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GENERAL INFORMATION

Technology affects the doctor-patient relationship

José Félix Patiño-Restrepo*

Department of Surgery, National University of Colombia, Bogota, Colombia

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Abstract
Technology affects the doctor-patient relationship. The title of this article may be both an affirmative statement or a question. Technology is the utmost amplifier of the human capacities; it is both a means and ways and a making of man. Medicine is immersed in a digital universe of communication and management of knowledge and is growingly technology-dependent. The increasing interaction between machines and man and human societies is creating a new biosome. When one speaks of the dehumanisation of medicine coinciding with scientific and technological advancement, they are usually referring to how the doctor is busily engaged in a technology-dependent practice and leaves aside the humanistic and humanitarian attitude that translates into solidarity and compassion, in a framework of equanimity, aequanimity, as stated by William Osler. In 1928, Harvey Cushing stated that there is a difference between art and science in medicine and referred to art in the Hippocratic sense as the ability to create confidence in the patient and the family. Art is the humanistic and humanitarian facet of the doctor, which unfortunately is inhibited or ignored in modern times, thus creating an imbalance in the overwhelming progress of science and technology. Therefore, it is not technology that dehumanises; dehumanisation results from those who use technology as separate from the humanistic and humanitarian framework that is an indissoluble component of medical practice.

PALABRAS CLAVE
Relación médico-paciente;
Médicos;
Tecnología;
Humanismo;
Deshumanización

La tecnología afecta la relación médico-paciente

Resumen
La tecnología afecta la relación médico-paciente. El título de este artículo puede ser una afirmación o un interrogante. La tecnología es el supremo amplificador de las capacidades humanas; es un medio y un hacer del hombre. La medicina está inmersa en un mundo digital de comunicación y manejo del conocimiento y es cada día más dependiente de la tecnología. La creciente interacción de las máquinas con el hombre y sus sociedades está creando un

*Correspondence to the author: National Academy of Medicine, Carrera 7 #69-15, Bogota, Colombia. Telephone numbers: 310 210 2575 and 310 214 1332.
Email: jfpatinore@gmail.com

nuevo biosoma. Cuando se habla de la deshumanización de la medicina coincidente con el avance científico y tecnológico, realmente se refiere a cómo el médico en su afanoso actuar en una práctica dependiente de la tecnología ha dejado a un lado la actitud humanística y humanitaria, la cual se traduce en solidaridad y compasión, en un marco de ecuanimidad, aequanimitas, como lo planteó William Osler. En 1928, Harvey Cushing expuso que había diferencia entre el arte y la ciencia en medicina y se refirió al arte en el sentido hipocrático como la habilidad para crear confianza en el paciente y sus familiares. Arte es el aspecto humanístico y humanitario del médico, es lo que desafortunadamente en los tiempos modernos se inhibe o se ignora, y entonces se crea un desbalance frente al arrollador progreso de la ciencia y la tecnología. Por consiguiente, no es la tecnología la que deshumaniza; son deshumanizantes quienes usan la tecnología sin el marco humanístico y humanitario, que es componente indisoluble del acto médico.

The title of this presentation, "Technology affects the doctor-patient relationship" can be either a statement or a question. Both titles are relevant, and both are discussed below from the different perspectives of contemporary culture.

Definitions of technology, dehumanisation and humanism

The Royal Spanish Academy Dictionary presents the following options for the word *technology* (from greek *τεχνολογία*, from *τεχνολόγος*, of *τέχνη*, art, and *λόγος*, treatment):

1. *A set of theories and techniques that enable the practical use of scientific knowledge.*
2. *Treatment of technical terms.*
3. *The specific language of a science or an art.*
4. *A set of industrial instruments and procedures for a particular sector or product.*

Technology is considered to be the set of theories, techniques, tools and procedures that facilitates the application of scientific knowledge; thus, technology is the supreme amplifier of human capabilities. Therefore, technology is a means and makes the man, as the German philosopher Martin Heidegger (1889-1976) would say. Technology was developed from the invention of the first instruments and tools that were created to make work more efficient. Did technology begin to evolve with the invention of the plough for agriculture?

What do we understand by dehumanise?

The Spanish Royal Academy defines *dehumanise* as *depriving of human qualities*. When one travels in a car, the movement does not have human characteristics, but the vehicle is a product of man's intelligence, it is a means to an end. And the vehicle drives a human being. If an accident occurs, it is not the fault ofthe car, if it is in good condition, but the person driving it.

