Progress in medicine and artificial intelligence

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Abstract

This essay challenges the idea of progress as technological development in relation to medicine by focusing on people rather than things. It analyzes how the prevalence of such an idea of progress leads contemporary societies to a technofetishism that degrades community life and medical practice, contributing to the medicalization of social life. It is argued that the realization of technological potentialities depends on their forms of use, that the main motive of technological development is unlimited profit, and the priority developments are those that enhance social control which maintains the status quo. Intelligence as an intelligence quotient is criticized by proposing it as an attribute of the human being as a whole, manifested in the ways of thinking and acting of human beings in their circumstances, where affectivity and critical thinking are essential for their development; it is emphasized that its antecedent is the harmonic concert of planetary life, which contrasts with the prevailing human disharmony. It is proposed that artificial intelligence is the latest creation of technofetishism, which deposits vital attributes in technology, and that its use will accentuate the degradation of human and planetary life. Another idea of medical progress is proposed, based on forms of organization that is conducive to the development of inquisitive, critical, and collaborative skills that promote permanent improvement, whose distant horizon is dignified progress: the spiritual, intellectual, moral, and convivial sublimation of collectivities in harmony with the planetary ecosystem.

Keywords: *Progress. Medical practice. Technological development. Medicalization. Intelligence. Critical thinking.*

El progreso en medicina y la inteligencia artificial

Resumen

Este ensayo cuestiona, a propósito de la medicina, la idea de progreso como desarrollo tecnológico al centrarlo en las personas no en las cosas. Se analiza cómo el predominio de tal idea de progreso convierte a las sociedades actuales al tecno-fetichismo que degrada la vida comunitaria y la práctica médica contribuyendo a la medicalización de la vida social. Se argumenta: que la realización de las potencialidades tecnológicas depende de sus formas de uso; que el móvil principal del desarrollo tecnológico es el lucro sin límites y que los desarrollos prioritarios son los que potencian el control social que mantiene el statu quo. Se critica la idea de inteligencia como cociente intelectual al proponerla como atributo del ser humano como un todo, manifiesto en las formas pensar y proceder de las personas en sus circunstancias, donde la afectividad y el pensamiento crítico son imprescindibles para su desarrollo. Se destaca que su antecedente es el concierto armónico de la vida planetaria contrastante con la disarmonía humana imperante. Se plantea que la inteligencia artificial es la más reciente hechura del tecno-fetichismo que deposita en la tecnología atributos vitales y que sus formas de uso acentuarán la degradación de la vida humana y planetaria. Se propone otra idea de progreso médico basado en formas de organización

propicias para el desarrollo de aptitudes inquisitivas, críticas y colaborativas que impulsen la superación permanente, cuyo horizonte lejano es el progreso dignificante: sublimación espiritual, intelectual, moral y convivencial de las colectividades en armonía con el ecosistema planetario.

Palabras clave: Progreso. Práctica médica. Desarrollo tecnológico. Medicalización. Inteligencia. Pensamiento crítico.

Technology comes to replace our ingenuity, not to enhance it.
The "greater the intelligence" of computer programs, the "lesser" the intelligence required to operate them.
The author

Introduction

The dominant thinking equates progress with the availability of increasingly "powerful" technologies; the greater the technological development, the greater the progress; thus, in the majority perception, technology is the current or future solution to the pressing problems of humanity. This essay, focusing on the practice of medicine, challenges this *technofetishism*[1] on several points:

– Technology has potentialities whose realization depends on the nature of human action so that a wrong use can spoil what is intended.
– It is "blind" to the motive that drives today's technological development in all fields of activity, which does not seek the progress of the human condition but rather unlimited profit at any cost. As a result, the programmed obsolescence of innovations and overwhelming advertising promotes an alienating *consumerism* that sustains an economy that destroys the planet and deepens inequalities.
– It ignores that the priority in technological developments is largely those that enhance social control over minds and bodies to maintain the status quo, whether in the military, space, cybernetic, computer, or health fields.

Medicine and technology

In the field of medicine, followers of *technofetishism* constitute legions of physicians who are fascinated by "all-powerful technology" and become increasingly dependent on technological tools to perform their tasks, believing that this will make them more effective in solving health problems. This *technofetishism*, which is inherently unreflective and inculcated from early formative stages, reduces interest in learning the "art of the clinical medicine" and in developing meticulous, precise, and refined clinical skills that lead to accurate clinical judgments and well-founded and relevant diagnostic-therapeutic decisions; in other words, it undermines the foundations of integral medical practice, the pillar of progress in medicine[2].

Technofetishism, both in general and in the medical field, is not an inevitable fate of technological progress but rather a consequence of the dominance of lucrative interests that drive the technologization of social activities and make people increasingly dependent on technology. However, the technologization of human life alone does not explain *technofetishism*; it also requires intense propaganda of technological omnipotence that captures and manipulates consciences, where *technofetishism* takes root in the pursuit of a growing market of consumers eager for novelty and fearful of being "excluded from progress."

