



OFFICE OF THE PRESIDENT

HEALTH AND HIGHER EDUCATION: A TIME OF TRANSITIONS

Inaugural Address for El Colegio Nacional
by President Julio Frenk at El Colegio Nacional in Mexico City
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Let my first words as a member of El Colegio Nacional (ECN) be a vehicle for expressing the most gratifying of feelings: gratitude. I would like to thank my, now, colleagues who found sufficient merit in me to elect me as a member of this eminent institution. It is an honor that allows me to continue to nourish the roots that bind me to this country I love so much and where I have spent the great majority of my life and my professional career.

I am honored to have personal ties to several current and past members of ECN. Time does not allow me to identify each one, and besides, I want to avoid the risk of accidentally omitting someone, which tends to become a debt of apology. However, I cannot fail to mention the privilege it was for me to know Ignacio Chávez, one of the founding physicians of this Academy in 1943. I also value my bonds of friendship with most of the 20 members who have belonged to the area of biology and health sciences. On this occasion, I would like to express special appreciation for the support of so many of my colleagues, in particular Adolfo Martínez Palomo, who first suggested my candidacy to ECN.

My interdisciplinary training as a physician and sociologist have allowed me to admire the brilliant careers of many members from other fields, including our current president, Enrique Krauze, whom I thank for his kind words of introduction. I must also acknowledge our secretary, Fausto Zerón-Medina, and his staff for their constant support.

Guillermo Soberón deserves special mention. Emulating the way in which he references his relationship with Ignacio Chávez, I like to refer to Guillermo Soberón as my mentor. His wise counsel and his generosity in opening multiple doors to me have been key factors in the evolution of my career. It is, then, natural that he be the one to respond to my inaugural speech today, which adds to the immense debt of gratitude I owe him.

Finally, I appreciate the presence at this ceremony of many friends, long-time colleagues, and members of my own dear family. Their presence here underscores the vital role that they, along with many who are not with us, have played in my personal and professional journey. There are not enough words to fully express the depth of my affection for each of you.

The purpose of this speech is to summarize the topics that have occupied my time during the different phases of my career to date and, simultaneously, incite a possible agenda for what I hope will be my future contributions as a member of ECN.

I will focus on the profound changes taking place in two crucial fields of human and social development: health and higher education. The analysis has both a temporal dimension and a spatial one. In the temporal, the idea is to anticipate changes in order to be in a position to define our future. In the spatial, it is a matter of adopting a global outlook to better understand the forces that shape transitions in Mexico.

I will attempt to link the two fields. Health and higher education have gone through different revolutions at different times. The health revolution began in the early 20th century, accelerated dramatically after World War II, and continues to this day. In contrast, education is one of the few areas of human undertaking that did not experience a technological revolution in the 20th century. This revolution is occurring right now and encompasses enormous potential. Let me analyze the manner in which these two revolutions—initially out of sync with each other—are now converging and could reach a point when they mutually reinforce each other.

In the first part of this speech, I will analyze the health revolution and its implications for a new generation of health system reforms. In the second part, I will examine the revolution underway in higher education and its implications for the role of universities in the midst of uncertainty in the 21st century.

Throughout the speech I will attempt to make explicit the connection between these two revolutions. At its deepest level, the link between health and higher education is rooted in knowledge, the quintessential product of universities and the engine driving progress in health. My central message is that knowledge—whether generated by scientific research, human studies, or artistic creation—represents the most powerful force for understanding reality and transforming it in positive ways. Advancing the revolutions of health and higher education is one of the crucial strategies for Mexico to achieve a level of development that places it at the forefront of our inter-dependent world.

Health in transition

I view health as a meeting point where biology and society, individual and population, science and humanities, knowledge and action, converge.¹ Health, therefore, offers a privileged space in which to understand the deepest currents that have defined the human experience at different times throughout history.

