and whether it exemplifies or call into question the common presuppositions of the various conceptions of modern alienation and alienating science and technology.

Emergent behavior is a predominant feature when discussing AL and is usually defined as the dynamical behavior due to the interactions among the population. The dynamic behavior results in a super structure that encompass the individual elements and whose specifications are, in many cases, totally remote from the micro behavior of the elements. The sum is not only greater then its parts, it is also different. A "classical" quoted example is a nest of termites, where the individual termite behavior and capabilities are limited, yet the "nest" function as a live super state with its established hierarchy and functionality. But why should we discuss ants and termites, when we exhibit similar models of emergence behavior. Don't our chaotic, yet stable, cities (Weber, 1921) – with us as their "ants" – exhibit the same pattern? Yet the questioned alienation is not resolved in these cases. Not only we don't have a clue what the termite feels – we also can't find out much about the extent, cause and perhaps remedy for alienation of humans in big societies. And the question remains about Heidegger assumptions about "enframing" and the part that technology plays in this all?

A manageable "laboratory" in which these behaviors and their progression can be observed, one that is strongly and totally linked to technology is the emerging distant learning experience.

So we move from the “learning machines” to human learning by means of computers. There are many paradigms of Distance Learning (DL); and the "right" way to implement it is either not yet clear, or - most probably - there might not be a single "right" methodology. The diversity among the various paradigms of DL is much greater than the diversity among those of the on-ground education. Somehow, during the ages, we have converged to well-established methods of frontal lectures, textbooks, practicum, homework and examinations. These differ but a little among teachers and learners as can be seen when we examine the vast spread of

schools from the elementary schools up to the universities, where all these are also quite uniform in most countries and cultures. Our society arrived at this mixture of offerings as a result of trials and errors that lasted several centuries - yet in all the turns that the on-ground teaching took, the basic concept of the "sage on the stage" was rooted quite from the beginning.

Research into models of learning had to do with how to achieve maximum results in this paradigm: how to excel in it rather than in what other methods we might have chosen. The frontal, on-ground model is an excellent paradigm. During its existence, for at least three millenniums, it produced worthy educated men and women and Distance Learning will not replace the former methods of learning within a short period, if ever, yet something better then what happens in a regular class emerges.

We must emphasis that our case study is highly linked to a specific Distance Learning paradigm (Laureate, 2007), one of many, in this newly emerging field.

The aim of DL is to solve the problems of space (remoteness) and probably time (occurrence). The paradigm that probably is considered the most detached and the one that, at first glance, might contribute more to the leveled isolation and alienation is the asynchronous model where the learners (and their tutor) are both widely dispersed and they do not convene at a specific date. Such an environment can only be bridged by using a specific and hi-level technology, namely: computer's communication. The learners are thus, for better, for worse, at the mercy of a technology. DL could not have materialized without the proper infrastructure of communication that would bridge the geographical gaps. And while it is true, as is so often pointed out, that it is not the technology that is important and that the pedagogical aspects are the important ingredients - we must realize that in many cases it is the technology that shapes the pedagogical doctrines. Distributed Education could not have materialized without the proper technology to support it, and it would be a mistake to claim that the pedagogical methods should be indifferent to the technology that is in use. Does this technology threat the personal “authenticity”, “the suppression of particularity in the face of technological universality” (Bernstein, 2002), and the alleged tendency to identify oneself with anonymous “das Man” of the mass society and comply with the “objective” rules and norms that “everybody” is supposed to follow (Heidegger, 2007)? The claim that the

Internet, as well as other devices that enable anonymous distant communication, are responsible for the "technology isolation syndrome" (Nilep, 2006) is one of the most recent contribution to the onslaught against the allegedly alienating technology.

It is our observation, during eight years of running the program that the technology might well be the panacea to these defections and surprisingly it is just the opposite as it combats these tendencies.

In order to understand why that is so. Let us briefly explain the working of that specific program.

The students are enrolled into a class in which a single course is taught for eight weeks. In order to graduate, and get the Maters' degree they have to complete eight such courses plus a dissertation. The program usually takes three years. During the course they are presented, on each Wednesday, with the material being posted to a common discussion area. The material consists of instructions what chapter of the textbook should be read, a set of exercises that should be send back, and most important a small set of Discussion Questions (DQs) that the student has to respond to by the coming Sunday evening and then react, by posting his/her comments, to similar initial answers posted by the other students. This "conversation": goes on up to the next Wednesday – when the cycle repeats itself. The student must be actively present in the class for four out of the seven days of the cycle. The material is not a replication of the "on-ground" course. Each of the students therefore goes through the basic stages of reading, answering the initial DQ, working on the assignments and responding to the others DQs. Thus the students begin their journey being already in Weber's "iron cage", and in Heidegger's state of anonymous "*das Man*". But what we found to emerge, due to the interaction process, is a classroom behavior and learning experience that is totally different from what we expected. The "anonymous" turns to be "authentic", "resolute" and "responsible". The technology helps to elevate the students to level of self awareness they never knew they had.