Seen from this perspective, technology is an expression of man's capacities, as is culture, while at the same time a means, an instrument. In itself, technology does not dehumanise. On the contrary, it increases, amplifies, enhances the physical and intellectual capacities of human beings; therefore, technology tends to humanise.

Concerning humanism in medicine, I refer to the outstanding teacher Ignacio Chávez who was Rector of the National Autonomous University of Mexico when I was Rector of the National University of Colombia and someone with whom I had enriching conversations and who, speaking in Caracas, Venezuela, stated the above, as quoted by Augusto León[1]. There is no doubt that the practice of medicine has changed and will continue to change in the future, with advances in medicine itself. It would be impossible to practice medicine today as we did before. If knowledge, how it is applied, demands by the society we live in and society's needs change, it is logical and even an obligation, that the medicine we practise be in accordance with the new advances of that society but that does not mean that the *ethos* of medicine should change. *Ethos* in Greek means custom, conduct, character, personality and is the root of the words ethics and aetiology. The Dictionary of the Royal Spanish Academy defines *ethos* as the set of features and modes of behaviour that make the character or identity of a person or a community. The spirit that has surrounded it for 24 centuries and the rules that are its essence must be protected. Our defence also requires that together with the cultivation of science we seek humanism, which equally protects us and the sick.

Being humanist does not mean being a kind man—although the doctor may be—nor being learned—although they need to be—nor have a knowledge of literature and history and art—although that would be useful. It means, first of all, having acquired a very deep knowledge that makes doctors sensitive to man, to be able to see him sympathetically, having refined his judgement to try to understand man's virtues and miseries, the doctor has raised the reason for life to such a level that they are ready to serve it and improve it.

Thus, modern humanism refers not only to the possession of a large body of knowledge but also to the servicing of

humanity. That is why Edmund D. Pellegrino (1920-2013), Georgetown University, former President of Yale-New Haven Medical Center, wrote: "In medical practice humanism translates into humanitarianism". Humanitarianism is philanthropic, that which seeks the good of others, especially of the poor or the sick. Reviewing the paper by Pellegrino[2] is worthwhile as it provides a philosophical foundation for responsible professionalism in the practice of clinical medicine, for the health professional's character and for the theory of virtue in medicine.

"Medicine is a moral enterprise" Pellegrino stated to Georgetown Magazine a decade ago, "... and if you subtract from medicine its ethical and moral dimensions, you end up making it a mere technique. The reason being that it is a profession dedicated to much more than self-interest."

In the statement or the question that is the title of this document, dehumanise also refers to, according to the Dictionary of the Royal Spanish Academy, losing humanitarianism, understood as the doctor's solidarity and compassion for human misfortunes regarding his patient.

What is a *medical act?*

Ciprés Casasnovas[3] states that, according to the *"lex artis"* it is understood to be the set of professional, ethical and legal regulations governing medical activity. If the medical act fails in any of the first two, the medical act is not lawful. If the third fails it is illegal.

According to Fernando Guzman[4], a medical act ... occurs when a professional —who the social and legal structure of a country has classified as suitable to practise medicine— accepts a request by another member of this society to provide his opinion, advice and possible treatment.

In Guzman's definition[4], the classification of *suitable* is important because the doctor's professional competence is the only factor that guarantees the technical, scientific and ethical quality of the medical act, that is, the quality in the practice of medicine.

The former president of the Mexican Academy of Surgery, Gral. Acad. Dr. Fernando Torres Valadez, referred to how in modern times the former doctor-patient relationship "tends to be reduced to a cold and impersonal relationship of the medical researcher and patient who has been assigned a random number" and argues that "the doctor as a professional has the imperative duty to fulfill their duties based on the powers derived from their updated scientific knowledge and truths, applying them with quality, responsibility (working with humans) and applying other humanistic virtues that commit the doctor to best practices and good interactions, which include working with prudence (first, do no harm), wisdom (to use the resources that favour their actions) and discernment." Perhaps acting with humanism, prudence and discernment are the virtues that lead to the best practices in medical acts[5].

The practice of medicine

The practice of medicine is determined by several factors, the main ones being progress in biomedical knowledge, technology and the way health services are organised which, in turn, are affected by two other main factors: the political economy (as opposed to the economy) and technology.

Infomedicine: the new paradigm

The metaphysics of IT

In medicine, when we speak of technology we need to highlight the role of communications technology, which we call *IT*. Perhaps there is no profession more dependent on communications technology than medicine.