In the context of medical practice, it is important to distinguish between *technification* and *technologization*, terms that have conflicting meanings. *Technification* refers to using technology to expand the scope of clinical skills and help confirm or rule out suspected diagnoses. Technification, a long-standing practice, involves the *selective* and *personalized* use of technology guided by clinical judgment in the face of a specific problem. In contrast, *technologization* involves a reverse approach in which technology precedes diagnostic assessment, which can undermine clinical skills and promote *indiscriminate* and *erroneous* use of technology. This approach not only distorts clinical practice and removes it from its central role in medicine but also, far from representing progress, contributes to its degradation. Technologization is driven by the propaganda of the health industry, which seeks to educate professionals in awe of technology in search of substantial economic benefits.

This predominance of *technologization* over *technification* is also evident in the physical structure of today's health-care facilities, where the spaces dedicated to technological equipment are given priority over the reduced spaces dedicated to the collective reflection of clinical teams. The latter is essential for discussing complex diagnoses and treatments, taking appropriate

and timely collegial decisions, or identifying and addressing the main limitations and shortcomings of the service, especially regarding the weakening of clinical art as a fundamental step for improvement. In other words, even buildings considered "emblems of modernity and progress," far from including in their design spaces that promote the development of critical thinking (CT) skills (questioning, inquisitive, deliberative, propositional) that are essential for the evolution of medical practice, rather omit or minimize them, giving priority to the technological ones.

The medicalization of social life

As *technologization* reconfigures medical practice, *technofetishism* is reflected in the new generations of physicians, who show a declining interest in clinical assessment. This weakens their focus and increases their dependence on technology, reinforcing the trend toward a medical practice characterized by a superficial and depersonalized doctor–patient relationship, as well as a rudimentary and superficial clinical practice characterized by the excessive, indiscriminate, and costly use of available technology. In this context, patients, victims of this degraded but scientifically disguised practice, learn to overvalue technology and undervalue the clinical process to which they are subjected, even encouraging the excessive use of technology. Thus, the combination of *technologization* and *technofetishism* shapes the ethos of today's health professionals[i] and transforms the general public, with its vehement desire for progress[ii], into avid consumers of medical technologies.

Medicalization[3] refers to those ways of life of the population that, in their search for a better life, adopt behaviors typical of health professionals. However, far from bringing people closer to a satisfying, gratifying, or peaceful experience of life, it often leads to a pathological obsession with health at all costs. This leads people to submit to all kinds of deprivations and sacrifices to preserve it, developing an aversion to illness that polarizes their lives into paths of constant anxiety, uncertainty, loneliness, or unease, isolating them from the community and reinforcing their *individualism*[4], a degrading feature of today's culture. It also leads to (a) a lack of interest in understanding the world we live in, which is dominated by degrading forces that generate extreme inequalities, perpetual wars, and planetary devastation that affect us all and (b) to a distance from participating in organizations that fight and oppose these forces and confront the great problems that affect our humanity, which would give a profound meaning to their lives and nourish the hope of a more dignified world, based on fraternal coexistence among peoples and respect and care for our planetary ecosystem, our irreplaceable common home. In this way, *medicalization* acts as a mechanism of social control, shaping self-centered consciences that are oblivious to the ongoing collapse of civilization[4].

The arguments in defense of a *medicalized* life are its "unquestionable scientific bases," which include two types of knowledge: (a) the physiological, pathophysiological, and epidemiological aspects of diseases and (b) which crystallizes in technological innovations and developments related to the eradication, prevention, diagnosis, treatment, and rehabilitation of various diseases. Several considerations are relevant in this regard:

– First, to think that *medicalization* is simply an inevitable result of integrating new scientific truths into everyday life, a characteristic of "knowledge societies," shows a certain naivety. Instead, *medicalization* is a specific historical effect resulting from the predominance of profit interests. Therefore, its main purpose as a mechanism of control of conscience is orchestrated by mass media of persuasion and disinformation, which impose certain ideas and ways of thinking that favor this domination, especially in the case of the prosperous "health industry." As Malcolm X said, if you are not careful, the newspapers will have you hating the people who are being oppressed, and loving the people who are doing the oppressing. Hence, we are facing a historical situation shaped by this industry, whose main objective, far above any other consideration, is to achieve high-profit rates. It achieves this by manipulating the market with overwhelming advertising that injects unsuspecting victims with massive doses of misleading fantasies, illusory assurances, induced needs, and unfounded expectations, leading to compulsive consumption patterns of products considered "good for health" and to avoid illness at all costs (turning health into an obsession and a commodity of increasing cost).

I   *This ethos is not exclusive to the field of health; it is becoming generalized among the members of the so-called dominant culture, prey to *technologization* and *techno-fetishism*, increasingly dependent on technologies that, far from leading to the desired progress, it leads to their involution (see epigraphs).

II   **It should be noted that these are prevailing trends in the population, favorable "atmospheres," not absolute situations; it is obvious that many victims of public or private health services who have suffered harm during their care - which is alarmingly increasing - are unlikely to be active participants in this manipulated consumer militancy.