Ever so often, students, attend lectures in an entirely passive mode, expecting to listen to and receive the knowledge they seek while making no active contribution themselves. The interaction between the participants is minimal, and different patterns due to the different types of the students begin to emerge: mature, confident students with a wealth of personal experience to contribute on their own account will

dominate the class, while weak, slow and bashful students are pushed to the side. Contrary to what might be expected the level of interaction in an "on-ground" class is in many cases extremely small and limited to a small number of students. Maybe the other students are not physically isolated but surely they are alienated.

But what happens in the online class? The first and foremost observation is that "if you do not participate (read and write) you do not exist". There is no way to avoid participation as it is the essence of being. The second is that in this peer learning, where the teacher is also just one of the group, we employ constructivism, and collaborative enquiry, where "Constructivism (Wilson, 1996) describes a view of learning in which students construct their own unique understanding of a subject, through a process which includes social interaction so that the learner can explain misunderstandings, receive feedback from teachers and other students, clarify meanings, and reach a group consensus. Collaborative enquiry via Internet-mediated communication provides a framework for this mode of learning (Stacey, 1998). Thus the aim is to use the medium to foster the creation of a learning community (Hiltz and Wellman, 1997) which will enable dialogue between participants, sharing of information, and collaborative project work." (Gruengard et al., 2000)

This involvement brings its own rewards, however: paradoxically, online learning seems to provide an environment, in which students can support each other, and staff and students understand each others' and own strengths and limitation.

We arrived at yet another reason, which most probably is the most important one. Due to the fading of the central, all knowledgeable and dominate figure of the teacher, we lost one of the cornerstones for most of the current thinking of the on-ground frontal education. The absence of this figure can't be replaced by a single magic solution and this enforces the students to bring out the "best in themselves" up to a level of reevaluating and reinventing themselves.

The technology, advanced as it is, can't "… organize lessons, communicate enthusiasm, or discern what best meets the needs…" yet this joined intellectual undertaking combat those "… human feelings of isolation, disconnection and alienation,…" (Triphai, 2001). Indeed our observations show that many students (yet not all) excel in this mode of learning and the "intimate anonymity" that develops create a virtual environment in which even student located in remote locations, do not feel isolated. During the program many students develop a Virtual

personality that accompanies all along and is recognized by their peers and. Friendships are developed, help is offered, project groups (with members dispersed all over the globe) are successfully accomplished. We discovered that some students not only logon for the required four days but that they logon everyday and in each day several times – as they feel they want to "be in the picture", that it is unspeakable that their contributions would not be heard (in reality read): the need for self expression overflows. The ongoing interaction, group effort, and peer learning boosts one image of him/herself. Technology does not liberate but it is an important tool towards liberation of the spirit, and the acquisition of knowledge.

True, one could claim that despite the advantages just cited, the orientation of distant learning, even in this specific model, still expresses the "controlling" rather than the "letting be" spirit: The strict structure and instructions that "enframe" the subject matter in pre-existing paradigms, the interventions of the teacher that gently direct the students to what "everyone" in the field should know; staying on the level of "logocentric" manipulation of symbols rather than living contact with the real; the contrast between the room given to variety of opinions as opposed to straightening differences among the participants and among their cultures – all those aspects are typical to the modern technological orientation. One could, moreover claim that the approach of the AI and AL defenders expresses a total insensitivity to the claims of the "anti-alienation" critics, as we can learn from the use of Weber's city (Weber, 1921) as a metaphor for the emergence of intelligent mind and life systems from the interaction between non-intelligent mechanical sub-systems: For Weber, as for Heidegger, intelligence as well as understanding belong exclusively to the level of intentionality, i.e., that of the subjectively meaningful actions of human individuals. Human individuals *qua* intending subjects are not systems, not even open ones, and the conception of the emerging city, the social super-system, as having a mind and purposes of its own, the treatment of human subjects as emerging from biological sub-systems and as similar to complex mechanical systems is according to their approach symptomatic of alienation (cf. Searle, 1997). But the case of computer-related learning was not brought here neither as a contribution for the resolution of the mind-body or mind-machine debate nor as a panacea for al problems of alienation. It was brought in order to exemplify the claim that the "alienation-basket" is full with claims that need to be rationally criticized. One of them is the

dichotomic separation between the "*technic*" and the "modern technologic attitude of modern science. Modern science is involved with discovery and may deal with emergence, and the emergence of new scientific or mathematical conceptions dis-covers possibilities in the world and in us no less than the "technic" artisan the "poetic" artist. Among the latter many are as "enframed" and "control-oriented" as "modern scientists" allegedly are; and among the former many may be more "technic" and "poetic". In the case of distant learning it is precisely a high-technologic apparatus, whose use demand modern skills, enables a learning experience that is perhaps not as "poetic" as a romantic admiration of nature, but it is more interesting and less alienating as the participation in a similar course in a regular course.

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