Health is always dynamic. The concept of 'transition' seeks to capture this dynamism and to subject it to rigorous analysis. This was one of my initial areas of research and provided early international exposure for the Instituto Nacional de Salud Pública (INSP) [National Institute for Public Health] and to one of its predecessors, the Centro de Investigaciones en Salud Pública (CISP) [Center for Public Health Research].

The health transition includes two primary dimensions: on the one hand, the epidemiological transition, which refers to the long-term change in a population's health conditions; on the other, the health systems transition, which represents a transformation of the organized social response to health problems.

Beginning in the 20th century, and especially since World War II, health throughout the world has experienced a series of changes that can be characterized as nothing less than revolutionary. The first aspect of this revolution is the transformation of health conditions, which covers demographic and epidemiological changes with enormous social impact. Given time limitations, I will not present quantitative information in this regard² about which there is ample literature, including seminal contributions by several ECN members. Instead, I will summarize the primary, wide-reaching trends that point toward an outlook of unprecedented change and complexity.

To begin, it is important to mention that Mexico is on the verge of completing its demographic transition, having moved from a state of equilibrium characterized by high mortality and fertility to one characterized by low mortality and fertility. In this process, two crucial phenomena have occurred: the growth and the aging of the population. Both have had significant consequences in all areas of social life, but some of the most transcendent are expressed in health conditions, driving an epidemiological transition through three fundamental transformations:

First, the dominant causes of death and disease have shifted from primarily infectious diseases to non-communicable conditions such as diabetes, cancer, cardiovascular diseases, and mental health problems.

Second, the composition of mortality rates by age has changed dramatically; before, most deaths were concentrated among children under 5 years old, while now they occur among older adults.

Finally, the social significance of disease has gone from being a succession of acute episodes to a chronic life condition, often stigmatized.

While the world was experiencing this first revolution in health conditions, a parallel revolution in health systems was brewing. Throughout most of human history, the social function of promoting health and caring for the sick had been assigned to nonspecialized institutions, such as the family or religious organizations. Although some differentiation processes began earlier, it was not until the 20th century that a set of institutions emerged exclusively dedicated to that social function. These institutions constitute the health systems, which have experienced exponential expansion with deep economic, political, cultural, and ethical implications.

Thus, health care has become one of the most dynamic sectors of the economy and one of the chief sources of employment. At the same time, it has turned into a field for political competition between parties, interest groups, and social movements. Health systems have also triggered cultural challenges in interpreting key aspects of the human experience, such as birth and death, pain and suffering, normalcy and deviance. Finally, these same systems have become places in which the key ethical questions of our time are formulated and sometimes answered: When does life begin and when does it end? How much intervention should there be to prolong terminal illnesses? What is a dignified death? How do we establish priorities between different kinds of diseases or different groups of population? How do we achieve a fair distribution of the resources allocated to health care?

Against the backdrop of the major changes experienced by health systems around the world throughout the 20th century and continuing into the 21st, the Mexican system has gone through what we might call three generations of reform.³

The first generation kicked off in 1943 with the creation of our main health institutions: the then-Secretaría de Salubridad y Asistencia [Office of the Secretary of Health and Assistance], the Instituto Mexicano del Seguro Social [Mexican Social Security Institute] and the first of what are now 13 national health institutes.

The second generation begins at the end of the seventies and continues through the next decade. The hospital and specialized medicine model that had been established in the country had reached its limits. The services offered by public institutions did not reach a significant part of the poor population in rural areas, and in the cities, many homes were forced to make use of private services. To address these and other challenges, the major reforms, led by then-Secretary of Health Guillermo Soberón, focused on a structural change to the system.

One of the fundamental innovations was the addition to Article 4 of the Constitution of the right to health protection.

Finally, the third generation of reforms, which arrived in the beginning of the 21st century, seeks to reorganize the health system according to function. As with most Latin American countries, Mexico has had a segmented system with great variations in available resources, comprised of different organizations to attend to the different population groups. The goal of the new reforms has been to reorganize the system by function instead of by social group, in order to ensure that they all receive equal, universal access to comprehensive, high-quality health services with financial protection.