– Another aspect of the limitation of current scientific knowledge to contribute to the true well-being of the population lies in the fact that the powerful health industry constrains its research. This industry determines the nature of the problems to be studied and the technology needed to conduct such research based on potential profitability. As a result, funding sources tend to prioritize projects that align with these commercial interests (sponsored projects), especially those that can lead to highly lucrative innovations and patents. This means that research is conducted on health problems –both real and those exacerbated or even created by *medicalization*– whose diagnosis and treatment promise high-profit rates but are not necessarily the most urgent, the most prevalent, the most effectively treated, the least aggressive, or the most potentially beneficial[5]. In other words, there is an incompatibility between lucrative businesses and truly curative treatments since the latter could collapse the market by drastically reducing the number of consumers.

– Another criticism is directed at the limitations of scientific conceptions of the organism in their attempt to dictate the ways of life of "civilized people" seeking complete well-being. In particular, *mechanism*, which compares the organism to a machine, uses terms such as "the perfect machine" to refer to the human body in its optimal state and "the broken machine" when speaking of a diseased organism that "needs repair." This mechanical metaphor, although popular, is too simplistic to capture the complexity of life because it ignores the uniqueness of each organism (which does not conform to an average performance) and the fact that the life process consists of a constant and changing interaction with the environment. This perspective is overlooked in experiments that compare groups of events – not individualities – under controlled conditions and in simplified and standardized environments[6]. This reductionist view of the body as a machine that can be "adjusted or repaired" is at the root of many failures in medical care attributed to patients who do not fit this into mechanistic model and who exhibit "lack of adherence to treatment, irresponsibility, or indiscipline in following the recommendations. This limitation also manifests itself in specialized practice, where each specialist concentrates on repairing or normalizing a specific part or function of the organism without considering how such intervention may negatively affect other functions, unbalance the organism as a whole, or impair the patient's social and relational life.

– Finally, *medicalization* also explains why natural events such as childbirth, traditionally handled in the privacy of the home, are now seen as requiring institutional care. Furthermore, common and minor incidents that used to resolve themselves now cause induced concern, leading people to seek professional advice and undergo exhaustive diagnostic tests, often leading to overdiagnosis and unnecessary treatment[7]. Similarly, certain risks of disease, exacerbated by modern life, are transformed into new pathologies; that is, intimidating labels for those who were once considered "rare but normal" and are now seen as cases requiring expert intervention. *Medicalization* also manifests itself in demands related to hygiene, diet, and physical activity that do not consider people's individuality and may be incompatible with their ingrained habits, unfeasible in their particular circumstances, and, in some cases, counterproductive[8]. What is remarkable here is that such recommendations, now seen as mandatory, show how *medicalization* has been internalized by both health professionals and the general population to the point where people are expected to change *their ways* as if it were merely a matter of will or discipline.

Intelligence

The word "intelligence" in its scientific usage refers to the results of a series of tests designed to measure *intelligence quotient* (IQ), which has been both a source of praise for those with "genius quotients" and a source of discredit, even more recently used to justify racist attitudes and discrimination. For example, this approach has been intensely criticized in "The False Measure of Man"[9]. In the search for a less restrictive and more objective concept of *intelligence*, it is proposed to see it as an integral human attribute that encompasses more than intellectual abilities. It manifests in how people deal with problematic situations in their daily life, work, or profession, the creation of diverse works, or their interaction with others. This *intelligence* implies *affectivity*, the vital force to overcome adversities and achieve desired ends; without positive *affectivity* (pleasure, satisfaction, enthusiasm), there would be no vitality to overcome obstacles, persevere in improving highly demanding tasks, or master resistant activities of interest. In addition, the authentic development of *intelligence* requires CT, which provides the *penetration* of understanding of problems, the *scope* of action, and the *direction* of the "creative spark" toward higher achievement.

From the preceding, it can be concluded that *intelligence* development as a multifaceted cognitive power is appropriate to the state of maturity and manifests itself in approaches of increasing *acuity*, *relevance*, *pertinence*, or *creativity*. Moreover, by making us aware of how limiting it is to confine our search for clarification to the microcosm itself, *CT* impels us to decipher the macrocosm –the world we inhabit– as the background to the microcosms. In this way, *CT*-guided *intelligence* can overcome the social control of the manipulative media, grasp the deep reasons for social inequalities, human degradation, and the destruction of the planetary ecosystem, and recognize the role of militant organizations in seeking a better world.

Before proceeding, let us consider the following concept of *intelligence*: what can IQ mean or represent, constructed or based on standardized tests administered to infants and adolescents far from maturity, which do not take into account their life experiences, which favor those who are already familiar with them, and which tend to generate *negative* affectivity (suspicion, discouragement, fear, or rejection) given the possibility of stigmatization due to low scores? I invite the reader to think about this.

Throughout time, *intelligence* has manifested itself in a fragmentary and partial way, both in a *positive* and *negative* sense. The first, although in the minority, refers to an approach that seeks the *dignity* of human and planetary life[10]: fraternal, solidary, and constructive relationships among fellow human beings; actions for the benefit of the community or mobilizations for the care of the ecosystem, what we call "*good living.*" On the other hand, the negative sense is found in the strategies of control and dispossession of the oppressed majorities; that is, in our world, where the exercise of intelligence deepens inequalities, "*bad living*" prevails.