But biomedical IT should not be seen only in terms of *software* and *hardware*, but as a novel way to handle knowledge; it is a kind of "new epistemology", so I have put it in the context of the metaphysics of computing. Indeed, the computer is no longer a mere data server, not even as a server of knowledge, but it is a real electronic means to handle symbolic logic. It is the maximum amplifier of the human mind.

Medicine is currently immersed in a digital world, which is the language of the computer and, therefore, a new paradigm is evolving, infomedicine.

Some of the following paragraphs come from previous publications, all under the title "from biomedicine to infomedicine"[6-8].

The reigning paradigm today is that of biomedicine, born with the discovery of the molecular structure of deoxyribonucleic acid (DNA) by James D. Watson and Francis Crick at Cambridge University in 1953. Perhaps it is the most important milestone in the history of biology, one that 10 years later earned them the Nobel Prize. The momentous discovery gave rise to a "new biology", molecular biology, and from the concept of molecular biology the term biomedical science arose, which stands for biomedicine and whose objective is to study the cellular, molecular and genetic phenomena of life and disease.

Biomedicine refers to a cellular and molecular concept of medicine, a concept that came to replace the traditional clinical and macroscopic approach to health and disease. Until the advent of molecular biology, disease was studied in terms of their symptomatic expression and the macroscopic alteration of the affected organs. Its focus is now reductionism, which also opens a dazzling and very broad overview of new knowledge such as the study of alterations at the molecular level, of those that occur inside the cell. In 1980, the OFA Foundation for the Advancement of Biomedical Sciences held a major seminar in Bogota, which led to a known publication entitled: "The Molecular Basis of Life and Disease"[9]. It was the first time that this issue was dealt with in detail in Colombia.

With the birth of molecular biology, medicine became known as biomedical science or biomedicine, a new paradigm that has ruled in the last decades of the twentieth and beginning of the twenty-first centuries. Today we talk about the "triumph of biomedicine" to signify the tremendous progress of medical science based on molecular biology.

A new concept in medical science has been born, one that goes beyond the biomedical concept: cell engineering

as a cybernetic concept, which the North Americans Foss and Rothenberg have called infomedicine, a new paradigm.

The two North American authors coined the term infomedicine in their book *The Second Medical Revolution. From Biomedicine to Infomedicine*[10], where they suggest a second medical revolution is taking place in terms of a theoretical and philosophical consideration: the cybernetic perception of the human person, beyond the traditional Cartesian conception of man as mind and body, to consider it a highly organised biopsychosocial system. The revolution in communications and information and its application to medicine, in addition to the basic consideration that the medical act is essentially information management and that a health service is only an information system give the word infomedicine its full meaning.

The transition of the concept of biomedicine of our science to the concept of infomedicine is a paradigm shift, a change in a biological engineering strategy to a clearly cybernetic strategy, a model of cell engineering to a communications model, a computer model.

The doctor-patient relationship

The doctor-patient relationship is the real social contract in medicine. It is established through the medical act and is based on trust by the patient and the deep responsibility assumed by the doctor.

The doctor-patient relationship is a unique and sublime relationship in human society. It is created between two people, the patient seeking and putting their trust in the healthcare professional to help them with their health problem and the doctor, who assumes the enormous responsibility of caring for the patient's life. It is a singular interpersonal relationship, an ancient relationship based on altruism, which has existed since the time of Hippocrates of Kos (*c*. 460-377 BCE). The doctor-patient relationship is an act of humanism, which in practice is translated as humanitarianism.

The medical act that is the doctor-patient relationship is based on three pillars: professionalism, ethics and humanitarianism.

Medicine is not a trade, it is a profession, and the values of professionalism are its bastions.

What is meant by professionalism?

There is an abundance of dictionary definitions of the term. I have defined professionalism as an intellectual activity covering four large domains, possessing four major components[11], which coincides with that stated by Cruess et al.[12].

Specialised knowledge

All professions have their own intelligence, which translates as specialised knowledge and is their intellectual capital. Medical intelligence is biomedical knowledge, the broadest and fastest growing knowledge solution. Scientific research is adding to our medical knowledge and medicine is applying to the service of society.

Medicine, like other professions, has an arsenal of specialised knowledge and administers it for the benefit of the patient and the community. In earlier times, in regard to medicine, knowledge management was monopolised by the doctor. But this is not the case today, given globalisation and the explosive communication revolution. Today, the public has broad access to health knowledge, access that is almost at the level of the doctor. Health has become part of the general culture, derived from the extensive information available, what the physicist Marcelo Alonso has called a "third culture".