One element associated with this third generation of reforms is the rise of a new ethical foundation for health care, which has shifted from being a labor benefit to being a citizen's right. As I stated earlier, with the modification of Article 4 of the Constitution, a first step was taken in 1983 to make healthcare a social guarantee. However, putting this constitutional framework into practice required other legal, financial, and administrative instruments without which the full right to health care could only be guaranteed for certain sectors of the population, i.e., salaried workers and their families. These instruments were created through the 2003 reform of the General Health Act, which gave rise to the Sistema de Protección Social en Salud [Social Protection in Health System], with its operating arm, the Seguro Popular [People's Health Insurance].

Thanks to this reform, individuals lacking social protection in terms of health have gradually been added to that insurance scheme. To date, more than 56 million Mexicans have become members of the Seguro Popular, which covers a group of 255 essential interventions and 60 high-cost procedures. This means that the poor population of this country no longer depends on State services but rather exercises their right, independent of their situation in the workforce. In this way, Mexico is on its way to having a truly universal health system that guarantees everyone the ability to effectively exercise their right to health protection.

To achieve this long-desired ideal, it will be necessary to perfect the current mechanisms while at the same time design the next generation of reforms. Indeed, the health systems of the 21st century must adapt to changing life conditions and growing citizen demands. This requires the design of a new model for care with the following attributes:

- **anticipatory and predictive**, in other words, one that promotes health and proactively fights risks to the population;
- **person-oriented**, which involves applying scientific advances to developing the so-called “precision medicine” capable of responding to each patient's specific characteristics;
- **committed to quality**, which means providing safe, effective services that ensure a dignified treatment;
- **comprehensive**, which involves coverage throughout the entire cycle of the disease-health process;
- **continuous**, which requires coverage throughout a person's life cycle, with an emphasis on managing the chronicity that currently dominates the epidemiological outlook;

- **diversified**, which suggests novel spaces for hospital, outpatient and home care, capable of responding to the different needs of the sick and the healthy;
- **multidisciplinary**, in other words, based on teams with multiple professional competencies;
- **interconnected** through local, regional, national, and global networks;
- **sustainable**, which requires fiscally responsible management that ensures a high level of financial protection;
- **responsible**, in other words, able to be accountable within a framework of transparency and integrity;
- **innovative**, which invests in research and technology development that is dynamic, in keeping with the changes inherent in health.

This new model of care is being driven by the convergence between four areas of human progress which, up until now, have been developed separately: discoveries in life sciences, especially regarding genomics; advances in information technologies, especially the ability to analyze massive amounts of data, summarized by the concept of “big data”; a systemic approach to management in which complexities are handled in a manner that allows us to focus on creating social value; and citizen mobilization, based on transparency and accountability, to ensure an adequate return on public investments in health.

It is important to reiterate that the engine driving the health revolution that began in the 20th century has been knowledge. The best-known mechanism by which knowledge improves health is its translation into technologies such as vaccines and drugs. But scientific knowledge is also internalized by people to structure their daily lives in key domains such as personal hygiene, eating habits, sexuality, and child rearing practices. People utilize knowledge to make decisions in their roles as co-producers of their own health and that of their families. Knowledge also allows them to be informed users of services and citizens aware of their rights. One more mechanism through which knowledge improves health is its translation into scientific evidence that supports the design, implementation, and evaluation of public policies.

In the 21st century, knowledge continues to be the primary force that keeps the health revolution going. It establishes a direct link with universities—the essential product of which is, precisely, knowledge—through a comprehensive cycle that encompasses several phases:

First, the **production** of knowledge, through scientific research, humanistic scholarship, and artistic creation;

second, the **reproduction** of knowledge, primarily through education;

third, the **translation** of knowledge, whether into technology or into evidence with which to guide decision-making (as has occurred with advances in health);

finally, the **utilization** of knowledge, which guides actions and transforms reality, with which it becomes necessary to produce new knowledge, thus restarting the cycle.