Contrary to what is usually thought, in schools, with rare exceptions, the "primordial elements" of the *negative* exercise of intelligence appear in its fragmented teaching of the curriculum, which prevents an integral vision of events; its value asepsis, indifferent to the greater or lesser formative relevance of the subjects according to the stage of life of the students; its reproductive role of individualism and competitiveness, and its indifference to the progressive degradation.

In work relations, the ambivalence between the *positive* and *negative* sense of the exercise of intelligence is manifested due to the conflicting interests between employers and workers. Let us observe that when authoritarianism, routine, dissatisfaction, exhausting working hours, risky situations, or insufficient salaries prevail in the working environment, contrary to the *well-being* of the workers, intelligence is sharpened in a *negative* sense for the profit interests of the employer, multiplying covert simulations, secret evasions, or "justified" absences. By alleviating pressures, abuses, and inconveniences and preserving employment, these represent a *positive* exercise of intelligence because they mitigate the effects of their adverse working conditions. In other words, the *positive* and *negative* meanings of the exercise of intelligence are relative in a world where inequality prevails in all areas and coexist as a binomial: what is positive for the cause of one side is negative for the other, and *vice versa*; this ambivalence of the exercise of intelligence is inherent to a human condition where exclusionary ethnocentrism of all kinds and the abuse of the strong over the weak prevail.

Now, to give some objectivity to the concept of *intelligence*, it is proposed that its most distant antecedents –in terms of good living– are to be found in the biodiversity of the planetary vital process. Specifically, in the behaviors of diverse and interdependent populations in constant renewal, which have persisted, varied, and evolved over countless millions of years, forming a global entity of inconceivable complexity: Gaia[11]. What could be a better evidence of "good living" than this synergistic biodiversity of astonishing creativity? This complexity is a web of diverse behaviors at different levels: (a) those related to the *consummation* of their basic vital activities, such as maintaining their integrity and vitality, feeding, and reproduction, which allowed the constant renewal of each population; (b) those linking populations in interdependence; (c) the synergies that gave rise to food webs and ecological communities. The integration of such a diversity of populations formed a *harmonious concert of infinite biodiversity*[12]. In other words, if *harmony* among species is the distinctive quality of life on a planetary scale, it is justified to consider it as the precursor of the *good living* and to infer from such harmony an "underlying intelligence" *positively* exercised as a condition for the persistence and evolution of life. It is argued here, contrary to the prevailing ideas, that intelligence is not an unprecedented sparkle in the history of life, exclusive to humans. Its antecedents lie in the "ancestral wisdom" of *symbiotic biodiversity*[13,14], integrated into a *harmonious concert* that made the continuity of life and human existence possible! Moreover, it constantly created and recreated the macro- and micro-environmental conditions necessary for its evolution[15]. This is in sharp contrast to the human experience, where the dominant ethnocentrisms, "convinced of their superiority," have acted

as an obstacle and even an impediment to the *good living* of the oppressed majorities.

In the human world, *intelligence* also manifests itself primarily in the consummation of basic vital activities. However, unlike in the natural world, consciousness is central, so it does not proceed under the *biological order* of the *harmonious concert* but under the *cultural order* that made us human[16]. From the dawn of humanity, *homo sapiens*, with their language, their awareness of themselves, of their context, of their group belonging, and the inexorability of death, developed the primordial ego and *ethnocentrism*[iii] that conferred unprecedented qualities to the links with the significant objects involved in these *consummations*, where the synergic networks proper to the *biological order* were replaced by those of subjective links proper to the *cultural order* that, progressively, subordinated the *biological* order as the main reason for human variations.

Thus, in these *consummations* prevailed the cultural forms of ties prevailed: preferences, conveniences, interest, utilitarian valuation, hierarchies, or symbolisms; also when choosing the place of hunting, gathering, or residence:

Protection, food, coexistence, enjoyment of leisure, recreation, cultivation of the spirit, art, and participation in rituals of identity, initiation or belonging. About other groups, by *ethnocentrism*, advantageous relations prevailed, of rivalry with their desire for domination, hostility, and appropriation of territories with their perpetual quarrels and confrontations. The *cultural order* has varied according to the succession of the predominant interests of each historical moment, where the *consummation* of the essential vital activities has exhibited not only marked differences between privileged minorities and disadvantaged majorities but also obstacles and even impossibilities.