Autonomy in decision-making

This second component differentiates a profession from a trade, and medicine is essential for the completion of the medical act. In medicine, decision-making always involves the uncertain and unpredictable behaviour of the human body.

Intellectual autonomy in decision-making cannot be abolished or interfered with by bureaucratic decisions from intermediary companies that provide health services. Such companies manage health care in the failed Colombian model called *managed care* whose main objective is cost containment for greater profit.

Medical professionalism means that professionals are aware of the limited availability of resources and gives those professionals the ability to rationally use them and negotiate social priorities in order to strike a balance between the values of medicine and other values of society[13].

Social service commitment

Social service commitment altruistically ensures the health of individuals and the population. This is the raison d'etre of medicine andits main goal. Aristotle said that the purpose of medicine is the health of the people, and the sacred Hippocratic imperative establishes the social welfare to be the purpose of medicine in an ethical, moral and code of conduct context.

This commitment begins with the doctor-patient relationship where the doctor is the agent of the patient as trustee of the trust deposited in him or her. Such a relationship is the essence of the social contract of medicine and extends not only to the individual but to the community.

In this context, the doctor has a moral obligation to dissent from political or corporate activities that erode the fundamental values of healthcare. As affirmed by Wynia et al.[13], herein lies the difference between the true professional and a simple doctor at the service of a company.

Autoregulation

Professions regulate themselves by various control mechanisms in contrast to trades that are regulated from outside. In the course of its history medicine has established a robust self-regulatory structure through codes of ethics, standards of practice, medical audit committees, peer accreditation and certification processes and courts of medical ethics. In Colombia, the courts of medical ethics are regional and national.

The strengthening of medicine's self-regulatory mechanisms is a guarantee of its competence for society, and they should never be replaced by regulations issued by the state or private entities.

Recognition that medical professionalism is a complex concept that encompasses a variety of attitudes, values and behaviours, other authors[14] define it according to four attributes: *a)* subordination of their own interests in favour of the patient's interests; *b)* observing the highest ethical and moral standards; *c)* responding to the needs of society, and *d)* possession of humanistic values (empathy, integrity, altruism, trust).

The virtual culture

Our current age of knowledge and communication is characterised by a virtual culture, which is derived from all forms of communication through the computer, the internet and social networks.

The internet and communication through the computer has multiplied the spread and proliferation of social stimuli to which human subjects are used to and subjected[15].

Information technologies have amplified human beings' expressions, either as individuals or within society, an amplification of the humanity of man, which results in an amplification of the components of medical professionalism.

Medicine's social contract

Hippocrates of Kos (460-377 BCE), who we rightly call the "Father of Medicine", separated medicine from religion and theurgy and structured it as a systematic science. Hippocrates left a double legacy: he defined the figure of the doctor in terms of their knowledge and behaviour and structured a method; the doctor needed to meet four basic qualities: knowledge, wisdom, humanity and honesty[16].

The combination of the doctor and the method is the medical act, and this is the social contract of medicine. Its proper implementation requires competence and ethics within the framework of the four major domains of professionalism and, mainly, with wide intellectual autonomy for decision-making, which should always be oriented to the benefit of the patient, never the economic achievement of the intermediary entities who act as guarantors in the *managed care* model.

The industrial revolution and the integration of man and machine

In the second half of the eighteenth century and early nineteenth century, machines replacing manual labour begun to appear and industries were created within a new neoliberalism economic framework according to Adam Smith (1723-1790) and as published in his classic work *An Inquiry into the Nature and Causes of the Wealth of Nations* published in 1776[17]. The mechanisation of the textile industry began with the legendary Spinning Jenny, invented by the illiterate farmer and weaver James Hargreaves who launched it in 1765, and it did the work of eight people. Soon, in 1770, Samuel Crompton's loom was put to work and then came the steam engine. They started the industrial revolution, first in England and then in continental Europe, and a new socioeconomic order was created.

The first instruments that primitive man had were those for hunting, agriculture and war. In rural areas of Colombia, ploughs being pulled by oxen and harvests being collected by "pawns" who work with their very hands can still be seen, whereas the U.S. uses large threshing machines that can do the work of many men. Since the beginning of the industrial revolution, it has been feared that these machines would displace man and create unemployment. But the great mechanical thresher is built in a factory by hundreds of operators and then taken to a dealer who has employees. It is transported to its destination by people who drive trucks and other means of transportation and requires mechanical workshops for maintenance and repair where many people work. In fact, the machine itself did displace those who harvested the land by hand, but a large number of jobs surrounding the machinery were created in factories, distribution centres and workshops. And, with that, the progressive displacement of the inhabitants of rural areas towards urban centres began to take place.

