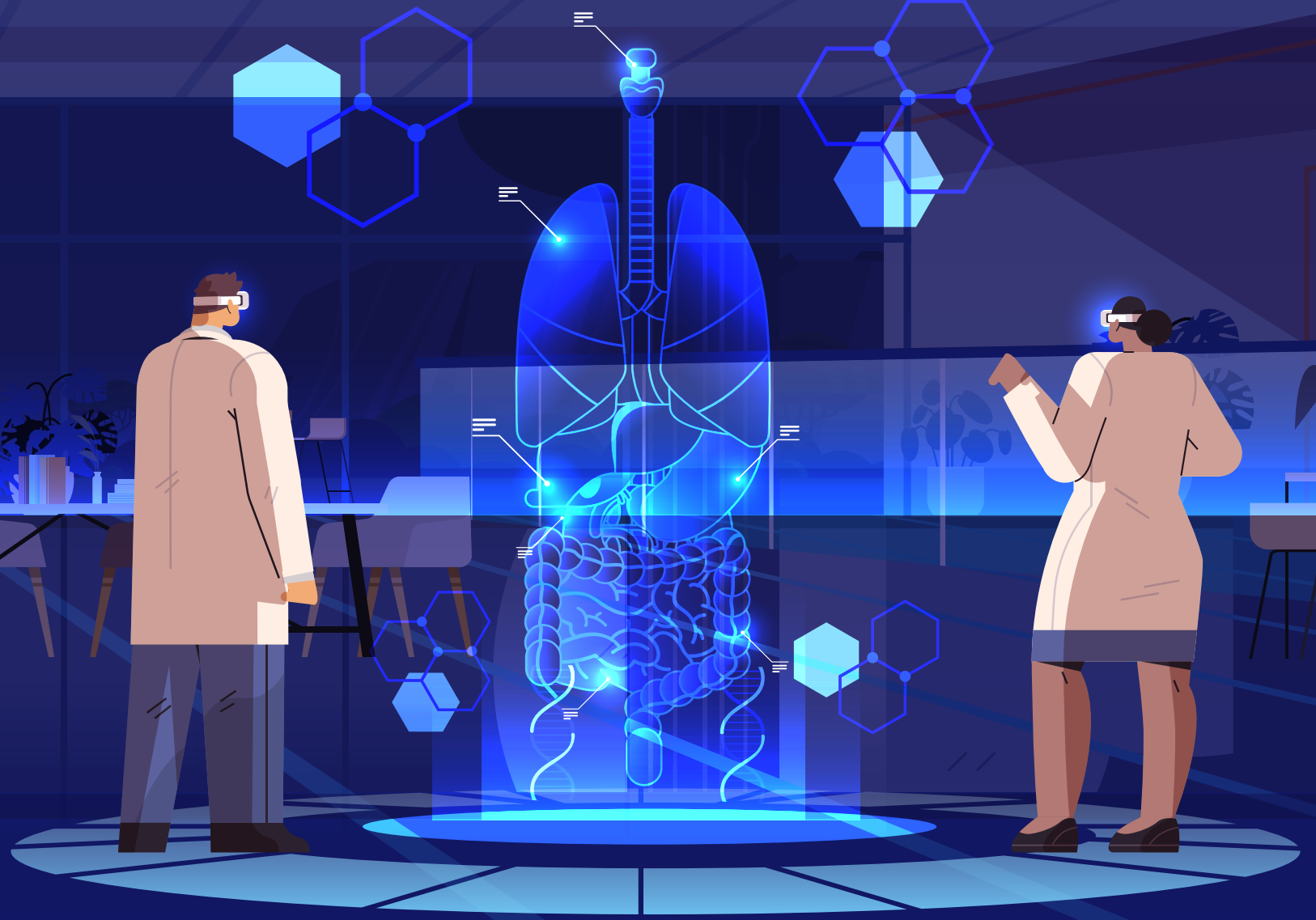
IFE Insights Reports

Health Learning and Continuing Education Trends 2026



Tecnológico de Monterrey
Institute for the Future of Education
ucf UNIÓ CONSORCI FORMACIÓ
LAUNIÓ Associació d'Entitats Sanitàries i Socials
CSC Consorci de Salut i Social de Catalunya
Helix Healthcare education & learning innovation xperiences

Table of Contents

1. Prologue

"No one has ever completed their apprenticeship."

-Goethe

The accelerated evolution of the global environment and the growing attention to human well-being remind us that adaptation capacities are now a professional imperative. Amid new social dynamics, emerging working models, and complex challenges regarding health matters, continuous academic development is the main way for professionals to keep themselves updated on new trends, as well as maintaining their competence and being deeply connected with people's real necessities.

Health sciences education is nowadays in a pivotal moment. Even if peculiar differences exist between undergraduate education, postgraduate education (including medical residencies), and medical continuing education, the reality is that these levels share characteristics and challenges that must be addressed within an integrated vision.

The investigation and innovation in health sciences education are crucial to enhance people's health. It enables the development of qualified sanitary professionals, promotes updated clinical practices, and advances disease treatments and prevention, ultimately improving the quality of life. Health sciences education must find agile ways to adapt to the quickly changing sanitary needs of the world.

With this conviction, Grupo Educativo Tecnológico de Monterrey, constituted by Tecnológico de Monterrey, TecSalud, and Tecmilenio, advances with determination under a shared purpose: transforming the lives of people and communities through

education. Within this framework, educational innovation in health is positioned as a strategic principle for 2030, oriented to maximize health sciences as a leading platform for the formation and sanitary attention in Mexico and Latin America.

While Tecnológico de Monterrey has been characterized for its academic excellence, its leadership in investigation, and entrepreneurship spirit, the current circumstances require the institution to delve deeper into initiatives that answer to the obstacles posed by the health ecosystem. Among these difficulties, the incorporation of technologies like digital health and artificial intelligence clearly stand out, as well as the innovation on evaluation and feedback mechanisms, and the generation of evidence about the most effective practices and models in different health disciplines. This compromise addresses the contemporary and future challenges that require integral, relevant, and people-centered solutions. Only then can we propel technological and scientific advances that really improve people's quality of life and contribute to a sustainable social development.

From the Investigation and Innovation Unit in Health Sciences from the Institute for the Future of Education (IFE), in coordination with TecSalud, we assume this challenge with determination. Our focus is sustained in a vision that strategically integrates education, clinical practices, investigation, and innovation. Through this synergy, we aim to elevate health sciences leadership, boost applied research with real impact, and ultimately contribute to the transformation of the Mexican healthcare system.

Reports like the following, presented by Consorci Formació (UCF) and the Institute for the Future of Education's (IFE) Observatory, are constituted as fundamental tools. Their prospective and comparative vision offers a wide and well-founded view that allows us to identify priorities, guide strategic decisions, and concentrate efforts in areas that foster the evolution of formative and clinical models, strengthening the preparation of health professionals that our current and future society requires.

This way, by guiding our attention to emerging health themes, reinforcing interprofessional education in all disciplines that work together, and promoting interpersonal abilities that ease a clear and empathetic communication, we open new and better ways to learn. This holistic approach stimulates the development of highly prepared talent, while also creating conditions that enable institutions, sectors, and communities to coordinate and build healthier, more resilient societies together.

Jorge Eugenio Valdez, Leader of the Health Sciences Investigation and Innovation Unit for the Institute of the Future of Education (IFE)

2. Preface

As part of its 20th anniversary celebration, Unió Consorci Formació (UCF), the continous health formation initiative from La Unió, Associació d'Entitats Sanitàries i Socials y el Consorci de Salut i Social de Catalunya and the Observatory for the Institute for the Future of Education (IFE) from Tecnológico de Monterrey, signed an agreement to carry out an international study that originates in a dissemination report on "Trends in Educational Innovation in Health".

UCF is a center specializing in continuing education in health, providing training and support to more than 70 hospitals and 150,000 professionals in Catalonia, with an average of 65,000 participants each year.

The Institute for the Future of Education (IFE) at Tecnológico de Monterrey is an international leader in analyzing the future of education. Its Observatory unit is a pioneering platform dedicated to disseminating open educational resources and key trends in educational innovation.

We are pleased to present the report jointly, which has fulfilled its goal of identi fying the main trends in learning and continuing education in health from a global perspective. It gathers insights from expert voices, relevant data, and innovative experiences from diverse healthcare and educational contexts around the world. -

In 2020, it was estimated that there were nearly 65.1 million healthcare professionals worldwide, unevenly distributed, with a health worker density 6.5 times higher in high-income countries compared to low-income ones. By 2030, the global workforce is projected to reach 84 million, representing a 29% increase since 2020, well above the estimated population growth of 9.7%.

It is also important to note that 70% of the global workforce in health and social services is made up of women.

This projected 29% increase in the global healthcare workforce by 2030 reflects growing pressure on educational systems to train qualified health professionals, with a clear impact on specialization, regional focus, and investment in educational infrastructure.

Future growth needs indicate that 18 million additional health workers will be required to achieve Universal Health Coverage (UHC) by 2030 in low- and middle-income countries, along with 9 million additional nurses and midwives to meet Sustainable Development Goal (SDG) 3 on health.

With these data in mind, the report sought to capture a global perspective through expert insights on health education. A total of 40 interviews were conducted with international leaders from more than 18 countries, and 1,156 professionals from across the world completed the survey.

In this report, we have aimed to organize diverse innovative experiences at the international level and to highlight trends in pedagogical, organizational, and technological-digital models.

We hope to have achieved this. We are convinced that a dichotomy between tradition and innovation does not shape the future of health education; rather, their thoughtful, ethical, empathetic, and critical integration does. This fusion will be crucial as technological progress and social expectations constantly reshape the ways we approach continuous education. Furthermore, equity and inclusion must

be ensured to educate not only professionals but also informed citizens committed to self-care and to their communities.

Health education is envisioned as a modular, personalized, interdisciplinary, technologically enabled yet profoundly human experience. From this perspective, it will be essential to train not only competent clinical professionals but also leaders, communicators, managers, and citizens dedicated to promoting equitable, preventive, and participatory health.

- Ana Sedano, Managing Director of Unió Consorci Formació (UCF)

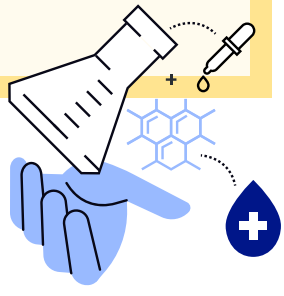
3. Introduction

In recent decades, the field of health education has undergone profound changes, not only due to technological advancement but also due to the transformation of pedagogical methodologies and the need to adapt to an increasingly globalized and digitized world. This phenomenon, which impacts both the training of professionals and the care provided to patients, has accelerated due to the experience of global crises, such as the COVID-19 pandemic, which highlighted the strengths and vulnerabilities of the global education system. Under these circumstances, the integration of new technologies and methodological approaches has become a central issue for those involved in training future health professionals.

Before, the educational model focused almost entirely on master classes, where the teacher taught the lesson using Power Point slides as their main tool, while the students limited themselves to taking notes without a participatory or practical approach in the learning process, explains José María Quintillá, Head of the Clinical Simulation Unit at the Sant Joan de Déu Hospital. However, the current landscape has changed radically; pedagogical and technological approaches have evolved significantly, allowing students not only to passively absorb content but also to become active agents in their learning process.

This transition to more participatory and experiential instruction responds, in part, to the needs of a new generation of students who, as Thania Lineth Espinal points out, Simulation Coordinator at the School of Health Sciences of the Central American Technological University (UNITEC), if subjected to long sessions of passive classes for several hours, lose active attention and commitment significantly after the first few minutes, which leads to a progressive disconnection. Self-management of learning and active knowledge building have become essential in health education, enabling students to not only memorize but also understand and apply what they have learned in real-world contexts.

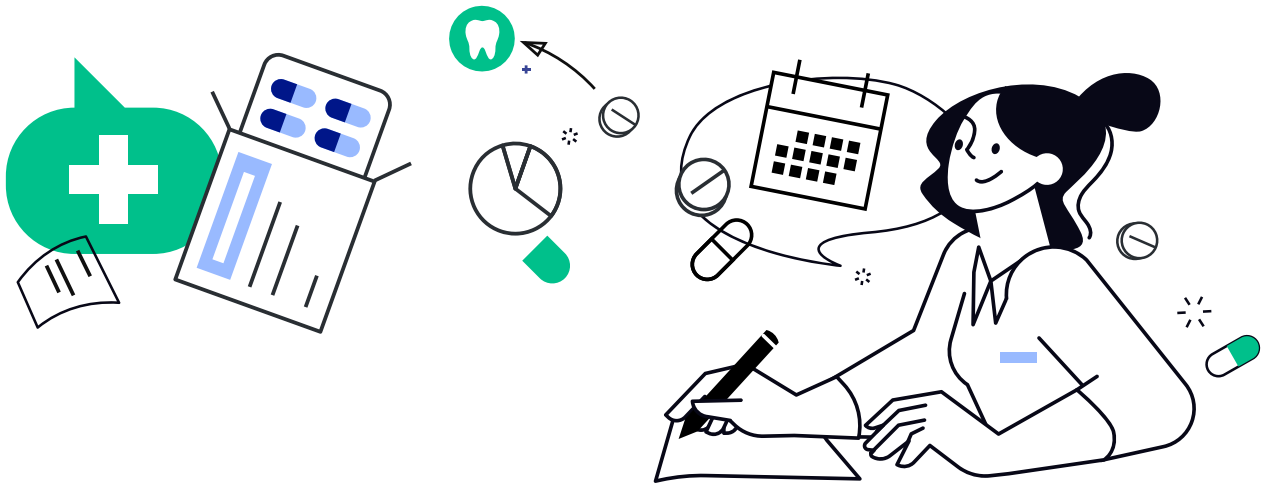
> *"I believe a lot in liquid learning, the learning that occurs transparently and liquidly between us when we work together and teach each other; we learn, we give ideas, we share opinions. Hospitals [...] have too many offices. Knowledge stays trapped behind doors and walls. We need to create open spaces for learning and reflection."*
>
> **- Ana Sedano, Managing Director of Unió Consorci Formació (UCF)**



Ramón Cunillera, President of the Catalan Society of Health Management, reinforces this idea by pointing out that educational innovation must go beyond technological tools and focus above all on methodological evolution. “We cannot use the same teaching methodologies today as we did 25 years ago,” he says, alluding to the need to adapt to new social and cultural realities. Today’s generations demand approaches that foster active participation, creativity, and experiential learning—elements that are not only appealing but also effective for tomorrow’s health professionals.