In our time, the *interests of profit* perpetuate and deepen the inequalities that condemn the majority, especially in countries that have been secularly wronged and plundered, to unemployment, underemployment or exclusion; to precariousness, marginalization, destitution, delinquency, unhealthiness, hunger, malnutrition, illiteracy, and premature death. In such conditions and

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III   Both preceded *anthropocentrism*: a dominant worldview based on monotheisms in which "man, the pinnacle of divine creation and the superior species of the living world," is the usufructuary of nature at his service, which underlies the endless *ecocide* perpetrated by predatory and degrading forces (except indigenous peoples who recognize their belonging to, respect, and care for Mother Earth). Egocentrism, ethnocentrism, and variants of anthropocentrism are at the core of the dominant cultural order.

circumstances, the *consummation* of basic vital activities, even the most primary ones, such as preserving integrity and vitality, has little viability. In other words, the prevailing *cultural order*, by perpetuating wars, accentuating relations of domination and subjugation, amplifying inequalities, dispossessing indigenous peoples of their territories, causing irreversible global warming, and devastating the planetary ecosystem, is the polar opposite of the *biological order*. The latter is based on synergistic and symbiotic relationships between diverse populations, integrating a barely imaginable complexity that shapes the *harmonious biodiversity concert*, a prelude and emblem of *living well*.

The *unbridled pursuit of profit*, established as the supreme value, has shaped the *ethos* of "modern civilization" (the quotation marks emphasize that, far from civilizing, it is a destructive force without historical precedent) where *degrading traits* stand out:

– The *individualism* of "every man for himself," insensitive to collective problems, indifferent to community, solidarity, and fraternity.

– *Reductionist and exclusionary specialization*: the predominant form of division of labor that fosters a fragmentary and disjointed view of events, indifferent to comprehensive and enlightening perspectives of our world.

– *Passivity* toward knowledge (passive education) and abuses of power in the form of docility or apathy due to a lack of interest in matters deemed "external" (*reductionism*) or insensitivity to collective problems (*individualism*).

– *Competitiveness*: the predominant form of school, work, and social relationships imposed by capitalism, as opposed to camaraderie, fraternity, solidarity, and collective demands.

– Real or imaginary *consumerism* is an alienating relationship with merchandise, spurred by overwhelming advertising, the "universal identity card," and the support of a predatory economy that devastates the planet.

– *High vulnerability to media manipulation* – favored by the partial and fragmentary view of myriads of specialists – that inoculates its victims with lies, disinformation, and single-minded thinking about world events, preventing them from grasping the underlying reasons for those disturbing situations that affect them and generating detachment from issues that are not "my concern."

In summary, the *degrading traits* not only reveal that the *negative sense* of the exercise of intelligence has predominated but also an inescapable diagnosis: *the*

human world, *immersed in an all-encompassing degradation*, *is evidence of the exhaustion and civilizational ruin of the dominant culture, which*, *under the relentless domination of unbridled profit interests, has turned the most vile and sublime aspects of the human condition into commodities, and the worst atrocities and planetary devastation into profitable ventures*.

With the above, it can be understood why, under the *Eurocentric cultural order*, with its *anthropocentrism* that preys on nature, its belligerent and exclusionary *ethnocentrisms*, and its *individualistic egocentrism* that disdains the communal and collective, intelligence is thought of as a purely intellectual power and, therefore: aseptic – it must not be "contaminated" by affectivity that distorts it; *morally neutral* – good and evil are "a different kettle of fish"; *irresponsible* for the consequences of its products – the atomic bomb! *equated* with the intellectual quotient that, on the one hand, exalts and overestimates the "high" and, on the other hand, disqualifies and stigmatizes the "low." This idea of intelligence is also considered the substrate of a "successful life" – in business – where *living well* is irrelevant.

Critical Thinking

Before delving into the subject, it is worth recognizing that (*CT)* is in vogue in the educational discourse – but not in classroom events. It has become a slogan to mark differences between "cutting-edge" schools and "the others," constituting more of a lure than an educational reality. This is because educational institutions, almost without exception, have a trivialized vision of *CT*, equating the recollection of information with knowledge and privileging memory as the main "cognitive faculty," which makes the development of *CT* unfeasible.

It is argued here that knowledge does not derive from information *consumption*; it is the learner's *elaboration* by exercising *CT*. In a world immersed in "critical illiteracy," *CT* needs to be incited by the teachers. To this end, the key is that the subjects studied – the target of criticism – are in tune with the age and circumstances of the learners, a necessary condition to arouse a keen interest in penetrating problems loaded with meanings for their life experience. Thus, the best evidence that *CT* is exercised in the educational process lies in the learners' questioning, inquisitive, and self-critical attitudes regarding issues or ideas that concern them. The school's procedure is adverse to the exercise of *CT* because, let us insist, knowledge is not what is remembered (evaluation); it is the product of increasingly profound and far-reaching elaborations about matters that concern and interest us.

We consider *CT* the key component of *intelligence* because it channels affectivity (the vital force) to overcome adversities and guides the improvement of achievements. Our concept of *CT* (distant from the idea centered on censorship or disqualification) supposes a *redefinition* of the cognition process, understood as follows: a *methodical*, *questioning*, *inquisitive*, and *propositive* way of thinking that turns the person who exercises it into a *protagonist* of their adventure of enlightenment of *themselves* and their *context*, and into an astute participant in collective struggles whose distant horizon is the dignification of human and planetary life.