As the novice machines replaced operators, a significant contrast between human nature and the mechanical nature emerged because it was feared that with unemployment the gap between social classes would grow. But soon the machines became ubiquitous and human nature and mechanical nature began to integrate, which can be seen and is evident in our present age. Machines became a fundamental component of human culture. They are present and have become indispensable in our daily lives.

The citizen of today could not imagine life without a phone, a car, an airplane, a computer (probably the most wonderful machine built by man), an electronic tablet, and a mobile phone. The great Steve Jobs (1955-2011), founder and chairman of Apple, understood machines to be an essential element for communication, music and image files and knowledge management. But he would say, and it is the phrase that reflects his humanism: "If I could, I would exchange all my technology for one afternoon with Socrates".

With the advent of computers, which are continuously becoming faster and more powerful, tablets and even smartphones, *machine-aided thinking has emerged,* which really means a new epistemology, a new doctrine of the basics and methods of knowledge.

Biomedical technology

Technology is a product of man's scientific and technical creativity, and its purpose is to amplify their intellectual and physical capabilities. Biomedical technology is conceived, designed and manufactured by man to improve the ability for diagnosis, treatment and rehabilitation.

Medicine is immersed in a digital world of communication and knowledge management and is increasingly dependent

on technology, both for diagnosis and for therapeutic procedures and planning.

One might say that the first medical technology was the rigid wooden stethoscope invented by the French physician René Lannec (1781-1815). The stethoscope, a doctor's essential medical instrument, has evolved and today there are highly sophisticated models available.Biomedical technology, which is nothing but the application of scientific knowledge for practical purposes, is making similar strides.

Diagnostic images have progressed to such an extent that in some cases the histological diagnosis of a lesion, for example, in thyroid nodules, can be ascertained.

In surgery we have evolved from large incisions and sensory interface between the surgeon and the surgical field to minimally invasive surgery and an interface that consists of one or more screens. Robotic surgery is a reality, and with it, telesurgery.

The doctor once carried a briefcase full of his essential tools for home visits: stethoscope, sphygmomanometer, thermometer, ophthalmoscope, reflex hammer, Foley catheter, a torch, syringes, cotton, and alcohol. Surgeons had scalpels, needle holders, a hemostat, sutures, bandages, and adhesive tape. It was also common to carry essential medicines.

Such magnificent briefcases, which identified the doctor, lie today in museums. It is our current technology that provides the elements for the doctor's new briefcase.

A recent article by the Dr.Abraham Verghese[18] describes how the briefcase has changed and what the new millennium holds: A *Vscan,* a manual scanner that generates good images even of the heart; a *PanOptic Ophthalmoscope* that is able to provide a view of the retina and its vessels; an *iPad* or another electronic tablet with information available in real time from the internet or the cloud and which facilitates access to the patient's medical history.

In hospitals, the elderly, doctors and nurses carry a pocket *oximeter,* which determines blood saturation and heart rate. Some models also show the pulse curve on the device's small display screen. The MD-850 is a portable oxicapnography monitor with a screen that displays SpO_2, pulse and respiration; it has a connection to a computer, which is useful in ambulances for first aid. This is the content of the twenty-first century doctor's briefcase.

The new biosome

The growing interaction of inorganic material and machines with men and their societies are creating a new biosome. The term *biosome* is the combination of *bio,* meaning life, and *soma,* which refers to the body and its organs. The synergy between man and machine gives rise to a new biosome where the somatic parts can be incorporated into a machine that complements the organic or physiological functions.

Intelligent machines, robots and humanoids are a reality. Robots with features that express emotions and sorrow have been created in large university centres, especially in Asia.

The book *Robo Sapiens. Evolution of a species,* by Peter Menzel and Faith D'Aluisio[19], and other subsequent texts pose significant questions but also worrying concerns: humanoid robots talk, dance, obey orders, react with facial expressions, and are autonomous in their functions. Will they dominate man and become the new link of evolution, a new species: the post-human, *Robot sapiens*?

In his book, La condición Poshumana[20] (The post-human condition), Santiago Koval raises the man-machine integration and the emergence of the cyborg, a post-human robot android conundrum and suggests that the discussion is no longer about the substitution of humans by technology, about whether the machine will replace man, but how they will be integrated.