Another factor that has gained relevance in health education is networking and international alliances, since, according to José Raúl Ñaupari, Head of the Continuing Education Management Unit at Cayetano Heredia University (UPCH), academic missions and international meetings represent an invaluable opportunity to enrich the training of health professionals. Alliances enable not only the exchange of technical knowledge, but also joint reflection on the infrastructure, organization, and management of health systems, critical elements to improving the efficiency of patient care.

Throughout this document, the ideas and perspectives of different experts are collected, who agree that health education must be a dynamic process, where technology and pedagogical methodologies not only improve the acquisition of knowledge, but also contribute to training professionals who are more trained, ethical, and committed to the public health challenges of the future. This approach aims to offer a comprehensive understanding of current educational trends, which encompass not only the technical training of professionals but also their capacity to adapt to a rapidly changing and complex environment, where technology and collaboration play a crucial role.



Data obtained from the surveys conducted for the 2026 Report on Health Learning and Continuing Education Trends

To prepare this report based on both objective data and the subjective perceptions of experts in the health sector, a survey was conducted in which 1,156 specialists participated virtually. Their responses provided valuable insights into best practices in health-related education, the skills they consider essential for future graduates, and the various ways they keep their knowledge up to date in order to remain continuously prepared.

The survey sample consisted of experts working in various countries, primarily in Spain (specifically from Catalonia), who represented 57% of the participants. Mexico followed them with 24%, and the remaining 19% consisted of specialists from Latin American countries such as Honduras and Ecuador, among others. There was also participation from professionals based in other countries in North America and across Europe. Of all respondents, 70% are affiliated with a healthcare institution, 23% with universities, and 6% with non-governmental organizations, consulting firms, pharmaceutical companies, private enterprises, and others.

Among those surveyed, 15% are executives, another 15% are physicians, and 14% are nursing professionals. The remaining percentage represents experts in other health-related fields such as administration, psychology, teaching, nutrition, and more.

Throughout the report, the collected data are connected to various topics, aiming to highlight trends and professional perspectives on the healthcare sector. This provides a comprehensive view of the current landscape.

This report is the result of a series of interviews conducted with leading healthcare professionals, who share their perspectives and experiences on the most relevant educational trends in the industry. Thus, this report serves as a valuable compendium for educational institutions, health professionals, and government authorities seeking to understand the keys to the future of health education, in order to address the challenges of the present and capitalize on the opportunities that will arise in the upcoming decades.

4. Trends in Educational Innovation in Health

4.1. Technology Trends

In recent decades, the healthcare industry has undergone significant transformations, as have other sectors, but with an especially notable impact due to technological advances. These developments have had a significant influence on how the profession is taught, learned, and practiced, as well as the care provided to patients. Health education has evolved to integrate emerging technologies in response to diverse challenges faced by health systems globally and specific public health needs in each country.

J. Quintillá warns that technology can dazzle, which leads us to think that the challenge lies only in understanding how it works; however, the real challenge lies in how to integrate it with a clear pedagogical purpose. According to his experience, the use of tools such as hi-fi mannequins, specialized software, and audiovisual equipment can be technically mastered in a few days. The true goal, though, is discovering the best way to use those tools, what other purposes they can achieve, how they can encourage critical reflection, and how they interact with learning methodologies in hospital settings.

For her part, Nenetzen Saavedra, Deputy Director of Academic Development and Extension at the School of Public Health of Mexico, argues that the challenge has become not only imparting knowledge, but also adapting it to the particularities of students and professionals in training. Technological deployment drives the development of digital skills and creative capabilities, promoting more efficient information management and ethical use. For this reason, it is essential that educational institutions update their curriculum to strengthen digital competencies.

She also emphasizes that, for some years now, and especially after the ravages caused by the COVID-19 pandemic, technological transformation and online education have experienced an unprecedented acceleration. The health crisis has revealed the great potential of digital education on an international scale, particularly as an effective response to public health emergencies or global crises. This highlights the importance of education as a basic right and the role digital technologies play in ensuring its continuity and accessibility.

Similarly, Séamus Ó Tuama, Director of Adult Continuing Education (ACE) at Cork University and President of the ASEM Education and Research Hub for Lifelong Learning, points out that the pandemic redefined spaces and how people can learn. However, he underscores that technology should not be considered the center of the educational process, but a tool that facilitates what is truly important: learning and equitable access to learning opportunities.

Moreover, he adds that it is critical that people use technology in different ways and formats to explore and acquire knowledge. For this reason, even in the field of health, it is necessary for professionals to have digital literacy and understand the ways in which the population seeks information (whether through search engines, social networks, or informal platforms) about their symptoms or diseases. This situation forces us to pay attention to the technologies used not only in formal settings, but also in informal learning contexts.

Having a clear understanding of the desired outcomes and the learnings expected is essential for selecting the most suitable technologies in each situation. Even simple tools like email, internet searches, discussion forums, or video calls can become meaningful learning experiences, as long as they are aligned with clear and relevant goals, he says.

Andrea Coda, Head of Discipline in Podiatry at the School of Health and Science, College of Health, Medicine and Welfare of the University of Newcastle, posits that academics have a moral obligation to offer new students better learning opportunities than those provided generations ago. After the most sudden and rapid advances occurred during the pandemic years, universities were forced to wake up to a new educational reality and adopt training models that were more flexible and adaptable to the current needs of students. In this scenario, collaboration with the industry, the active participation of different stakeholders, and strategic alliances with the technology sector can play a fundamental role in the modernization of resources and learning environments.

As an example, Jorge Azpiri, Director of Development and Expansion Projects at TecSalud, explains that, as a radiologist by profession, he needs to be trained and updated every three months; otherwise, he risks becoming an obsolete specialist. This statement helps to understand the speed of technological change and the constant need for adaptation. In the field of medical education, this poses an obvious challenge: the instruments or technologies taught in classrooms today will not be the same ones that students will use when they graduate and work in the field.

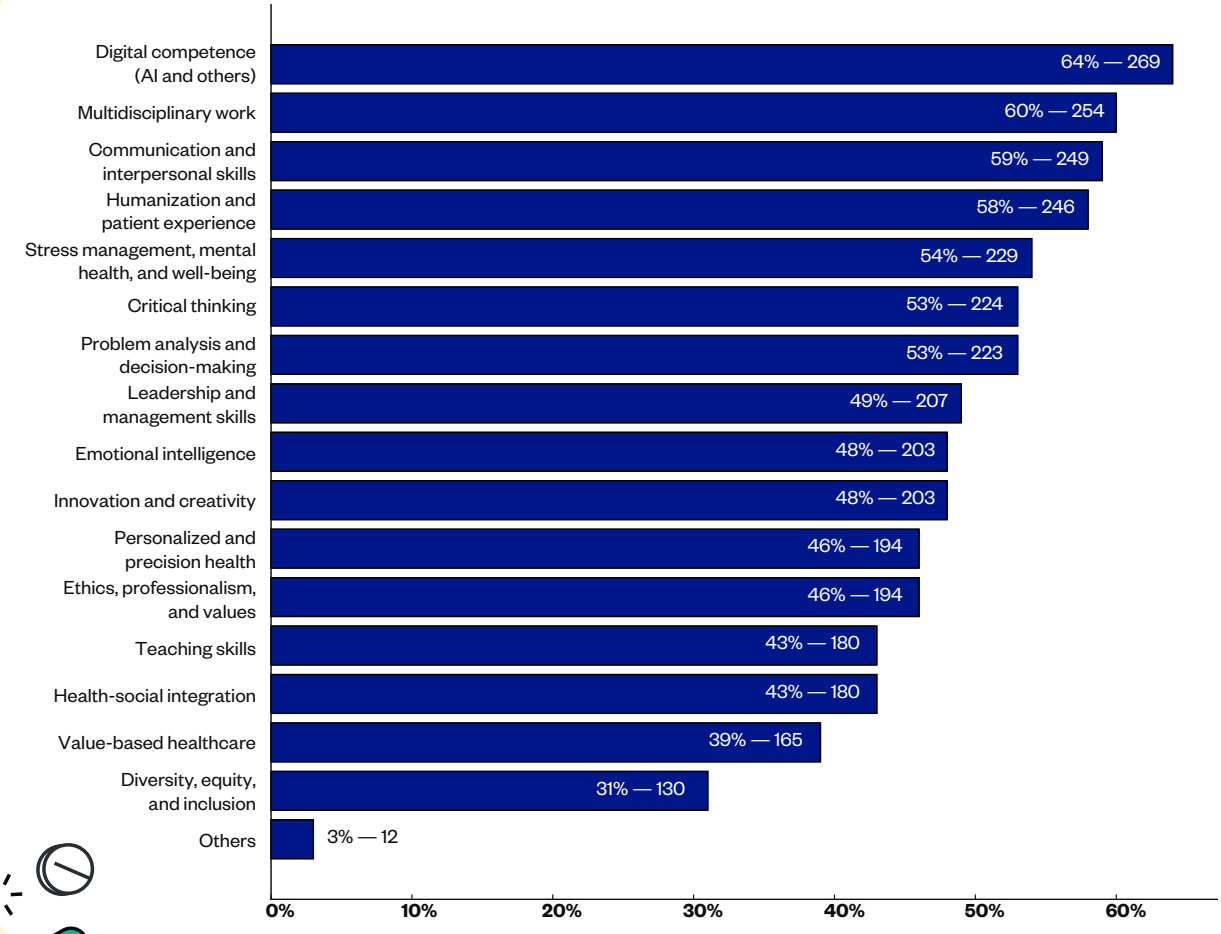
So, the question arises: how to prepare future doctors and with what skills? J. Azpiri suggests that, beyond technical knowledge, students should learn to manage uncertainty and develop their ability to find solutions in changing contexts. Curricula may not need to be completely transformed, but it is essential to enrich them with a lifelong learning approach that prepares professionals to remain relevant and able to respond to the new demands of the environment.

Future Competencies

In addition to the extensive knowledge a healthcare professional must master, there are now multiple competencies that students and professionals will need to posses in order to face the future's challenges.

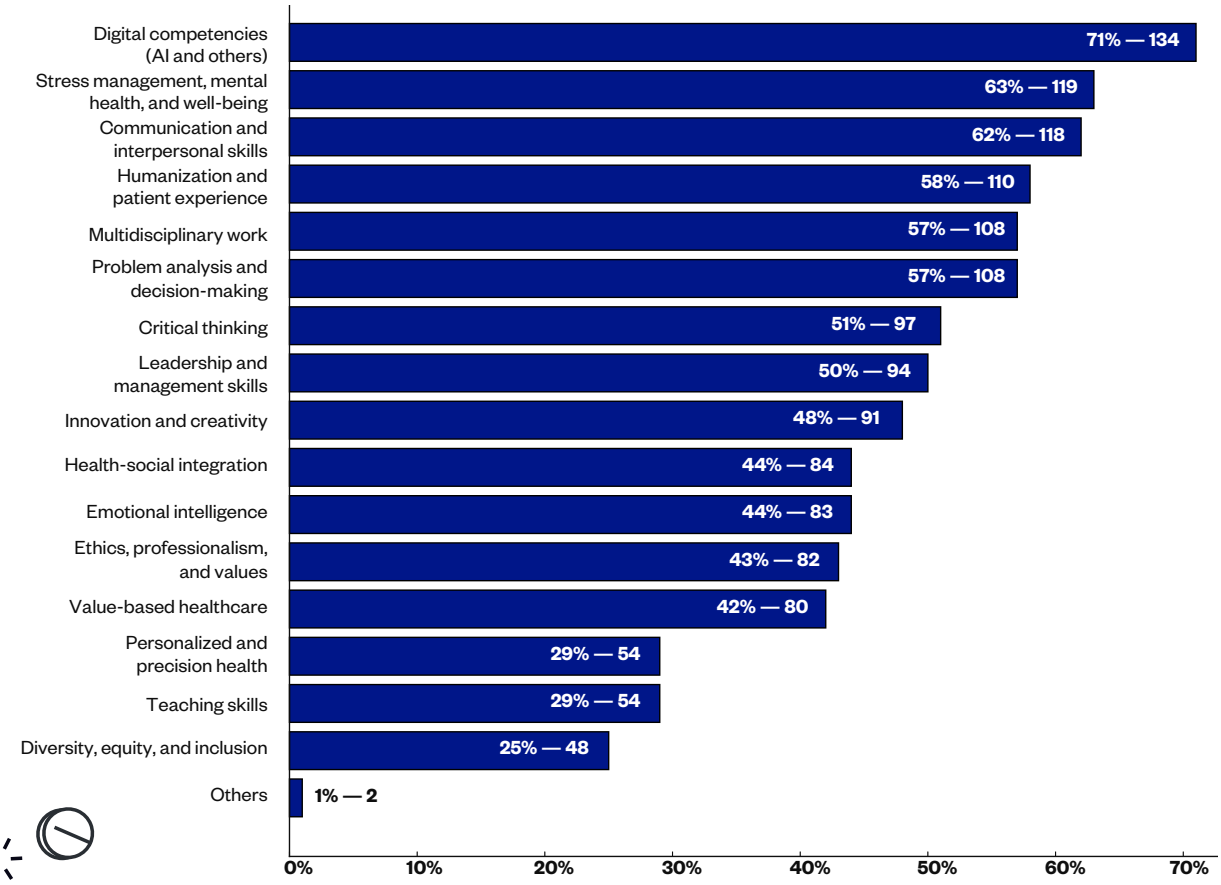
The opinion of 422 experts shows the following results:

What competencies do you think should be developed to address future challenges?