This redefinition of cognition inherent to the concept of *CT* proposed here implies:

– Recognizing *affectivity* (passion, inclination, curiosity) as the necessary driving force of any vigorous and persevering cognitive effort.
– Highlighting the decisive role of *self-criticism* in the development of *CT*.
– Giving priority to *complexity* as a perspective for approaching the knowledge of objects due to its greater enlightening potential.
– Rethinking the extremes of the cognition process: the *alpha* and the *omega* – which do not allude to a chronological order of development but to a logical and methodological one:
  • the *alpha* represents the foundation of all fruitful criticism, whose components are the *predisposition* to put "everything into question": convictions, beliefs, or diverse fashions imposed by the dominant culture; the *methodical doubt* of the "proven or definitive," and the *determination* to find the root of what is considered "natural and evident"; this initial step-ignored by the fashionable ideas of *criticism* – is, however, the most problematic to exercise and develop because it implies questioning what is taken for granted in a field of knowledge, which does not obey a supposed superiority over other ideas, but rather its harmony with the dominant interests of the historical moment (in our time, those of unbridled profit).
  • The *omega* – also dismissed by prevailing ideas – alludes to the *propositive* and *constructive* nature of criticism as a state of mind for the ideation of alternatives that surpass the criticized objects (its heuristic potential) and act accordingly.
  • Between the alpha and the omega, *CT* deliberates, judges, argues, debates, confronts, positions itself for the most revealing or enlightening, and decides on a consistent course of action.

The meager development of CT and its parceled and specialized exercise, when it takes place, reveals its paucity throughout history and, above all, the obstacles to its flourishing represented by unquestionable dogmas and beliefs of the historical moment. Thus, under the anthropocentric cultural order, any glimpse of criticism of the established dogmas has been silenced, forbidden, or persecuted, particularly those of monotheistic religions that "revealed once and for all": the place of our planet as the center of the cosmos; the origin of life in its infinity of species; the privileged place of humanity in nature; and the meaning of human life. The above explains why the physical and chemical sciences were the first to flourish. Their development did not encounter major obstacles because they did not transgress the prevailing dogmas, contrasting with the biological, medical, and, above all, human sciences, which could hardly develop after a very long gestation process. Even in our time, they are subordinated to the "hard sciences," are subject to methodological and procedural impositions that distort them, and are disqualified by the fanaticism of the moment (the antithesis of CT).

Artificial intelligence

The so-called *artificial intelligence* (*AI*) has become the most visible face of technological development. The dissemination of its "astonishing possibilities" — between fantasy, naivety, *technofetishism*, and unbridled speculation — to replace humans in all kinds of tasks[17], floods the mass media that operate as devices for manipulation and control of consciousness at the service of the domination of profit interests. For the dominant discourse, *AI* is not a mere metaphor for this human faculty; it is thought of as a "technological quality" that is not only comparable to the human one but also tends to surpass it in certain aspects as innovation generates prototypes "with stunning achievements" and, above all, with alleged advantages. This obfuscation with *AI*, which attributes to it "portentous intellectual abilities" and even affectivity, forgets that everything depends on the computer program "designed by humans" that requires equipment with a large storage capacity, "big data" to process immense volumes of diverse data with almost instantaneous results, and new types of algorithms, particularly those that "attempt to reproduce, as faithfully as possible, the functioning of the brain" so that the machine learns and manifests affectivity, just as a person would! This pretension reveals how far the *technofetishism* placed in *AI* can

go, convinced that machines possess intelligence comparable to that of humans, without realizing that no matter how "intelligent" the computer programs of the machines are, they can only *simulate* or *resemble* – not reproduce – what is genuinely human in terms of affectivity and CT. Only in activities where feeling and reasoning are accessories, such as routine, "automatic," impersonal, or administrative tasks, can the incorporation of "intelligent technologies" of an instrumental or procedural nature mean advantages in efficiency. Hence, the recent developments in "android" robotics constitute a latent and growing threat of unemployment for personnel in charge of such activities (because what matters is not human improvement but business).

According to our concept of *intelligence*, where *affectivity* is the vital force behind all actions to achieve their purposes and overcome adversities, and whose improvement requires *CT*, *AI* is nothing more than a metaphor for "aseptic and decontextualized intellectual abilities" that simplify the main aspect of intelligence: its barely imaginable complexity as an attribute of the human being as a whole, endowed with *affectivity* and *CT* that manifests itself in the ways of being, thinking, and proceeding of people in their life circumstances.

The fascination with AI represents the updated version of technofetishism, whose bearers, convinced that progress depends on new technologies, lose sight of the fact that human intelligence — trivialized by prevailing ideas — is impossible to reproduce or surpass and that behind such conviction lie the ideological prejudices about progress induced by the propaganda of the mass media. Such prejudices, which underlie the certainty that computer programs faithfully reproduce intelligence, are of special relevance concerning the "talking" prototypes in which discursive objectivity is deposited without realizing that "computer programs are laden with the ideological biases of their creators that shape the discourse of the machines." Thus, *innovators*, convinced that intelligence is a key technological attribute in progress, ignore that by supplanting humans, they favor their intellectual involution and dehumanization, and that profit interests lie behind the financing of their inventions. The *programmers* who adapt the programs to crystallize the "promised advances" renew the dazzle of the "addicts." The *operators* showcase their advantages and promote the compulsive consumption of novelties, all to the detriment of human intelligence.