Vernor Vinge, Department of Mathematical Sciences at the San Diego State University said in 2008 that: "Within the next 30 years we will have the technological capability to create superhuman intelligence. Shortly thereafter the era of man will end"[21].

Obviously we are moving towards an increasingly mechanised, digitised and even automated society in which man will have to live with humanoid robots, the new biosome in a bio-socio-mechanical world. For now, it seems to be a coexistence that we can call peaceful and certainly positive.

In the biomedical field, new devices are appearing on a daily basis that facilitate diagnosis and make interventional procedures safer. The Da Vinci robot makes a variety of operations safer, and telesurgery is a reality.

When we talk about the dehumanisation of medicine today, coinciding with scientific and technological progress, we are referring to how the doctor, in an arduous act dependent on technology, has cast aside his humanistic and humanitarian perspective, which translates into solidarity and compassion, within a framework of fairness, *aequanimitas,* as stated by William Osler (1849-1919)[22].

Technology, science and humanism

In academic circles, to discuss science and technology is often to talk of humanism but from the other perspective. And thus, just as when we speak of technology, modernism and progress is a given, this does not occur with humanism whose values are timeless and unchanging. But when we talk about humanism it should be within a manner consistent with this new society, dependant on technology. The unstoppable progress of science and technology has been proclaimed as has the decline of our humanities, which are seen as stuck in the past.

Aguirre[23] from the Complutense University of Madrid quite rightly stated, at a lecture in Toluca, Mexico, that: "According to this principle, humanism would look to the past, would focus on keeping the legacy of the past alive, while it would be science that focused on increasing knowledge in the present and looking towards the future." For science, according to this possible scenario, the past would be a burden that must be overcome with the dynamics of the progress of knowledge: the past would be something that moves away. Unfortunately, this is the current perspective that has served, assimilated by the two factions, to separate them. Thinking in these terms is a mistake we are all paying for. To believe that science and culture is something separate is a contradiction that affects the very root of humanist thought. Humanism is to

have the human being, in all its dimensions, in the spotlight, as a constant reference. It is to always have present the fact that it is man who produces knowledge and directs its final destination. Knowledge is an inherent element to man because it is the human being who produces it, who owns it and who suffers or enjoys it. In this construction, the human subject cannot ignore the human dimension their biological condition or their sociocultural condition. They both overlap and are part of a whole perceptive. When we look at the world we cannot ignore its history, culture, and knowledge[23].

When Harvey Cushing[24] asked his students at Dartmouth College in 1928 whether there was a difference between art and science in medicine, he was referring to art in the Hippocratic sense, as the ability to create confidence in the patient and their family, humanism and humanitarianism in the doctor-patient relationship.

Here is where the dehumanisation of modern medicine is said to falter. The doctor often neglects communicating clearly with his patient, and indeed it is good communication which offers that which Cushing defined as the art: the skill of the doctor, through humanitarian treatment and clear communication, to instill trust and confidence in the patient and their family.

I argue that Harvey Cushing was right when he made a distinction between the art and science of medicine. Art is the humanistic and humanitarian side of the doctor, and in modern times it is unfortunately inhibited or ignored. As a result an instability is created in its balance with the overwhelming progress of science and technology. Therefore, it is not technology that dehumanises. Those who use technology outside of the humanistic and humanitarian framework are dehumansing, and that framework is an indissoluble component of the medical act.

Conclusion

I agree with Aguirre Romero who states the need for a new humanism, something that is not only a cultural recreation of the past "but an access to new situations, new spaces that open up before man. I do not want to think of it as a commitment to ancient times, but as a commitment to our time. I prefer to consider humanism more as an impulse than as tangible, more like an energy than as a body of scholarly knowledge".

Considering all this, I would like to reaffirm that biomedical technology is the supreme and unsurpassed amplifier of man's intellectual capacity, i.e., it is profoundly humanising. It is not technology that dehumanises, it is the very people who use technology, those who separate humanism in medicine that do so.

Only the doctor who has a harmonious personality, developed through humanism —understood as a solid general culture and a deep scientific knowledge— can act in a humanitarian and scientific manner at the same time and will not be branded a dehumaniser when he uses technology to its fullest potential.

Again, I would like to express my appreciation to the Mexican Academy of Surgery, especially to the former academic president Dr. Jose Antonio Carrasco Rojas for this honourable invitation to celebrate the life of a man who combined paradigmatic humanism with technology and scientific knowledge, Acad. Dr. Luis Ize Lamache.

Conflict of interest

The author declares no conflict of interest.

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