Meanwhile, the opinion of 189 executives and team leaders is reflected below:

Thinking about your team, what competencies do you think should be developed to address future challenges?



It is noteworthy that both professionals and executives agree that digital skills are now a top priority. Both groups also recognize that communication skills are essential to improve the way information is shared among superiors, colleagues, and patients.

The most significant difference lies in that professionals value multidisciplinary skills across areas, while executives prioritize the mental health of specialists.

Mohamed Khaled Choulli, professor at the Faculty of Medicine of Marrakech and Head of Continuing Education at Cadi Ayyad University, agrees that digitalization has a transcendental impact on the relationship between doctor and patient, since the growing presence of technology has transformed the profile of citizenship. Today, many patients independently research medical information and no longer readily accept healthcare providers' instructions. This change in dynamics requires healthcare professionals to understand the new sociotechnological environment in which they operate. For this, continuous and adequate training is essential to allow them to adapt to these new contexts and maintain effective and trust-based communication with their patients.

Even Paulo Speller, Rector of the Afro-American University of Central Africa, notes that information and communication technologies (ICTs) are still in their infancy in many contexts, partly due to the lack of reliable and stable internet networks. Other limiting factors are the scarce number of institutions and professionals with the necessary training and experience, as well as the persistence of conservative educational models inherited from colonial structures. All of these factors hinder current students and future generations by shortening their access to a modern and equitable education.

Even so, Annalet Viera, professor at the School of Nursing and the School of Medicine of the University of the Republic of Uruguay, stresses that, in other contexts and over time, the integration of ICTs has had positive effects. For example, in Uruguay, these technologies have enabled the expansion of health education throughout the national territory. This integration has fostered access and educational equity to overcome geographic barriers and adapt to the unique needs of different communities, reinforcing the transformative potential of ICTs when implemented with an inclusive and contextualized vision.

In turn, Mónica Rodríguez, Director of Teaching at Vall d'Hebron and principal investigator of the Center for Advanced Clinical Simulation at the Vall d' Hebron University Hospital, points out that new technologies must contribute to more humane

clinical care, even if it seems contradictory at first glance. These tools represent an opportunity to reduce gaps and facilitate clinical processes, freeing up valuable time that can be spent engaging with patients, listening to them, and offering solutions from a more empathetic perspective. In this sense, technology does not replace the human component of care but rather can enhance it when implemented with intention and sensitivity.

A. Virtual Learning Environments

As mentioned before, the development of education through digital formats has become particularly relevant in recent years, making it a key element for professional training. In this scenario, it is imperative that professionals adapt to these new learning modalities that facilitate the acquisition of updated skills and knowledge. This educational offering is not limited to traditional degrees of specialization but opens the door to ongoing training that keeps professionals connected to the changes, challenges, and needs of the future.

Today, the integration of emerging technologies into education, particularly in health, has been considered a priority. Rather than rejecting technological advancement, a proactive stance has been taken that recognizes the value of tools such as artificial intelligence, augmented reality, telemedicine, simulation, and high-volume data analysis to enrich training processes.

According to Jorge Eugenio Valdez, Leader of the Research and Innovation Unit in Health Sciences Education at the Institute for the Future of Education (IFE), digital health is an approach that integrates ICTs into health sector products, services, processes, and organizations to facilitate treatment and improve patient well-being. Digital health represents a new paradigm in healthcare by promoting more effective, equitable, humane, and transparent services, linking individuals and their families to the health system and their community.

From this perspective, N. Saavedra shares that the National Institute of Public Health, through the School of Public Health of Mexico, has implemented strategies to train both teachers and students in the efficient, ethical, and responsible use of these technologies. This approach is not limited to technical proficiency, but seeks to foster creativity and critical thinking. Workshops, courses, and seminars have been developed that incorporate methodologies such as design thinking to reduce passive reliance on technology. Moreover, strategic and thoughtful use is promoted, where these tools support problem solving and stimulate the intellectual autonomy of the student body.

Likewise, N. Saavedra comments that it is essential for future health professionals to understand the functionality of these technologies, as well as the conditions necessary to interpret and visualize complex data for evidence-based decision-making. This includes relevant competencies in the field of public health, where the use of digital technologies can enhance the response to population problems.

A. Coda shares an example of the University of Newcastle, where they have noticed a significant evolution in the use of educational platforms. At this university, they have chosen to use Canvas as a base resource and the Canvas Catalog to offer courses to people outside the institution, thereby monetizing the offer. This facili-

tates the development of graduate programs and modular courses that stakeholders can select and pay for based on their educational needs, generating additional income for the university and expanding access to higher education, even remotely.

Angel Vidal, former Chairman of the Board of Directors of the Catalan Institute of Oncology (ICO) and former Chairman of the Healthcare Quality Society of the Academy of Medical and Health Sciences of Catalonia, mentions that a key ICO initiative, in collaboration with the Open University of Catalonia (UOC), was the development of the e-oncology learning virtual community, an initiative that has been successful over time because of its ability to provide specialized oncology training globally. With this initiative, all management and training of teachers and students are conducted virtually, which has opened up new possibilities for clinical training. These digital solutions allow students to train and acquire skills without the need to always be in a real, practical environment, which expands access and flexibility in healthcare training.

To meet today's challenges in the healthcare environment, health science students must develop skills, including digital skills, that enable them to navigate with agility in an increasingly technological ecosystem. In this framework, e-health, as a component of digital health, becomes relevant, since it integrates tools such as electronic medical records, telehealth (including telemedicine), online learning, and continuous training in ICT, as well as knowledge about standardization and interoperability of systems, fundamental for comprehensive, safe, and connected care.

The adoption of digital platforms has transformed medical education by laying a solid foundation for the implementation of telemedicine. By accustoming students and teachers to working remotely, skills are developed skills are developed so they are able to work from afar. This way, experience involves efficient and accessible health services in an online format.

Telemedicine provides medicine, be it diagnosis, treatment, disease prevention, among other services, through technological platforms in a legitimate exchange

of information to improve health. This facilitates the reduction of distance limitations by optimizing care and reducing travel times as well as associated costs (Prados, 2013).

J. Ñaupari argues that the demand for telehealth has grown exponentially in Peru, thanks to the fact that it allows closing access gaps for users. Some of the curricula of UPCH diploma courses cover these practices. Meanwhile, Carlos Plá, Deputy Director of Talent Development and Management at the Catalan Institute of Health, comments that telehealth has been successfully implemented in some areas of health, such as dermatology, where there is probably no turning back. However, there is also some resistance to adopting this support model, especially among generations with more traditional training approaches.

M. Choulli, from his vision of the Marrakech Medical School, believes that, although telemedicine is not applicable in all contexts, it has led to innovative experiences in some villages in rural areas, where young people who are proficient in local languages have acted as interpreters between doctors and patients, which has improved medical care. This approach enhances access to health and contributes to retaining young talent within the communities themselves.

However, P. Speller explains that, even though there are prominent cases in countries such as South Africa, Morocco, or Egypt, in many other countries, telehealth

remains an aspiration rather than a reality. Although telemedicine offers more benefits than limitations, there is still a need to strengthen information and communication infrastructures.

For Martha Lucia Ospina, Executive President of the Méderi Hospital Network, this practice adds to artificial intelligence and other technologies as part of a set of strategies that diversify the way health services are delivered. Remote support is necessary in certain settings and circumstances, as it allows assistance to be adapted to the specific needs of each population. She also states that true educational innovation lies in a person recognizing that knowledge can be transmitted in different ways, depending on the situation.

M. Ospina's perspective complements the contributions of Cristian Moscoso, Director of the Advanced Health Training Center at Santo Tomás University in Chile, who reports that teleconsultations on mental health, aimed at adolescents, have gained strength in Chile. This trend seeks to respond to the problem of coverage and access to mental healthcare that affects Latin America in general.

The necessary skills for a healthcare professional have changed considerably over time. According to Gabriel Antoja, Product Manager for Clinical Decision Support Systems (CDS) in Southern Europe and Latin America at Elsevier, 15 years ago, it was unthinkable to consider telemedicine as a fundamental resource for clinical practice. But today, this tool optimizes work through remote assistance and even the use of robots, which can make medical work more efficient. However, G. Antoja warns that knowing how to use these technologies and their risks and benefits is only the first step, since in many cases, even the minimum is hardly mastered.

For this reason, he warns that it is also necessary to study how to correctly evaluate the implementation of these tools, a terrain in which there is still a long way to go. Even in something seemingly simple like a virtual consultation, it's not enough to power up a camera and handle the interface: it is critical to know how to adapt the environment, manage lighting and camera appearance, sound, and other elements that impact the quality of care.

For Robert Kearns, Director of Online Education at Johns Hopkins University School of Medicine, just as the use of telemedicine has increased considerably after the pandemic, so has his teaching techniques. In the United States, it has been adopted as a clinical tool and a component within health education systems. In fact, some telemedicine principles have already been incorporated into classroom training as part of preparing future professionals.

> *"Telemedicine allows us to interact with patients for whom attending in person could pose a risk or be difficult for them. Through platforms, such as Microsoft Teams, we can integrate them virtually, allowing our students to converse with them and present themselves to them in a way that can be more convenient or safe for patients without losing the educational benefits that would come from sharing their stories in a class."*
>
> **- Robert Kearns, Director of Online Education at Johns Hopkins University School of Medicine**

Additionally, an increasingly adopted technique in health training that uses virtual learning environments is simulation. This practice has its origins in the use of bodies for dissection in anatomy (Serna & Martínez, 2018) and, later, in the creation of mannequins for training, such as cardiopulmonary resuscitation. The main objective is to place the student in clinical scenarios that replicate real-world situations, but within safe, controlled environments designed according to training needs.

Currently, digitization has expanded these possibilities through tools such as virtual and augmented reality, virtual laboratories, and various platforms that allow students to experience clinical situations similar to those they will face in their professional practice. These methodologies, adapted to the educational context, allow students to develop skills through practice to facilitate problem solving and the detection of complex clinical situations.

Enrique Terán, a professor at the San Francisco de Quito University School of Medicine, considers simulation to be a versatile field that encompasses all levels of complexity, from basic simulators to highly sophisticated environments, such as virtual surgery rooms. Simulators allow students to repeat practices as often as necessary until reaching the required safety and confidence without compromising patient safety.

J. Quintillá explains that simulation fosters the design of new workflows, optimization of care systems, and teamwork. This approach generates both individual and group learning, as well as institutional learning. For this reason, at the Hospital Sant Joan de Déu, simulation units are conceived as true learning providers to acquire knowledge before applying it.

A. Sedano, Managing Director of Unió Consorci Formació (UCF) and former Director of Human Resources of the Catalan Institute of Oncology (ICO), explains that most Spanish universities with health studies have affiliated health centers, where students and teachers carry out internships in which theoretical training is combined with clinical experience and, lately, with the use of simulation cen-

ters. In these centers, collaborative learning is encouraged, and real situations are simulated; sometimes, virtual tools are used, such as 3D reality glasses, digital animations, and mobile devices, all monitored with guided training to facilitate practical learning.

According to Fernando Saavedra, National Director of Continuing Education at Santo Tomás University in Chile, it is imperative that health education include simulation components, both for patient safety and limitations in the availability of clinical placements, which are increasingly restrictive. Although technological advances continue to evolve, it is not always feasible to access real clinical spaces for training. Therefore, having simulation centers with high educational potential has become important to ensure quality education.

He also points out that, although 20 years ago health specialists used congresses, seminars, scientific publications, and other traditional sources to stay up to date, for almost a decade digital programs have begun to be incorporated into their training. These include tools such as augmented reality and digital simulation, for example, in procedures like laparoscopy, which represent a significant change in learning strategies and professional development.

Another example comes from Mario Mosquera, Director of the Knowledge and Talent Management Area of the Galician Agency for Health Knowledge; he explains that his agency uses the SimMan 3G doll, the most advanced on the market, as it simulates pupil dilation and reacts to medications and procedures. In addition, the doll features a mechanical ventilation device, skin changes, and videos with pre-loaded pathologies in different areas of the body.

Joseph Sung, Dean of the Lee Kong Chian School of Medicine at Nanyang University of Technology (NTU), highlights the integral role of technology in current medical education, ranging from the use of virtual teaching platforms to the implementation of virtual reality tools in the study of anatomy. Instead of traditional dissection, his

school employs three-dimensional simulations that allow students to explore the human body in depth, facilitating anatomical, radiological, and pathological understanding in an interactive and visually enriched manner.

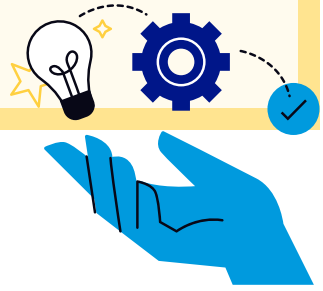
Regarding curriculum design, J. Sung also shares they have replaced master classes with case-based, synchronous, team-based learning with active participation. Emphasis is placed on teaching transversal competencies such as digital health, data analysis, artificial intelligence, medical humanities, and communication skills, including sessions with simulated patients.

Roser Anglès, Healthcare Director of the Catalan Institute of Health, advocates that simulation is an indispensable tool for health training, especially as a step prior to contact with real patients. Unlike earlier generations, where learning was done directly with the patient, sometimes in unethical situations, today, with the possibilities offered by simulation, past practices should no longer be acceptable.

For R. Anglès, simulation is not limited to the use of advanced technology or sophisticated mannequins; the most valuable is the pedagogical concept of confronting students with a simulated clinical scenario and then reflecting with them on how their practice went. This not only allows to develop technical skills, but also strengthens critical personal and relational skills, such as empathy, communication, and clinical judgment, also known as soft skills.