On the social level, another degrading facet of "intelligent" applications is revealed, benefiting minorities to the detriment of oppressed majorities. For example, in

routine and tedious work environments of an instrumental or procedural nature, the incorporation of robotics — "immune" to such circumstances — is replacing workers who have become "obsolete personnel," condemned to unemployment and exclusion. In contrast, companies increase their profits as productivity rises and disregard labor-management conflicts.

Now, it is worth recognizing the origin of *AI: the military industry*, the source of technological innovations in the form of weapons, armor, bombs, missiles, drones, and increasingly "more intelligent" surveillance, espionage, and media warfare devices; all to manipulate, intimidate, subjugate, or eliminate the enemy of the moment. The innovations of the "civil industry" derive from these developments, where technology is made up as an "emblem of progress" that permeates social spaces and recruits myriads of consumers, supporting an ecocidal economy, without neglecting the growing calls for alarm regarding the dangers of an "unscrupulous use" of *AI* – a constant in the technological use of our time.

Revisiting the distinction between *technification* and *technologization* in medical practice: the former is where technology enhances the scope of clinical skills in the search for signs that confirm or rule out diagnostic hypotheses; the latter is where the use of technology takes precedence over clinical practice, which, far from being enhanced, becomes impoverished. It is now worth acknowledging that certain developments in *AI* could imply potential progress, particularly concerning analytical-synthetic, instrumental, or procedural activities due to their large databases and the speed of their operations that compare or condense myriads of information that would facilitate, for example, *selecting and prioritizing* certain diagnostic tests based on their greater validity to confirm or rule out a specific disease; interpreting laboratory and cabinet findings with more elements of judgment; choosing the "best drug" for a disease with greater reliability; conferring greater effectiveness on certain surgical treatments by having more precise technologies; or enabling previously unfeasible rehabilitations. However, as these are times of *technologization, AI,* far from enhancing the ingenuity of physicians, supplants them, degrading them; likewise, incorporating *AI* to replace health personnel in the exercise of their skills or in the doctor–patient interaction –where it is claimed that *AI* can show empathy and compassion– represents the falsification of an irreplaceable bond and the dehumanization of the practice of medicine.

In sum, *AI*, far from representing progress in medicine, by supplanting the ingenuity of health professionals (see epigraph), degrades medical work, rendering

unviable forms of work organization that incite the exercise of their *intelligence* as a necessary condition for the improvement of the members of a clinical service. The foundation of such organizational forms is the reflective habit of significant experiences in daily events that, through *CT*, lead participants to analyze, question, inquire, deliberate, and propose regarding complex diagnostic and therapeutic problems; to make appropriate and timely collegial decisions; to investigate and identify the main limitations of the service (self-criticism) and act accordingly.

The above means configuring the workspace as a "privileged learning classroom" where each member advances in their knowledge through *CT*, an authentic path for improving their work, which includes the development of:
– meticulous, careful, and refined clinical skills;
– therapeutic actions of increasing scope;
– minimization of *iatropathogeny* (the harm caused to patients that is inherent to health institutions), mainly that attributed to negligence;
– critical reading of information to select the most solid and appropriate to support timely and pertinent decisions;
– interactions between the various hierarchies, where respect, empathy, encouragement, and accompaniment prevail, all in the function of high-level training with increasing scope in its benefits to patients. This idea of progress based on reflective and critical work does not refer to a goal to be achieved but to human improvement where the routine is transformed into the reflective.

It is obvious that this progress encounters great obstacles under *technologization*, such as the tendency toward routine or individualism that disdains the collective. Its viability would lie in the emergence of groups organized in a collaborative and questioning collective work, where *criticism* and *self-criticism* flourish, recognizing their irreplaceable role in any desire to improve one's work.

The consolidation of such spaces presupposes enlightened consciences of the deleterious effects of *technofetishism* in medical work, whose background is *individualistic, consumerist* societies anesthetized by the extreme degradation of the prevailing culture under the dominion of unbridled profit interests that control consciences and bodies through overwhelming and deceptive advertising. This explains why *technologization*, with *AI* at its forefront, is presented to us as the quintessence of progress in medicine.

Epilogue

This essay questions the idea of progress based on technological development and centers it on people, not things, which, in the case of health, refers to forms of organization conducive to the deployment of inquisitive and critical aptitudes in the form of habits that: (a) recapitulate the relevant aspects of experience; (b) recognize the scope and limitations of actions; (c) critically analyze the information consulted; (d) deliberate decisions and actions in complex problems; (e) investigate diagnostic and therapeutic problems; (f) incite procedures of increasing effectiveness for the benefit of patients. These habits, where routine is transformed into an object of criticism, imply a revaluation of medical humanism in its aspirations; however, such procedures cannot be consolidated without a professional conscience that links them with other groups that share aspirations and give rise to organizations that lead the configuration of their own spaces and forms of work toward permanent improvement; give greater scope to their actions and, moreover, recognize interdependencies with others in their claim for greater social influence, whose horizon is human progress in the spiritual, intellectual, moral, and coexistence aspects; without such a desideratum to guide efforts for improvement, their permanence would have little long-term viability.