This is the perpetually renewing cycle of knowledge that connects the two revolutions addressed in my speech. I will now analyze the second of these.

Higher education: The new revolution of the 21st century

Without diminishing the central importance of knowledge production through scientific research, this last part of my speech will focus on the educational function of universities.

This is not a new field for me. My first research projects centered on medical education and the medical labor market in Mexico. In fact, these projects were the basis of my doctoral thesis and gave rise to one of the initial lines of research at CISP and INSP.

More recently, I was co-chair of an international commission on the education of health professionals and the lead author of the report it generated, published in 2010 in the prestigious medical journal, *The Lancet*.⁴

As Dean of the Harvard School of Public Health, I proposed and led an in-depth educational reform that continues to this day. Now, reforming higher education is one of the top priorities of my agenda as President of the University of Miami.

This is a crucial moment in which to re-think higher education. The report in *The Lancet* to which I just referred documents the persistence of severe quantitative and qualitative imbalances between the supply and demand for health professionals, imbalances that appear in other fields as well.

At the same time, this moment offers a unique opportunity due to the convergence of four factors that have finally made the educational revolution of the 21st century possible:

First, advances in the cognitive sciences, which allow greater understanding of how we learn as human beings;

second, expansion in the global demand for higher learning, fed by a reduction in poverty, especially in China and India, and the rise of a global middle-class that is aware of the role that higher education plays in social mobility;

third, the unprecedented dynamism of labor markets, caused by advances in automatization and artificial intelligence, which make it necessary for people to return to educational institutions throughout their professional lives;

fourth, technological innovations that have made it possible to develop platforms for high-quality online education, as well as immersive educational experiences through simulators and virtual reality instruments.

In this dynamic context, it becomes necessary to launch a new higher education strategy with two dimensions: one instructional and the other institutional.

The instructional dimension is part of the strategic reorientation of higher education. Until now, the dominant vision of universities could be characterized as a “tube” model, whereby students enter the educational space, spend a fixed amount of time there, and eventually graduate forever. Instead, what is needed now is an open architecture, where students and graduates enter and leave the university multiple times throughout their professional cycle, as conditions in the workforce and, therefore, educational needs change.

Based on this strategic reorientation, it will be necessary to undertake an educational redesign. Due to time constraints, I will limit myself to the core components, among them, results-based learning with a combination of thematic depth and breadth; personalized education, parallel to the personalized medicine that I mentioned earlier, and experiential learning, which requires immersing the student in reality as a source of knowledge susceptible to theoretical elaboration. In the end, it is necessary for every student to undergo a comprehensive educational experience with three successive levels of learning: informative, formative, and transformative.⁴

The institutional dimension of the new educational strategy includes, at its core, capacity strengthening through investment in professional development for the faculty, so that they may learn to teach with the new instructional approaches. Another essential investment refers to innovations in the design of classrooms, instructional materials, and technological platforms. In our interdependent world, we must also consider creating new kinds of organizations that make use of information and communication technologies in order to exploit complementarities between institutions and promote global connections, for example, through the creation of international consortia of educational institutions.

In my inaugural address as President of the University of Miami, I articulated four strategic visions for the future.⁵ We aspire to be:

1. the hemispheric university
2. the excellent university;
3. the relevant university, and
4. the exemplary university.

Due to time limitations, I will focus only on the first and last of these aspirations. With regard to the other two, suffice it to say that I see excellence (understood as adherence to the highest standards of academic rigor) and relevance (understood as the disciplined effort to translate knowledge into solutions to the most pressing problems facing humanity), as two goals that, far from being in conflict, mutually reinforce each other.