A. Viera shares that, while simulation is a critical part of the curriculum, it should always be complemented by social contact, as it adds value by allowing the patient to be observed and heard live, which builds clinical judgment. Meanwhile, A. Sedano indicates that, with simulation, whether face-to-face or virtual, it is possible to replicate the characteristics of personal skills through games and robust audiovisual support for a specific educational purpose.

> *"Without training, there is no continuous improvement. You can get trained in a classroom or on a tablet, but the point is being trained for continuous improvement, in whatever form it comes."*
>
> **- Ana Sedano, Managing Director of UCF**



Simulation can be understood as an evolution of traditional role plays used in the classroom. Although this practice has been in place for a long time, it now assumes a new name and format. In essence, it involves creating a scenario that simulates a real-life situation for educational purposes.

For his part, G. Antoja expresses that every day, efforts are made to ensure that this trend contributes to the acquisition of formal knowledge within educational systems. For example, some programs combine a job with postgraduate studies, such as a master's degree, with the aim of validating knowledge and skills acquired through practice. Simulation helps in this process.

However, he cautions that for a tool like this to make a positive impact, it is essential to set objectives focused on developing specific student competencies. To achieve this, the role of the teacher is key, as they observe, provide effective feedback, and assess in a meaningful way. Still, one of the most relevant challenges in this process is to prevent tutors from resorting to generic exercises that do not take into account each student's individual role, prior experience, or abilities.

R. Kearns highlights that, in the context of online education, low-fidelity simulations tend to be used, such as interactive scenarios with ramifications or demonstrative videos that allow the student to understand processes and develop empathy. There are also video game simulations that can be played virtually. However, scalability brings severe limitations. For example, it is not feasible to send devices, such as VR glasses, to hundreds of students in a course, making it difficult to deploy them on a large scale.

Similarly, G. Antoja says that, beyond the economic factor, one of the greatest challenges is standardization in educational institutions, given that they all have particular contexts and characteristics. Therefore, even if a tool seems promising, its usefulness will be limited if it is not properly integrated into the pedagogical processes and does not adapt to the interests and needs of the different agents involved in the teaching-learning process. Technological adoption involves an adaptation that goes hand in hand with the cultural direction of the institution; acquisition is not enough.

J. Quintillá suggests that face-to-face simulation has the potential to enable relational competencies such as communication, teamwork, and leadership, contributing to an organizational culture change. At the Sant Joan de Déu Hospital, the simulation program includes activities based on communication and interpersonal relationships, as well as building multi-professional teams to train the fundamentals of teamwork. Their practices incorporate mannequins and a group of actors to simulate the real communication challenges faced in the healthcare field.

Similarly, T. Espinal believes that highly complex scenarios are beneficial for collaborative work and decision-making. She explains that, at UNITEC, a training line based on progressive simulation has been developed. Students first learn isolated technical skills, like venous cannulations or injection applications, and then they learn complex skills, like inserting nasogastric tubes or administering nebulizer treatments. This progressive format stimulates cognitive (through clinical case

analysis), psychomotor (by performing the procedure), and affective (by interacting and communicating with the patient) dimensions simultaneously.

They are also supported by exercises known as "Live Life Simulations," where students take on the role of patients to gain a deeper understanding of the latter's experiences. To better understand the experience of a pregnant woman, students use a 30-pound belly and must perform everyday tasks, such as tying their shoes or performing professional functions, in order to have a personal experience of the physical and emotional limitations associated with that condition.

Likewise, she points out that at UNITEC they are investing in technology such as the HAL simulator, which incorporates artificial intelligence and features advanced capabilities, including limb movement, blinking, and responses to stimuli. This technology can help the institution position itself as a pioneer of its use in Honduras.

M. Rodríguez agrees that the simulation supports the development of technical and non-technical skills such as communication, teamwork, and emotional management. At the Vall d'Hebron University Hospital, the Advanced Clinical Simulation Center has been developed. This center replicates different hospital areas (neonatology, pediatric ICU, emergencies, etc.) in a virtual way. It is an environment that allows professionals from different parts of the world to interact in real time with simulated patients (avatars) and an instructor guides students by controlling clinical variables, such as blood pressure or the results of diagnostic tests. This modality enables the development of teamwork and non-technical skills with a high degree of realism.

Its training program for residents is organized in stages: in the first year, situational awareness is worked on; in the second, interpersonal and team communication;

and in the third, decision-making and leadership. All of this is done in simulated environments with similar methodologies as in-person training, including structured debriefing sessions, where experiences with the support of expert instructors are discussed.

M. Rodríguez explains that the ultimate goal is to incorporate simulation as a regular tool in health services, which allows the entire team (doctors, nursing, and administrative function) to rehearse real situations periodically.

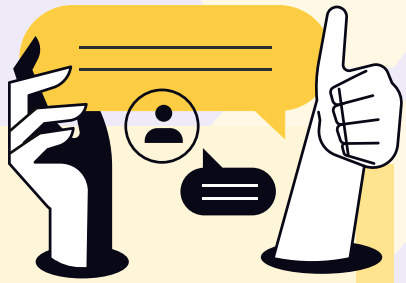
A. Sedano states that the UCF seeks to anticipate the needs of the sector and offer increasingly innovative learning experiences; for example, they have created some courses with simulators related to the care processes. They have also developed a course of conversations with the team developed on an intelligent conversation simulator that allows them to make decisions and see the consequences.

In this line, E. Terán considers that it is important for students to relate to the simulator as if they were a real patient, which includes basic courtesy gestures, such as greeting, asking for permission, and explaining what they are going to do. This approach seeks to develop essential communication and ethical competencies in clinical practice.

Jorge David Alvarado, Dean of the Faculty of Medical Sciences and Faculty of Dentistry of UPANA, explains that, in the faculty, they use the Body Interactprogram, a clinical simulation tool with artificial intelligence that enables students to interact with virtual patients tailored to their academic level. Through cases, first to third year students gradually develop their clinical skills by facing a wide range of situations from simple diagnoses to complex medical emergencies. Additionally, subjects such as anatomy and histology rely heavily on digital platforms due to the limited availability of human bodies.

That said, E. Terán warns that simulation should be considered a supplement, not a substitute, for actual clinical practice. Although the virtual environment is useful for repetitive and safe practice, there are aspects of human contact that are not tangible, such as emotions or ethical responsibility, and that can only be experienced in real situations. Therefore, at the San Francisco de Quito University, after many practices with plastic models, students must also perform procedures with each other to face the human factor in a controlled, but authentic environment.

R. Anglès argues that simulation may have limitations. For example, intubating a mannequin will never be the same as with a real patient. The effectiveness of the simulation depends largely on its level of realism, and if it is not sufficiently similar, its pedagogical value decreases. Despite these complexities, she believes that simulation, whether technological or not, should be a mandatory component in all medicine and nursing curricula, given its positive impact on patient education and safety.

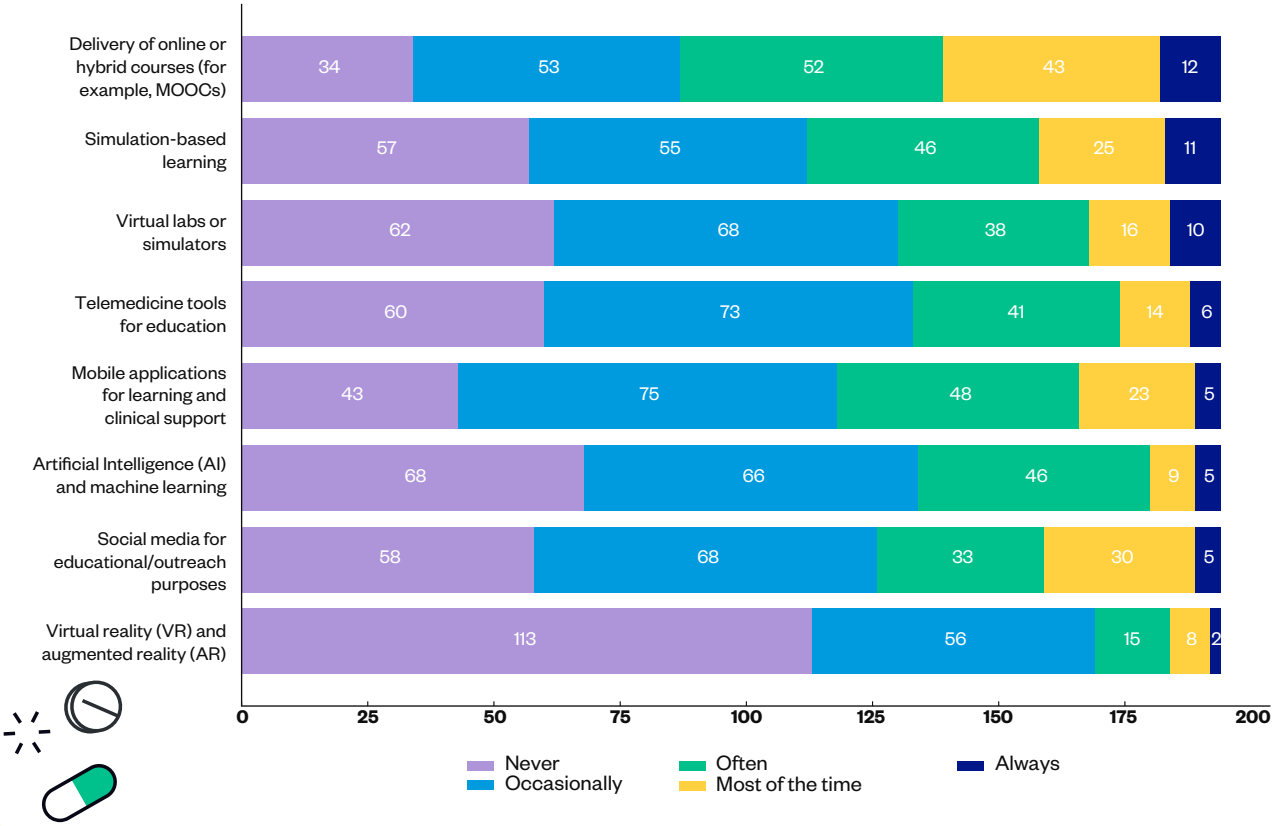


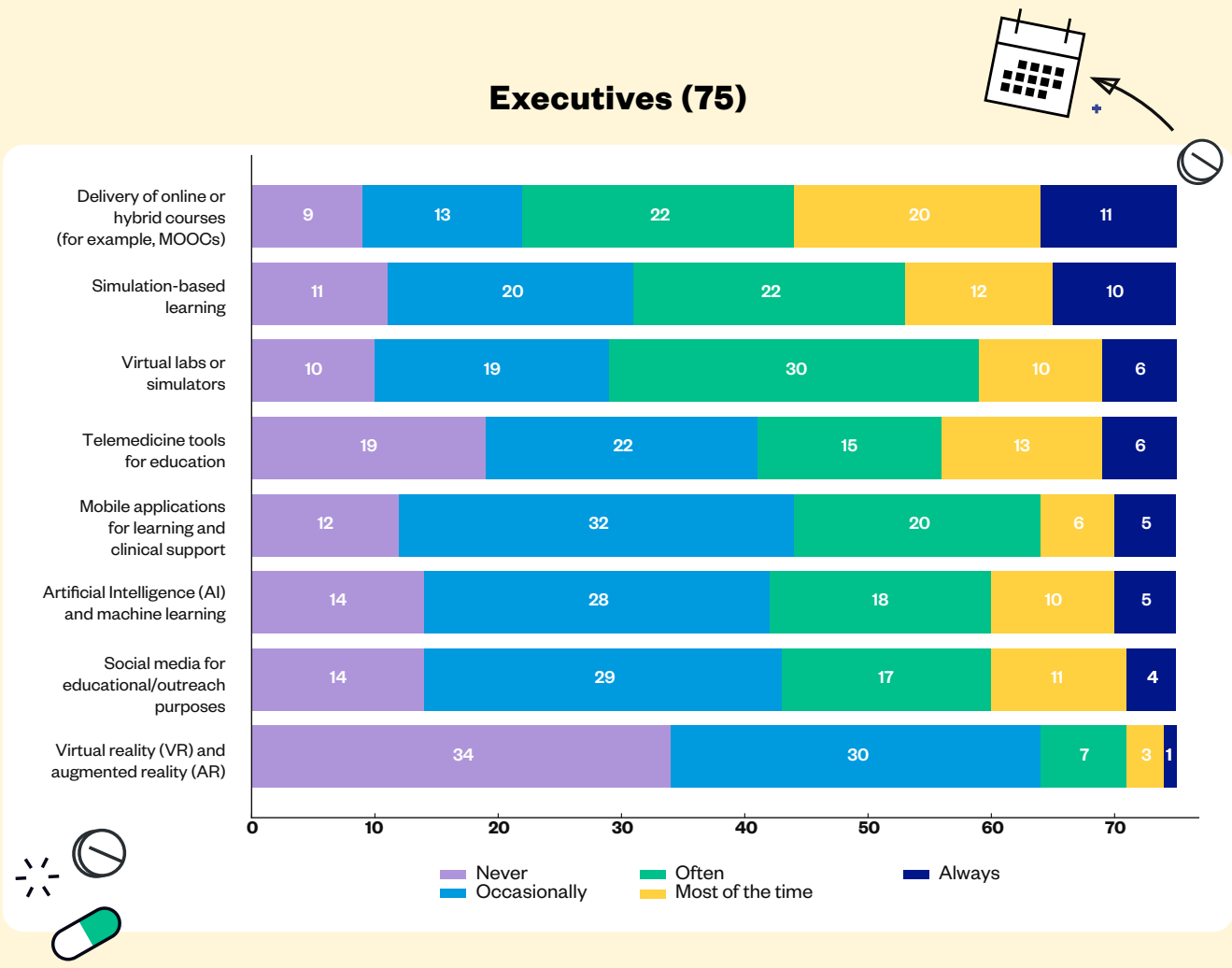
Most Frequently Used Technologies in Institutions

With the advanced deployment of technological resources in education, educational and healthcare institutions are increasingly recognized as leaders in professional training. Their ability to manage these tools efficiently makes a significant difference in maintaining up-to-date knowledge.