An example of interdependence is the doctor–patient relationship, where medical progress requires the counterbalance represented by the interests of patients to counteract the "natural" inertia of doctors toward their immediate interests or to respond to bureaucratic demands to the detriment of empathetic, professional, warm, careful, and effective relationships with their patients. Similarly, giving primacy to patients' quality of life and minimizing *iatropathogeny* in their health-care procedures would mean firm steps toward that progress centered on the benefit of patients and would reveal the growing influence of their interests in medical work[18].

The essay criticizes IQ as a measure of *intelligence,* defining it as a *multifaceted cognitive faculty* invigorated by *affectivity* and perfected by *CT*, manifested in ways of proceeding with increasing scope for the purposes sought. This faculty, constrained for centuries, has been expressed in both a *positive* and *negative* sense. The former, alluding to *living well*, whose desideratum is the *dignification* of life, has its antecedents in the "biodiverse *harmonic* concert" that has endured for billions of years! The *negative* sense, predominant under the *cultural order*, is expressed in inequalities, perpetual wars, and planetary devastation: an extreme disharmony!

Now, it is worth recognizing, contrary to the idea of a fragmentary world, that everything is interconnected and that disturbing events, however, distant they may seem, concern us as "symptoms" of the state of the human condition whose diagnosis of "exhaustion and ruin of the prevailing culture" – previously noted – is expressed globally in the near impossibility of harmonious coexistence between ethnicities or cultures. This degradation is the greatest obstacle to human progress; here, we limit ourselves to progress in medicine as an organization toward permanent improvement without disregarding countless organizations that, on various fronts, deal with the most disadvantaged, defend human and social rights, or strive for the preservation of the ecosystem.

Conclusion

To conclude, we appeal to the dignifying progress4 that represents a utopia, a horizon toward which to walk in the endless search for progress in all interdependent orders, including medical practice, defined as follows: the social flourishing of the values involved in the spiritual, intellectual, moral, and existential sublimation of communities in harmony with the planetary ecosystem. In turn, approaching such progress supposes prioritizing the formation of new generations what we designate as liberating knowledge, whose desideratum is to understand ourselves as a fraternal humanity and to find our place in harmony with the infinitely diverse concert of the living world.

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References

1. Viniegra-Velázquez L. El fetichismo de la tecnología. Rev Invest Clin. 2000;52:569-80.
2. Viniegra-Velázquez L. El progreso en medicina. Rev Invest Clin. 1994;46:149-56.
3. Viniegra-Velázquez L. El bien vivir: ¿cuidado de la salud o proyecto vital? Primera parte. Bol Med Hosp Infant Mex. 2016;73:139-46.
4. Viniegra-Velázquez L. Educación y conocimiento liberador. Bol Med Hosp Infant Mex. 2023;80:15-28.
5. Gotzsche P. Medicamentos Que Matan Y Crimen Organizado. Cómo Las Grandes Farmacéuticas han Corrompido el Sistema de Salud. Barcelona: Libros del Lince; 2014.
6. Viniegra-Velázquez L. Crítica de la causalidad mecanicista en las ciencias de la vida. Bol Med Hosp Infant Mex. 2019;76:155-66.
7. Zackrisson S, Andersson I, Janzon L, Manjer J, Garne JP. Rate of over-diagnosis of breast cancer 15 years after end of Malmö mammographic screening trial: follow up study. BMJ. 2006;332:689-92.
8. Gérvas J, Pérez Fernández M. Uso y abuso del poder médico para definir enfermedad y factor de riesgo, en relación con la prevención cuaternaria en España. Gac Sanit. 2006;20:127-34.
9. Gould SJ. La Falsa Medida Del Hombre. Barcelona: Critica; 1997.
10. Viniegra-Velázquez L. El bien vivir: ¿cuidado de la salud o proyecto vital? Segunda parte. Bol Med Hosp Infant Mex. 2016;73:283-90.
11. Lovelock J. GAIA Una Nueva Visión de la Vida Sobre La Tierra. Madrid: Hermann Blume Ed; 1983.
12. Viniegra-Velázquez L. Evolución y enfermedad. Bol Med Hosp Infant Mex. 2023;80:165-76.
13. Margulis L. Symbiotic Planet. A New Look at Evolution. New York: Basic Books; 1998.
14. Margulis L, Sagan D. What is life? New York: Simon & Schuster; 1995.
15. Lovelock J. Las Edades de Gaia. Barcelona: Tusquets; 1993.
16. Viniegra-Velázquez L. El orden cultural, la enfermedad y el cuidado de la salud. Bol Med Hosp Infant Mex. 2017;74:397-406.
17. Wikipedia, Artificial Intelligence, last modified 2023.
18. Martínez González C, Riaño Galán I, Sánchez Jacob M, González de Dios J. Prevención cuaternaria. La contención como imperativo ético. An Pediatr (Barc). 2014;81:396.e1-8.