If we accept the proposition by Nobel prize laureate Amartya Sen that development must be understood as freedom,⁶ then we can conclude that the motto of El Colegio Nacional, "Freedom through Knowledge," expresses that same comprehensive connection between excellence (knowledge) and relevance (freedom). My own professional journey has fluctuated between the different phases of the knowledge cycle, moving from the production of knowledge through research to its translation into the formulation and execution of public policies based on scientific evidence.

Let us move on to analyze the two other aspirations. What do we understand by a hemispheric university? The purpose of this vision is to utilize the value of education and research to build bridges that connect the entire American continent. Its primary instrument is the Hemispheric University Consortium. Given the strategic value of its geographic location at the crossroads of the Americas, the University of Miami aspires to link to other educational institutions to carry out this ambitious project.

In addition to its obvious function in achieving better educational outcomes, the Hemispheric University Consortium encompasses a deeper meaning. Young people enter the university at the same age they become citizens. If we create opportunities for them to share common educational experiences, we will reduce prejudice and develop long-lasting relationships, contributing to the development of a global citizenship that is so badly need. This was the purpose behind the European Union's Erasmus Program. Even though the Western Hemisphere obviously does not have the same degree of freedom in cross-border movement as the European Union does, it is worthwhile to form a consortium that promotes intensive exchange of students and professors, both for its academic benefit and for its contribution to harmony between countries. This deep sense of educational cooperation relates to the following aspiration: the exemplary university.

Universities can serve as examples or models by adopting the values and behaviors they would like to see reflected in the broader society of which they are a part. Among these values and behaviors we find integrity, the defense and promotion of diversity, inclusion, tolerance, and respect.

As communities focused on knowledge, universities are particularly suitable to performing the exemplary role of becoming not utopias, but rather *eutopias* or ideal places, which one can aspire in a practical way. By guiding their internal lives according to the values and behaviors mentioned earlier, universities can show that there is an enlightened path toward a better society.

In fact, this has been the case many times throughout history. But today the idea of the exemplary university becomes especially urgent given the wave of mistrust in experts and institutions that is affecting many parts of the world. In our turbulent times, universities can serve as a model for creatively addressing the world's most pressing problems by intentionally cultivating the open expression of new ideas, even when they are controversial; embracing a diversity of perspectives in the complex, often contradictory search for the truth; developing inclusive, respectful mechanisms with which to process differences of opinion; and promoting an authentic sense of belonging among all members of the community.

Conclusion

There are deep ties between the health and the higher education revolutions. To begin with, health and education act as reciprocal determinants: Better performance in education generates better health conditions, and vice versa. In addition to these general effects, the most important connection, as I stated earlier, comes through knowledge, which represents the core product of universities and the chief source of improvements in health.

One obvious point of interactions between both fields is the education of health professionals, where the higher education and health care systems overlap. In light of the imbalances to which I alluded earlier, there is ample room for the opportunity to achieve a more harmonious link between the two systems.

All of these connections are being strengthened thanks to a variety of common innovations, in particular the ability to analyze big data, which allows both health care and education to be personalized, and the refinement of technology platforms that are eliminating the barriers of communication through telemedicine and distance education.

All of the above points to a convergence between the two revolutions analyzed here, the most important aspect of which refers to the role shared by health and higher education as the vital elements of equal opportunity and social mobility. Only an intense effort to use these two revolutions to their fullest potential will allow Mexico to fully integrate into the global knowledge economy through an inclusive and sustainable development model that reduces social inequalities.

I would like to close with a final reflection on the depth of emotion I feel at joining El Colegio Nacional. In his magnificent book *La ronda de las generaciones [Generations' rounds]*, Luis González y González, a distinguished member of this institution, alludes to the Homeric metaphor of generations as the successive foliage of a single tree.⁷ What connects the various generations of members of El Colegio Nacional, what makes up the roots, the trunk, and the branches of our leafy tree, are a love of knowledge, creative energy, and a commitment to society. Today, I am honored by the opportunity to add my own leaf to the search, in constant renewal, of freedom through knowledge.

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