The respondents, comprising healthcare faculty (194) and executives (75), answered how frequently they use certain educational technologies applied to health sciences within their institution.

Healthcare Faculty (194 respondents)





It can be observed that faculty most frequently use online or hybrid course delivery, such as MOOCs, in their institutions, followed by simulation-based learning and virtual labs. Executives primarily rely on digital courses but report more frequent use of social media for educational or outreach purposes and mobile applications for learning and clinical support.

In this context of educational transformation, the use of digital platforms becomes an essential complement that enriches the academic experience and facilitates the monitoring of student progress. These enable the integration of interactive content, automated assessments, and customized resources tailored to each student's learning. Digital platforms not only support learning management, but they are consolidated as strategic allies in the continuous improvement of training programs.

For example, Dolors Sánchez, Head of Talent, Culture and Transformation at the Catalan Health Institute, states that her institution has promoted self-training, with the support of tools such as Moodle, Workplace, and Cornerstone. This has streamlined bureaucratic processes and also paved the way for incorporating artificial intelligence. For his part, R. Cunillera explains that the Catalan Society of Healthcare Management focuses on the dissemination of knowledge and the creation of trends with emerging technologies, which serve as a vehicle for its training work. They also partner with other specialized entities to incorporate up-to-date content, for example, in artificial intelligence, strengthening the competencies of healthcare managers.

N. Saavedra indicates that, in the educational field, various interactive digital platforms have been developed that promote self-directed and student-centered learning, extending access to training beyond in-person environments to other regions, even internationally. To this end, the National Institute of Public Health has an area specialized in researching and adapting educational technologies, which are then transferred to teachers, researchers, or students, to provide them with resources that strengthen their academic and training work.

Similarly, J. Ñaupari states that, while the UPCH undergraduate program uses Blackboard, the continuing education unit has opted for Moodle 4.1, a more agile and dynamic version that facilitates both user navigation and technical management. Through this platform, interactive digital content and asynchronous courses have been developed, which amplifies the reach to new student profiles. Hybrid

classrooms equipped with this technology have even been incorporated, making it possible to combine face-to-face and virtual teaching, which improves the educational experience and the versatility of the training offer.

Siglo 21 University has created a technological ecosystem that integrates learning, evaluation, and student monitoring. Fátima González Palau, Director of the Institute of Neurosciences and Well-being at Siglo 21 University, says they use holograms to extend their reach to remote regions in Argentina. Through learning centers and the use of technologies, they seek to bring university education closer to isolated populations.

Glenda Yadira Alemán, Head of the EF and FB block of the Faculty of Health Sciences of UNITEC, highlights the use of multiple technological tools for the teaching of anatomy, physiology, and other biomedical areas. Among them, she mentions virtual laboratories, such as Labster, the dissection table SECTRA with VH Dissector, Body Interact and Complete Anatomy. These technologies, applied from the approach of structure and function, enrich the training experience of students.

One of the main challenges in continuing education is to ensure accessibility through virtual platforms that balance learning with work activities, as highlighted by Emilia Arrighi and Ana Paula León, General Director and Deputy Director of the Patient and Family University (UPF), respectively. Digital tools must be backed by public and private funds that ensure their continuity over time, as well as be designed to develop skills aligned with the current needs of society. In this way, training not only adapts to the demands of the work context but also promotes constant and sustainable updating.

Meanwhile, M. Rodríguez states that the key to effective training is to encourage active student participation to create immersive experiences that facilitate learning. Innovations pave the way for more inclusive and effective continuing education that is aligned with today's needs.

B. Healthcare Training with Artificial Intelligence

Artificial intelligence (AI) is defined as a technology that allows machines to simulate processes of human thought, such as learning, problem solving and decision-making (Stryker & Kavlakoglu, n.d.). Although computers lack thinking and reasoning, unlike people, scientific advances have given rise to systems capable of executing some tasks that usually require human capabilities.

In the field of health education in universities, AI offers innovative tools to strengthen lifelong learning, facilitating access to knowledge and personalizing the educational experience. An example of this is the use of chatbots, which enable immediate and continuous interaction with students, bringing them closer to the content in a dynamic and accessible way. These technologies can process large volumes of data, identify learning patterns, and respond to specific queries (BBC, n.d.), making them key allies for more efficient and user-centric health education.

For R. Kearns, AI has had a profound impact in the field of healthcare, particularly in supporting clinical decision-making. However, he points out that it is essential to teach students to interact critically with these technologies. He emphasizes the importance of keeping up to date every semester on the new tools available in order to train students in their proper use and deal with them in the professional field. This process is not simple, since AI can present implicit biases and generate hallucinations, that is, incorrect or imperceptible patterns that generate meaningless results (IBM, n.d.).

Meanwhile, Bart Janssens, Director of Learning and Innovation at the WHO Academy, addresses the fact that the relationship between the healthcare professional and the patient is mediated by empathy, intuition, and experience—qualities that, while valuable, also involve risks due to the inherent subjectivity of the human being. From his perspective, AI should not replace human interaction, but rather act as a support tool. In certain specialties, he acknowledges that machines could surpass human beings in diagnostic accuracy but insists that a human figure will always be necessary to accompany the patient in making clinical decisions.

R. Kearns admits that AI is a powerful tool for teachers and students, useful in course design, predictive analytics, and different resources, such as virtual tutors or simulated patients. However, it also poses ethical and educational risks. He stresses that while AI can enhance learning, its misuse (such as generating answers on exams or in job applications) is a significant challenge. For this reason, he emphasizes

the importance of addressing these issues from an ethical commitment perspective and maintaining the academic honor code.

J. Sung states that the use of generative AI in clinical practice is still in its early stages, although concrete applications are already being explored. Some of them consist of generating automatic summaries of medical consultations in order to document the results and suggest investigations or next steps in patient management. In J. Sung's specialty, gastroenterology, AI tools are being tested to interpret endoscopic images, for example, in the detection of colon polyps. The goal is to assess whether these technologies actually improve the diagnostic accuracy and efficiency of the process, or if, on the contrary, they could slow it down.

Another application in development is the use of AI for patient triage, he shares. Through automated interpretation of studies, such as chest X-rays, systems can guide immediate clinical decisions, such as referring to the emergency room, family physician, or recommending home rest. However, J. Sung cautions that due to the conservative nature of medicine, these technologies should be implemented with caution to avoid errors or improper patient management.

For its part, E. Terán believes that the lack of a clear and regulatory response persists in Latin America, especially in Ecuador, where a prohibitive attitude towards AI predominates, but without real means to control its use. He believes that it is

unethical for teachers to use these tools but prevent students from using them. He proposes to include clear rules on the use of AI in academic programs to encourage personalization and self-thinking. He contrasts the situation with that of countries like Spain, where the debate is more advanced, although it still presents challenges.

G. Alemán highlights that the use of AI in Honduras, more specifically at UNITEC, is in its early stages, but is advancing rapidly. The institution has begun implementing guidelines on the ethical use and application of generative AI in various academic areas. In the health faculty, it is used for discussions, clinical case analysis, pathophysiology, radiology, and imaging anatomy, so it has become a key resource for integrating knowledge and making more accurate assessments.

G. Alemán emphasizes that AI has become a foundation in education today, but underscores the need for a clear regulatory framework, as students are still in the process of cognitive development and require appropriate guidance. In this same line, she warns about the importance of ensuring the security of personal and academic information, both of students and teachers, especially with the use of digital medical records. She says data protection remains a global challenge that needs to be addressed urgently.

Similarly, J. Sung emphasizes the importance of addressing the ethical, legal, and social implications of using AI in healthcare. For him, it is essential to establish ethical and regulatory frameworks that protect both the rights of patients and the professional autonomy of doctors.

In Spain, AI has begun to transform health sciences, explains R. Cunillera. It provides a new perspective on healthcare and healthcare management, representing a gradual but unstoppable transformation. According to R. Cunillera, AI will streamline processes, facilitating quick access to comparative and prognostic information. However, the challenge will be to correctly interpret that data and use it ethically and professionally. While human judgment will remain essential in decision

making, true evolution will include access to new sources of information, profoundly changing the way clinical and management decisions are made.

> *"AI changes the whole learning game. [...] Professionals no longer have to memorize things, they have to understand them and discuss them."*
>
> **- Gabriel Antoja, Product Manager for Clinical Decision Support Systems (CDS) in Southern Europe and Latin America at Elsevier**

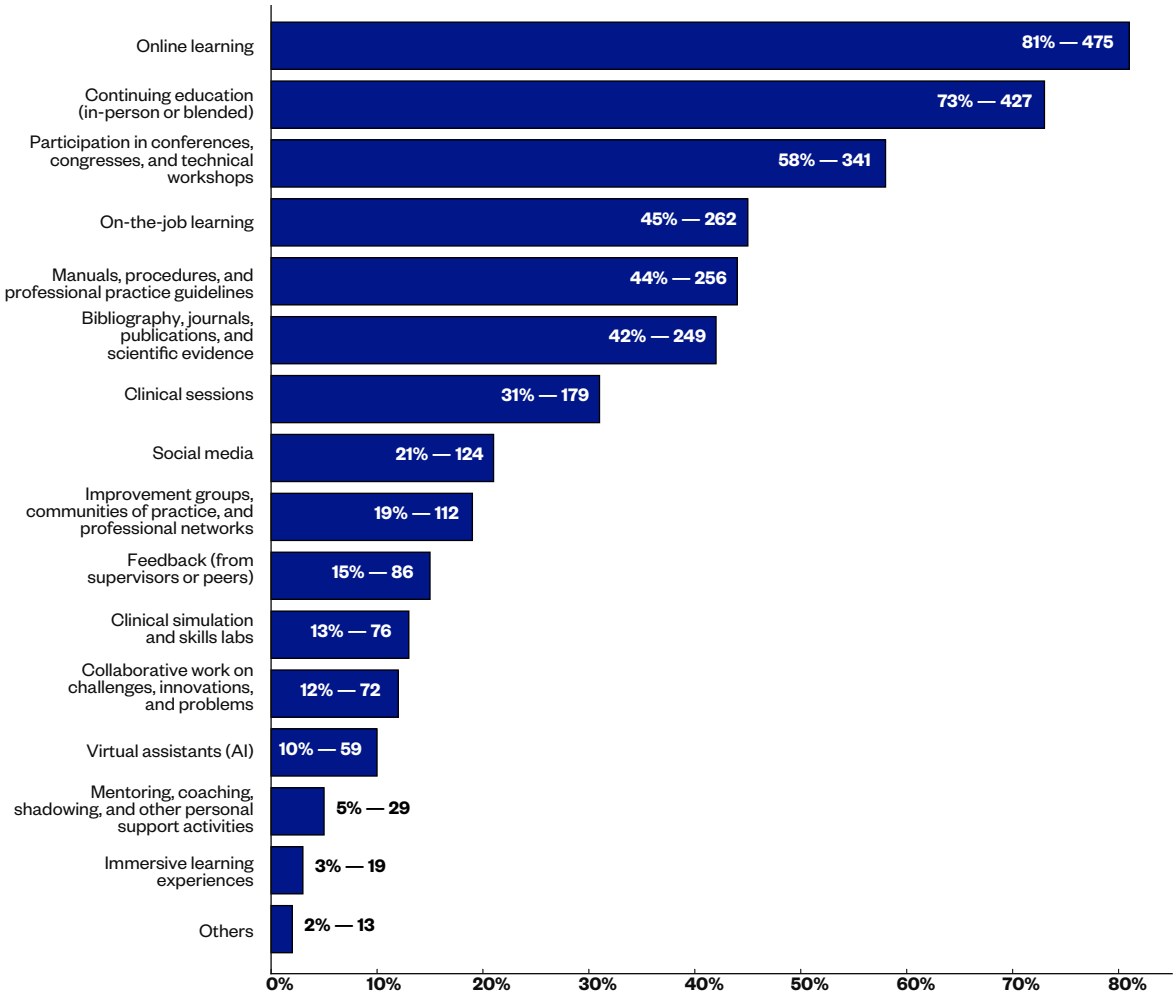
However, A. Sedano shares that educational innovation depends not solely on technology, but on the pedagogical approach. At UCF, they have implemented virtual training actions tailored to different devices, such as SNAPshot for mobile devices, videos, simulations, clinical cases, and even games. They also explore immersive technologies, such as 360 glasses, and innovative AI projects. One of its latest projects leverages AI's ability to analyze data and, by reviewing student behavior during courses (learning flow), identify moments of disinterest to reinforce adherence to learning with strategic interventions. In addition, they have created MOVIDA (Vivencial Model of Learning), which includes learning competencies and behaviors through interactive activities linked to selected movies and access to a film platform (Filmin) to drive values, such as the case of the Women's Talent Program. In this way, each tool is designed to complement a specific educational purpose.

In a context where AI is incorporated into people's lives and learning at an accelerated pace, G. Antoja states that the main challenge is for universities and healthcare institutions, which must update their methods and competencies as students evolve. It is critical to rethink teaching, and while some young teachers are already innovating, transformation goes beyond detecting the use of AI in academic work. He gives as an example the evolution of medical practice: before, professionals had to identify arrhythmias through auscultation, but today that task is carried out by technological devices, which shows a profound change in the skills required.

Continuous Learning and Professional Development

Continuous learning is key to the success of specialists and to ensuring improvement and growth in their professional practice. In the survey conducted for this report, 586 professionals from all categories and areas shared the mechanisms they use to continue improving their practices and staying up to date.

What are the main continuing education and learning mechanisms you use as a healthcare professional for your improvement, growth, and development?



As observed, attending courses and workshops is the most preferred option, followed by in-person and blended learning. It can be inferred that virtual education has made it easier to stay continuously updated.

As a sample, the University of Coruña and the Galician Agency for Health Knowledge are designing a program for health specialists to acquire basic knowledge about AI, including concepts such as structured and unstructured data, according to M. Mosquera. They also seek to share satisfactory experiences implemented in Galicia so that doctors from different cities can apply these tools. The purpose is to educate people about AI and spread the word about the applications that have been successful in healthcare.

R. Cunillera believes that clinical practice is also in the initial stages of the impact of AI but anticipates a radical change in the next three years. He emphasizes the role AI will play in clinical decision-making, particularly through enriched electronic medical records and advanced diagnostic tools. Similarly, he claims that personalized medicine will benefit from real-time data, such as laboratory results, imaging studies, and pathology, allowing clinical decisions focused on the individual patient's condition and not based on overall comparisons. He asserts that this advancement will transform decision-making and clinical exercise.

M. Mosquera also shares that the detection and proper treatment of ulcers and wounds are challenging; therefore, AI could be very useful in these situations through an application that allows nurses, using photographs taken with a mobile device, to identify the type of wound and possible complications, and recommend the most appropriate dressing.

Moreover, a notable innovation is the integration of information directly from the medical record through the application SHARE. It allows doctors, nurses, or physical therapists to prescribe personalized courses, food tables, exercise videos, and other resources, including follow-up, so professionals can "prescribe knowledge" as a complementary method to medical treatment, which would enhance ongoing patient education, adds M. Mosquera.

J. Valdez states that one of the relevant advances in this context is the use of the electronic clinical record, which has been promoted in TecSalud, the system

of leaders and experts in healthcare, research, innovation, and education of Tecnológico de Monterrey. This tool allows integrating patient information including clinical history, laboratory, and imaging studies into a single system accessible to different specialists. Its implementation improves healthcare and familiarizes students with digital health environments, preparing them for a more connected, efficient, and data-centered professional practice.

For T. Espinal, AI can offer some benefits, including efficient symptom collection and prompt responses. However, it can also be a shortcut for health science students, who are at risk of relying on this information alone without analysis or critical reading. Therefore, it is up to teachers to foster clinical reasoning and to train students on how to develop follow-up plans for patients. These plans should be explained to both patients themselves and superiors in order to promote an understanding beyond simple data collection.

In Africa, AI and automation have a limited impact, despite the great interest shown by young students, who frequently use them on their mobile phones, says P. Speller. Physical libraries remain the top priority regardless of the significant growth in remote access to resources, above the limited availability of advanced technologies. Both students and teachers are leading this change, thanks to access to online bibliographic materials; however, this situation also gives rise to the global problem of unauthorized content reproduction.

Technologies such as virtual and augmented reality are still very nascent in the region. The true impact of these technologies is more on expectations and hopes, with a potential massive adoption of generative AI driven by the experiences of leading universities in other parts of the world, adds P. Speller.

In the same way, M. Choulli explains that healthcare innovation in universities is still based on unstructured practices that some teachers drive without a consolidated institutional strategy. Although AI and health data management have great transformative potential, their development is still in its early stages. To make

significant progress in this field, he considers it essential to foster solidarity and international cooperation.

But technology tools should only be integrated when they actually improve teaching, emphasizes R. Kearns. Introducing technology into medical education is a process that must be carried out with humility and respect for the experience of educators, who have taught for decades, even before the advent of the digital age.

In addition, technological democratization has drastically reduced costs: today it is possible to produce high-quality educational content using only a smartphone and free transcription and subtitling tools, says R. Kearns. The value lies in having trained people who act as a bridge between teachers and technology, who select and apply the right tools to enrich, not distract, the learning experience. He stresses that good instructional design should prioritize students in their learning process.

A. Viera reflects on how AI is revolutionizing education and how that forces us to rethink clinical paradigms. Although she recognizes its value as a support tool, she expresses concern for ethical aspects, particularly in the field of health. She points out that AI should not replace humans, as clinical practice involves an interpersonal dimension that is irreplaceable. While there are technologies that allow biometric data to be easily measured, such as number of steps, blood pressure, or blood sugar, she insists that direct observation and clinical judgment will continue to be fundamental in professional training and practice.

Fernando Harreguy, teacher at the University of the Republic of Uruguay's Central Permanent Education Unit, shares a specific experience: AI achieved, in just ten minutes, the same diagnosis that a team of professionals accomplished after several months. This fact prompts us to consider the potential replacement of roles, as well as the economic impact in contexts where access to healthcare is expensive. He argues that by simply paying for certain analyses and combining the results with AI, it would be possible to obtain accurate diagnoses at low cost, which represents a paradigm shift. Despite this, he emphasizes that it is not possible to improvise in

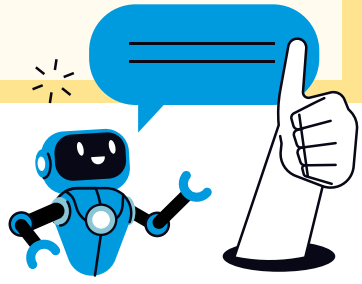
the field of health. He highlights the importance of the traditional clinic and direct patient contact as an irreplaceable basis for education and medical practice.

Similarly, Á. Vidal agrees that the need for training will always be present and that true innovation will consist of verifying how knowledge is applied, rather than worrying about the possible replacement of jobs by AI. Likewise, D. Sánchez describes that there is a challenge in the use of this technology: while some professionals use it on a personal level effectively, others do so in a very basic and limited way. In this regard, she highlights the importance of socializing and disseminating the use of AI within organizations, particularly considering that it is already part of many everyday applications.

S. Ó Tuama highlights the transformative potential of AI in the field of medical diagnostics for its ability to analyze large volumes of data. He notes that, throughout history, much medical research has focused on men, leaving gaps in understanding the impact of treatments on women or other diverse populations. AI overcomes this limitation by generating more specific and personalized models, which implies a significant shift in the approach to health.

In addition, he stresses that, while many have general notions about AI, few possess the technical knowledge necessary to fully understand its scope and day-to-day implications. Therefore, he calls not to ignore its progress, but to integrate it critically and responsibly in all areas, including education. He also warns about the disconnection between technology developers and real users, such as teachers and students, and proposes closer collaboration with those who use technology on a daily basis, since they have valuable knowledge about its effectiveness, limitations, and needs. Ultimately, he believes that AI should not be seen as a static tool, but as part of a dynamic ecosystem that requires adaptation, constant evaluation, and active participation of multiple agents.

> *"We shouldn't take it for granted that you give someone the technology and it's done. It may not be done. We must also be open to the possibility of interacting with it again and those who use technology on a daily basis will have a lot to contribute to how it works for them. [...] It's an ecosystem, in a sense, and we must continue to interact with it, see what it can do and learn what it can bring to us."*
>
> **- Séamus Ó Tuama Director of Adult Continuing Education (ACE) at the University of Cork and Chair of the ASEM Education and Research Hub for Lifelong Learning**



J. Ñaupari agrees that AI transforms in-depth education in the field of health and therefore must be established with a goal. The Continuing Education Management Unit at UPCH seeks to establish an institutional regulation on the use of AI, which will ensure adequate and up-to-date training. For this reason, he establishes the importance of aligning all continuing education programs with this new reality in order to expand the training offering and prepare professionals to meet industry challenges with current and effective tools.

In turn, E. Terán argues that because AI is part of everyday life, ignoring it in medical instruction would be a serious mistake. He advocates its integration as a useful tool to enhance learning without it becoming an easy way to weaken critical thinking.

M. Rodríguez insists on the need to educate health professionals in the responsible use of these technologies in the long term, as is done with traffic regulations or social networks. She expresses that the real challenge lies in integrating AI at the service of educational and human values while promoting an ethical application that does not deviate from the fundamental purpose: health as the ultimate goal.

> *"Let's use AI, but be very careful with thinking that it is always intelligent; many times, it is only artificial. The great challenge is to be able to integrate it so that it is at the service of what we really want, of the values with which we want to teach, and then educate people to use these tools in a critical way."*
>
> **- Mónica Rodríguez, Director of Teaching at Vall d'Hebron and Principal Investigator of the Center for Advanced Clinical Simulation at Vall d 'Hebron University Hospital**

For E. Terán, the use of AI must be transparent and educational; it should not be hidden that it is used and left out of health teaching but rather use it with discretion and validate the information it provides. He suggests that AI can help students and teachers, for example, generate multiple distinct clinical cases that assess the same competency, which enriches learning.

He adds that for a few years it has been the premise that a good medical student is not the one who has all the knowledge but knows where to look for answers. In a

field as wide and constantly evolving as medicine, it is almost impossible to memorize all the information contained in books. However, it is essential for the student to know which sources to consult and how to conduct an effective search. In this regard, AI becomes a useful tool, as it facilitates and streamlines access to information, optimizing time without replacing the technical and scientific analysis that requires discernment. AI is not a substitute for professional judgment, but it can help improve efficiency in the learning and consultation process.

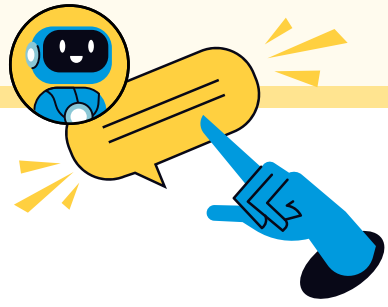
There may be a current saturation around AI, but it has the potential to be a refreshing tool if used correctly. This is what M. Rodríguez points out, while maintaining that the main challenge is not its existence, but its ethical and critical use. In professional training, virtual reality and AI glasses can be used to simulate complex situations, such as communicating bad news to family members. The avatars react differently according to the defined parameters and, in the future, will even respond to the facial emotions of the professional. This application demonstrates the potential of AI for experiential learning.

For his part, J. Sung emphasizes that, to achieve an effective and accepted implementation of AI, it is not enough to develop the technology; it is necessary to integrate it reflectively into daily medical practice, respecting ethical principles to generate trust between professionals and patients. This will require clear guidelines and collaboration between scientists, doctors, lawyers, and international bodies, which have already begun to issue recommendations in this regard. As B. Janssens points out, health work, by nature, remains deeply human.

He also highlights the growth of the autonomous patient, who is increasingly active in managing their own health. He warns that AI will boost this trend, as many people today check their symptoms online before going to a doctor's office. This could lead to the emergence of "virtual doctors," automated systems with which patients interact directly. Faced with this scenario, B. Janssens argues that the health system must prepare for these challenges by reflecting on how to balance the value of human clinical judgment with new technological capabilities and increasing patient empowerment.

J. Sung emphasizes the importance of preparing students to work with AI and digital tools. It is not enough to teach them how to use them, but it is essential to build trust in these technologies and understand that many health professionals are wary of algorithms that deliver diagnoses without explaining their logic. This is why his curriculum approach distributes digital health and AI usage content across the five years of the training program, promoting progressive integration.

> *"I believe that humanity and technology are not at odds. We must not lose sight of humanity while using technology. That is, let's use AI, as long as we do not lose ethics, creativity, humanism, and continue to put on that layer of human soul that makes us different."*
>
> **- Ana Sedano, Managing Director of UCF**



A. Sedano details that technology must be an ally in strengthening personal skills. As with in-person and virtual games, technology tools offer new ways to engage and learn, making it easier to develop skills that would otherwise be difficult to acquire. While technology enables us to complete tasks faster and more efficiently, she recognizes that it should not alter our humanistic perspective, but rather reinforce it. The new tools must enhance what distinguishes us as human beings: creativity, empathy, and the ability to integrate knowledge and values. Instead of replacing humans, technology must serve to enhance our human qualities in professional exercise and continuous learning.

C. Data Interpretation in Health Ecosystems

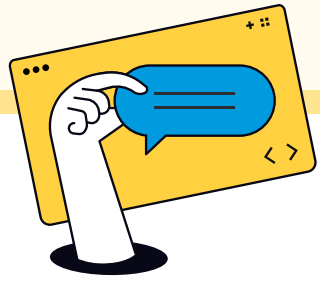
Health education faces the challenge of adapting to new realities, training needs, and emerging technologies. In this scenario, data analysis and big data are presented as key tools to better understand learning processes, evaluate educational outcomes, and personalize training throughout the life of future health professionals.

The use of large volumes of data allows to detect patterns, anticipate difficulties, raise teaching quality, and optimize pedagogical decision-making. In this way, thanks to educational analytics, it is now possible to measure students' performance for continuous improvement. Data interpretation and collection facilitate the design of training strategies with greater equity and efficiency.

J. Sung clarifies the use of learning analytics to identify both challenges and talents. This strategy makes it possible to personalize teaching to provide early support to those who need it and promote more agile progress in those who demonstrate greater capacity. This builds a more efficient, adaptive, and student-centered medical education model.

C. Plá points out that one of the most important ethical challenges in healthcare is the protection of data privacy. This task becomes increasingly complex due to the immediacy of the digital age and the constant rise of cyberattacks targeting hospitals.

> *"Cybersecurity is one of the most important factors that healthcare institutions around the world will need to strengthen. I think this is an absolutely global challenge."*
>
> **- Carlos Plá, Deputy Director of Talent Development and Management at the Catalan Institute of Health**



N. Saavedra notes that ethics plays a central role in educational innovation, especially by incorporating technologies into teaching processes. While many teachers and researchers act with good intentions when implementing technology tools, they can make mistakes that compromise, for example, the protection of sensitive information.

In the context of an institution dedicated to public health research, where multiple databases with sensitive population information are managed, it is essential to ensure that the technologies used are applied ethically and responsibly. This means, above all, that they have sound privacy strategies and rigorous respect for the rights of both the researched population and students.

To reinforce this approach, she explains that the School of Public Health of Mexico has an ethics committee that carries out dissemination activities on the responsible use of information and data security frequently. This is one of the tactics in place to prevent ignorance from leading to improper practices. The goal is to promote an ethical approach that guides teachers and researchers by giving them better tools for research and thus ensuring that the use of technology is aligned with principles of privacy, accountability, and respect for the people involved.

By having an appropriate strategy to ensure the custody and confidentiality of this data, analytical tools can be used to contribute to effective decision-making on the management of health personnel. For example, D. Sánchez explains that a recent analysis conducted at the Catalan Institute of Health focused on the distribution by age of the workforce aimed to identify the need for retention and knowledge management policies, with a particular focus on professionals nearing retirement who possess critical knowledge.

For his part, M. Mosquera acknowledges that the Galician Health Service has been a pioneer in Spain in the implementation of electronic medical records, which in 2023 turned 20 years old. This system is fully integrated and covers all hospitals and health centres in Galicia, as well as penitentiary institutions, private residences

and even health centres in Portugal. Thanks to this extensive unified database, the Galician Health Service has a valuable advantage for big data analysis by relying on its own tool that ensures the anonymization of data.

J. Sung stresses the importance of protecting the privacy of health data. Singapore has implemented the TRUST platform, which centralizes clinical, social, economic, and lifestyle data. This system imposes strict restrictions to ensure that data can only be used with authorization and within secure environments to prevent misuse and strengthen citizen confidence in the management of sensitive information.

Therefore, the establishment of data analysis tools in health ecosystems represents a valuable opportunity to gain a comprehensive understanding of training processes, tailor teaching to different needs, and make informed decisions about human talent management. However, the intensive use of sensitive data also entails significant ethical and security challenges. Privacy protection, responsible application of technologies, and ongoing staff training become critical to ensuring the ethical use of data. Building a data-driven health ecosystem requires maintaining a constant balance between technological innovation, ongoing training, and commitment to ethics.

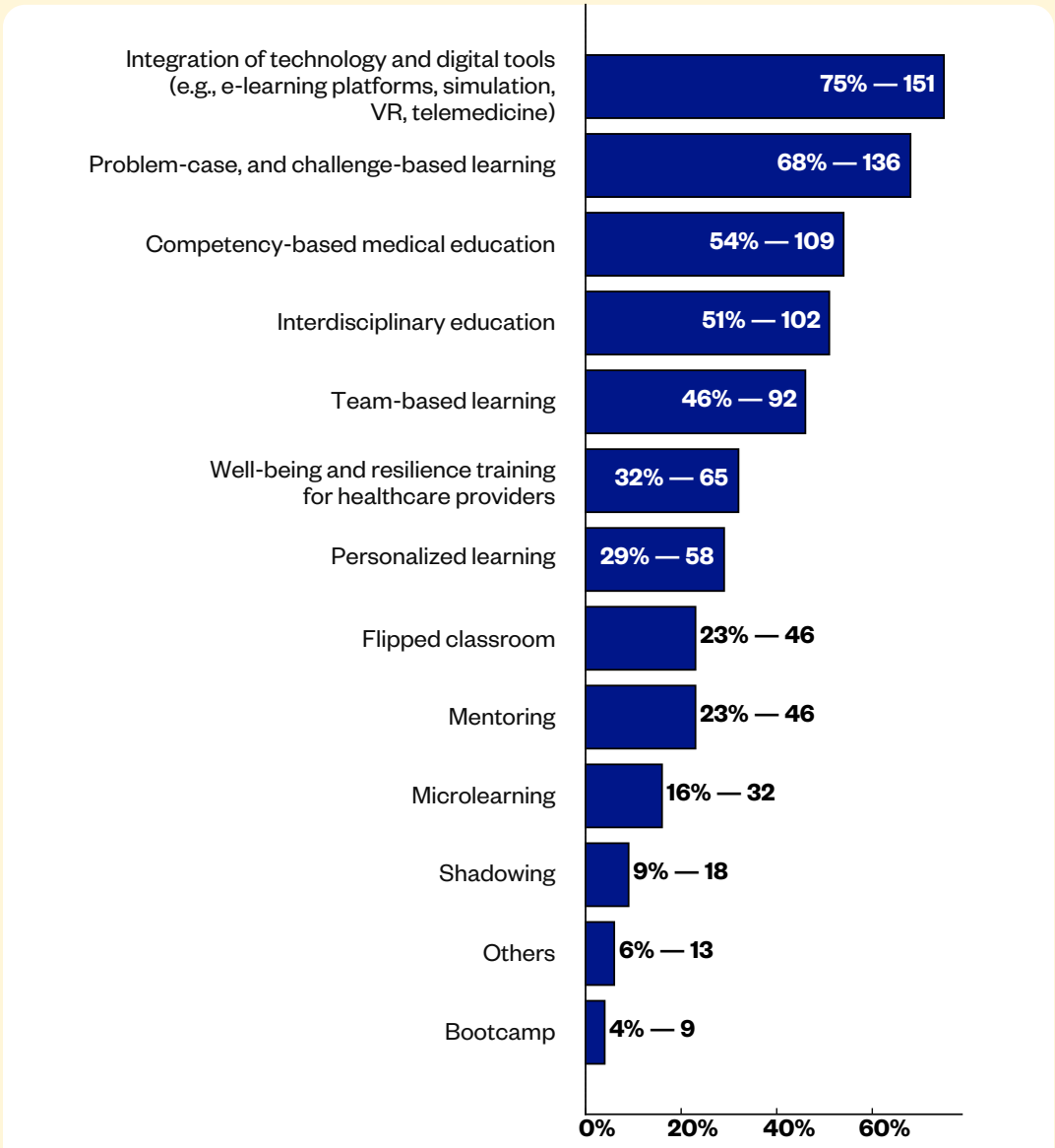
D. Emerging Technologies and Sustainability in the Industry

As new digital technologies are developed, emerging trends and tools emerge that drive professionals across industries to expand their technology repertoire to stay up to date. However, many of these innovations are fleeting and disappear quickly, while others manage to consolidate and endure. During the period of evaluation and uncertainty about their true impact, some institutions and specialists begin to adopt them in their activities. This early adaptation process, not always planned or accompanied by appropriate training, can lead to unsatisfactory results.

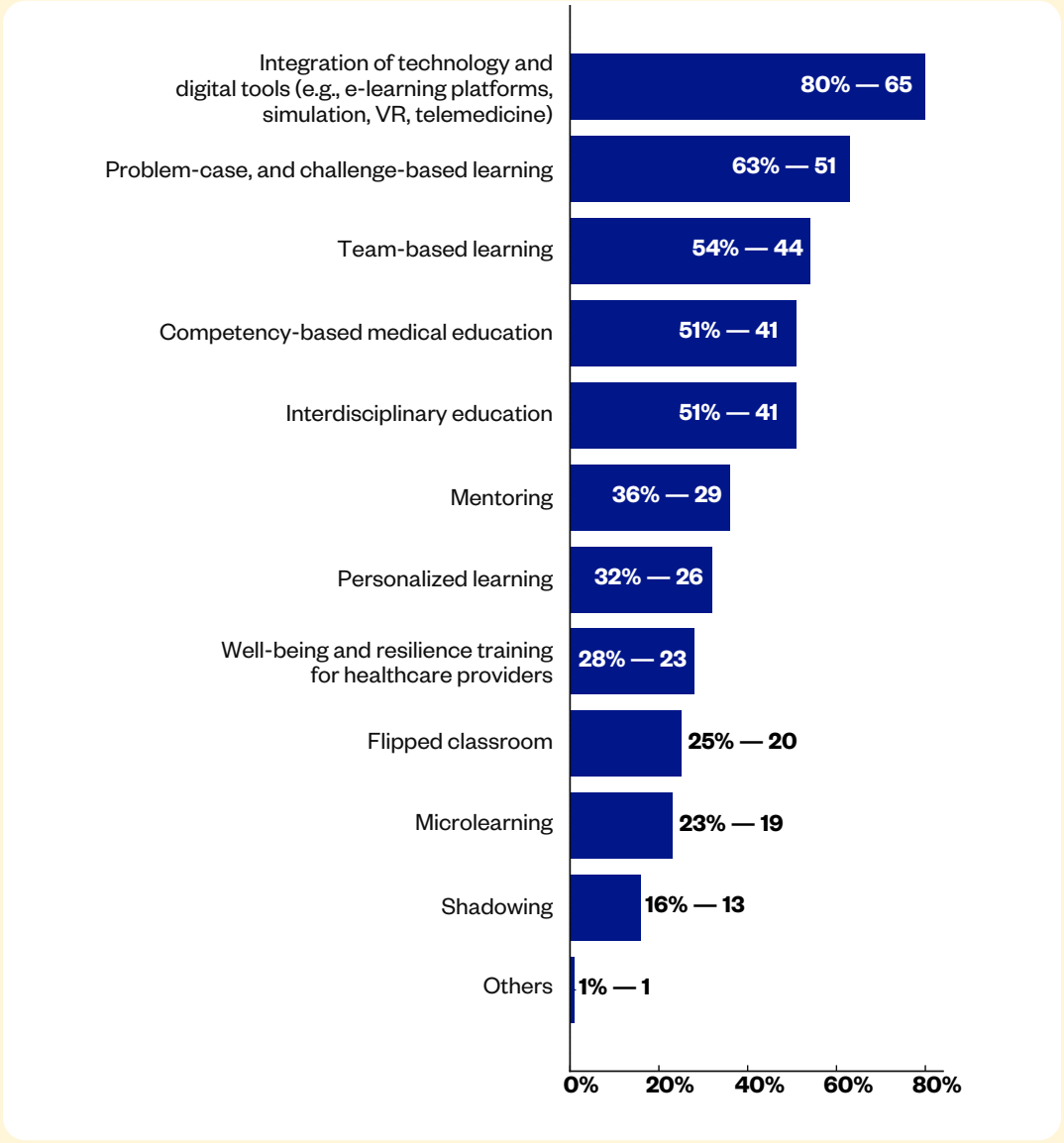
Most Relevant Educational Trends for Healthcare Faculty and Executives

Around the world, new educational models have emerged that significantly influence pedagogical practices in health. Healthcare professionals who also serve as educators (201 respondents) and executives (81 respondents) identified the most relevant current trends that have the potential to enrich the teaching-learning process.

Healthcare Faculty



Executives



Both groups agree on the main priorities: the integration of digital technologies and tools, problem- and case-based learning, competency-based medical education, interdisciplinary education, and team-based learning. This shared perspective highlights the need to leverage technological tools, develop practical competencies adaptable to real contexts, and strengthen interpersonal relationships through effective collaboration among professionals from different specialties.

R. Anglès reflects on the ethical and practical challenges involved in new technologies in the field of health. She points out that one of the main problems is integrating these innovations into existing care systems. While there are numerous promising ideas and projects, the real difficulty lies in effectively incorporating them into clinical practice.

For a technology to have significant reach, it must be integrated into care programs and patient records, adds R. Anglès. Without this integration, innovative projects, even with initial funding, cannot be sustained in the long term or translated into concrete improvements. In addition, she highlights the importance of not "giving away" the data, insisting that the information generated must be part of the clinical record and handled with responsibility and clear ethical criteria.

Similarly, R. Cunillera agrees that there is a risk in adopting technologies solely as new and trendy. While innovation is rapidly advancing, many technology tools lack robust cost-effectiveness studies. R. Cunillera also agrees that, although these advances may be striking, the really important thing is to evaluate their clinical impact. In this context, predictive methods applied in primary and near-patient care can be quite useful, provided they are integrated in a critical and informed manner.

It is essential to have internal mechanisms to stay up to date in the face of the constant evolution of knowledge and technology in the field of health, he says. Faced with today's information overload, he emphasizes the importance of knowing how to identify reliable sources and filter out what brings real value. He emphasizes that it is not only about scientific knowledge, but also about knowing the local and organizational contexts. In this regard, access to useful and well-selected information becomes a strategic resource for decision-making.

G. Alemán mentions the transformative impact of emerging technologies that are revolutionizing medical and scientific education, such as 3D printing, digital health, epigenetics, and non-invasive analysis, among other elements that enrich learning and propose new ways of understanding the curriculum. However, she clarifies that the most important thing is not the number of tools available, but the pedagogical methodology with which they integrate. For her, aspects such as individualization, inclusion, and student-centered program design are crucial to educational success.

T. Espinal's position is similar in that, while having high-fidelity simulators is valuable, she considers that significant learning not only lies in the technology, but also in the methodology that accompanies it. She explains that a transformative educational experience for the student depends more on how the tool is used than on its level of sophistication.

Therefore, G. Alemán highlights the value of creativity in active learning. She asserts that possibilities are almost limitless when innovative methodologies are combined with imagination, inviting teachers to explore beyond the traditional classroom. In her academic block, for instance, they use games, outdoor spaces such as swimming pools or gyms, and various stages within the university to develop dynamic practices.

In this sense, T. Espinal warns about resistance to change as a persistent difficulty. Despite efforts to integrate technology tools into health education, there are still sectors that are resistant to adopting new forms of teaching. It is already difficult to drive change in an environment that promotes innovation, and the situation is even more complex in other contexts where health education continues to be guided by more traditional approaches.

Likewise, G. Alemán identifies the economic and cultural barriers that limit the implementation of these innovations, especially in contexts such as Honduras. She notes that the most reliable and scientific technology tools tend to be expensive, which creates a significant gap between private and public universities.

In turn, A. Coda highlights the challenges of accessing modern clinical equipment within the university environment. She points out that the lack of sufficient funds greatly limits the ability to update technology. In many cases, it is the personal initiative of the academic, who seeks alliances with the industry, collaborators, or even philanthropic resources, which allows for the proper equipment.

At the same time, Á. Vidal reveals that he considers access to economic resources the main obstacle to integrating technology in the educational and healthcare fields. However, he estimates that many institutions have now managed to recover

and advance technological incorporation, also driven by an increase in student tuition. He explains that there are already fully digitized universities, with online platforms that have eliminated paper use and that have virtual rooms and even collaborations with external centers to share resources when necessary.

But the level of technological adoption varies according to the commitment of each center, he clarifies. Some consider it a priority strategy and allocate resources for its implementation, while others meet only the minimum requirements, especially in contexts with high staff turnover. He emphasizes the importance of investing in staff training as a crucial measure for employee retention. Institutions that are committed to training their workers not only improve their skills, but also strengthen their loyalty, thus preventing migration to other organizations.

> *"The capital of an institution is its professionals."*
>
> **- Ángel Vidal, former Chairman of the Board of Directors of the Catalan Institute of Oncology (ICO)**

From this same economic perspective, R. Cunillera agrees that there is an obvious barrier to the adoption of technology, although he clarifies that investments in technology must be evaluated considering their repayment periods. Many institutions find it difficult to make these acquisitions.

E. Terán reveals that, although these technologies offer great opportunities to improve teaching, the main obstacle is their high cost, especially in developing country contexts. Even so, E. Terán advocates a proactive attitude: taking advantage of

international collaborations, workshops, and equipment loans as forms of temporary access without falling into pessimism. For him, the ambition to provide quality education must go beyond budgetary constraints, fostering the desire to achieve the best and overcome barriers with creativity and determination.

That said, there is a significant digital divide among health professionals, especially those over 55, who did not grow up in a digital environment. While younger generations are familiar with the technology, older staff may require more support and training to adapt, says R. Cunillera. Seniors or those with fewer digital skills risk being excluded from the benefits of these innovations. Technological inclusion should consider both affordability and digital literacy, says J. Sung.

N. Saavedra points out that another of the main obstacles to advancing technological integration, especially in Mexican educational institutions, is infrastructure. She explains that many educational institutions face significant inequalities due to budgetary constraints that prevent maintaining or updating technological tools. This lack of investment leads to equipment obsolescence and limits the implementation of technology-based educational innovations. In many cases, even the intention to modernize educational methods is abandoned due to the financial impossibility of sustaining an updated digital environment.

To this situation is added the shortage of personnel trained in technologies applied to education, she points out. In the absence of adequate technological infrastructure, the human capital necessary to operate it is also not developed. In addition, there is a strong generational gap between teachers, where many do not have training in advanced digital platforms, which restricts their ability to innovate in their teaching practices.

J. Valdez discusses the convergence between e-learning and digital health, noting that both are progressing in tandem in the processes of educational and clinical transformation. However, he also warns that the lack of trained staff, both in the

teaching and technological fields, limits the ability of institutions to make the most of the digital tools available.

Resistance to change is another important cultural challenge for N. Saavedra. Even at the Mexican School of Public Health, they had initial difficulties implementing the technology, as many teachers were accustomed to traditional teaching models. In this context, she stresses the relevance of continuous training as a strategy to overcome these barriers. The institution promotes workshops, seminars and awareness-raising activities on technological trends with the aim of transforming the teaching perspective and improving their digital skills. This training seeks to facilitate the use of tools and open up new possibilities to enrich educational practice.

According to J. Quintillá, another significant challenge is determining when technology adds value and when face-to-face interactions remain indispensable. He explains that there are educational scenarios where online learning is more efficient and appropriate, while others require direct contact to make a greater impact. The key is to combine both approaches in a balanced and conscious way, with a clear objective.

Meanwhile, according to R. Cunillera, the digital solutions available in the field of health management are not yet fully exploited. He points out that management teams need to strengthen their technology skills, especially in the use of tools such as dashboards with real-time indicators, crucial for informed decision-making. Improving these skills is essential for more agile, data-driven management.

R. Cunillera warns about a structural problem in Catalonia and Spain: the lack of timely evaluation of new health technologies. On repeated occasions, technology equipment or solutions come to market before public agencies can properly analyze them. This forces managers to make purchasing decisions based on business information without independent or validated evidence. He says this situation leads to risky decisions, often made “blindly.”

S. Ó Tuama observes that one of the main challenges in the development of educational software is the disconnect between those who design the technology and those who use it. Developers often have a high technical level and create sophisticated tools that, while innovative from their perspective, are not always practical or accessible to the end user. Basic elements that facilitate everyday use may be omitted from the design. This reflects the need to adopt a symbiotic learning paradigm, where all key players, including teachers and students, are involved in the process of creating and adapting technology. Effective use of educational technology requires consideration of both user understanding and conditions.

Likewise, S. Ó Tuama warns about the need to abandon a rigid and unidirectional vision of technology. He declares that technology is not static; its use changes and evolves over time, driven by user creativity. Therefore, he proposes to think of technologies as part of an interconnected ecosystem, in which tools considered old (such as radio or printed text) remain relevant when reinterpreted and combined with new media. The key is to keep an open mind, willing to explore different forms of use and to constantly adapt technology to real educational needs.

J. Sung argues that academic challenges in medicine have evolved radically. Previously, memorization of large amounts of information, such as drug names, dosages, and side effects, was emphasized. Today, the challenge is to train students capable of navigating the digital age: know how to search for reliable information on the internet, discern between valid data and noise, and perform critical analyses of scientific literature, which often requires a more rigorous and thorough look, even when the data is published. This process is very challenging for students who do not master mathematical or computational tools.

Likewise, he considers it relevant to train health professionals with social and ethical sensitivity. Many students come to college with little maturity to understand the complexity of comprehensive patient care. J. Sung says that a disease, such as heart failure, for example, should not only be analyzed from a clinical perspective,

but also from its social, family and psychological context. These humanistic skills are vital for contemporary medical practice, especially in a context where the role that AI will play in the future of medicine is discussed.

Regarding technological and structural challenges, J. Sung addresses the need to strike a balance between innovation and safety. In Singapore, where the government is pushing hard to use technology to tackle healthcare workforce shortages, it is recognized that too rigid regulation can slow progress, but too lax regulation can also put patients at risk. The dilemma of how to properly standardize the use of AI or software as medical tools remains unresolved globally.

So, while digital trends and technology present multiple challenges, from the speed of change and access gaps to the need to preserve the human dimension of learning and healthcare, their adoption will be truly valuable if it responds to a clear purpose and adapts to the specific context of each institution, teacher, and student. The use of technology that is aligned with specific educational objectives, respects the essence of health education, and contributes, in tangible ways, to improving professional practice and patient well-being will continue.

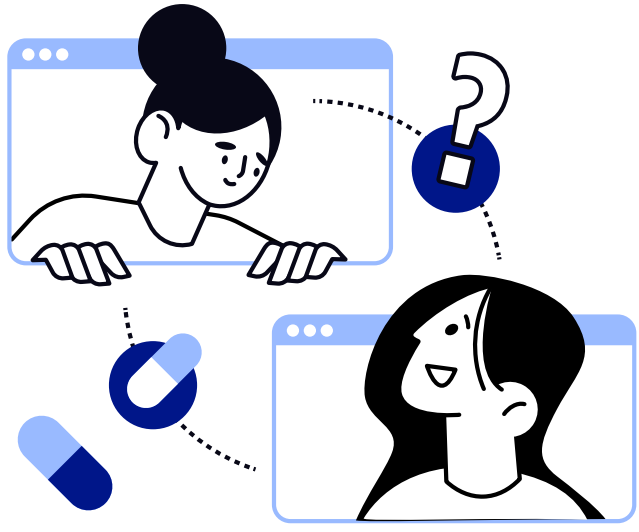
As a reflection, the incorporation of technologies in health education presents an obvious paradox: on the one hand, the hasty pace of technological progress opens unprecedented possibilities, but on the other, the adaptability of educational institutions and professionals is still limited. As R. Cunillera realizes, the speed with which new knowledge is generated and published requires highly collaborative and up-to-date teams, capable of sharing and processing key information in real time.

Meanwhile, M. Rodríguez suggests that it is not a question of replacing traditional education, but of complementing it intelligently. Empathy, active listening, and the human relationship remain fundamental pillars in the training of health professionals. Similarly, J. Azpiri emphasizes that clinical judgment is formed in practice, and while simulators and AI can help develop it, they should never completely replace interaction with patients and mentors.

Complexity then lies in how to integrate the best of both worlds. E. Terán argues that this integration must be done with caution and training to avoid the risk of applying technologies without due preparation. On this, J. Sung proposes a "co-piloting" relationship between the professional and the machine: the human as captain, the technological system as co-pilot, in a synergy that respects the essence of medicine.

However, B. Janssens points out that access to these innovative tools is still restricted to a minority. Therefore, technological inequality shortens the real benefits of innovation, especially in regions with fewer resources. However, middle-income countries such as Mexico or the Philippines have proven to be able to adapt sophisticated tools creatively and efficiently. There lies a possible way: critically adopt what exists and adapt it to the local context.

Finally, as stated by N. Saavedra, we live in a historic time when the boundaries of knowledge and learning have become more porous, opening up new opportunities to reimagine education. The current challenge is to equip professionals with technological tools, critical skills and an ethical vision that allows them to face global health challenges in a creative, informed, and humane way.



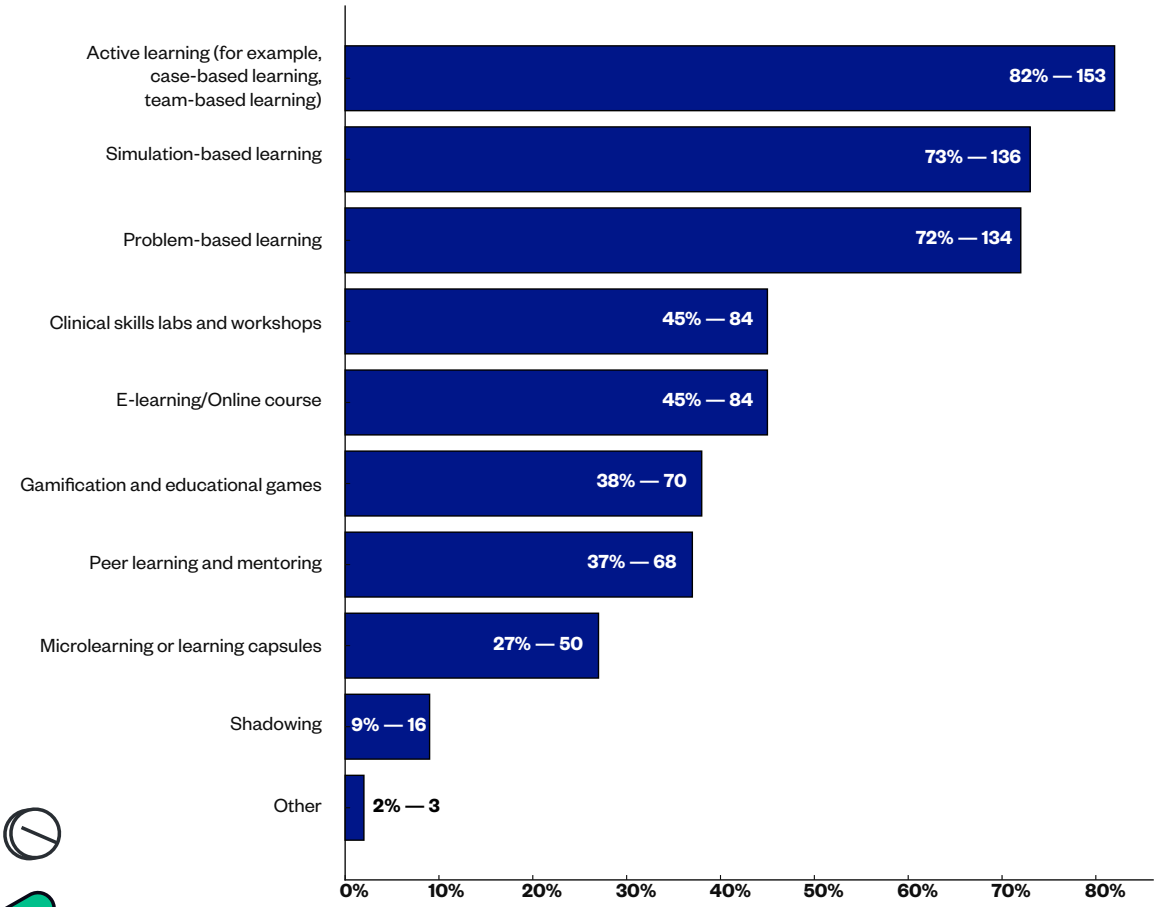
4.2. Educational Trends

Health education has undergone notable changes in recent decades to adapt to the new challenges imposed by technological advances and the needs of modern health systems. The traditional model, focused on masterful teaching and passive learning, has been left behind. Today, more dynamic and participatory pedagogical approaches are sought, which promote not only the acquisition of knowledge, but also the development of practical skills, critical reflection, and the ability to adapt to a constantly changing environment.

Most Effective Pedagogical Approaches Today

Currently, health educators face the increased challenge of training professionals capable of handling complex clinical settings. To meet this, adopting innovative pedagogical methods that promote effective learning is essential. In this context, 186 healthcare educators shared which pedagogical approaches they consider most effective for facilitating the educational process.

Which pedagogical approaches currently implemented in health sciences education do you consider to be the most effective?



The three top pedagogical approaches among healthcare educators are active learning, simulation-based learning, and problem-based learning. These results suggest a preference for placing the learner at the center and focusing on practical competencies with capacity for analysis, decision-making, and teamwork.

The move to more practical training is not an isolated trend but is strongly supported by digital technology and methodologies. Remote education, previously a secondary modality, has experienced a boom driven by the COVID-19 pandemic. J. Quintillá emphasizes that online training, far from being a passing fashion, has become a fundamental tool in medical and health education. MOOC courses and more specialized online trainings allow professionals to access up-to-date content without the need to travel, facilitating ongoing training and specialization. This modality, while accelerated by the global health crisis, is here to stay, expanding training possibilities at all stages of the career.

For his part, R. Cunillera points out that educational innovation is not only limited to content but implies a renewal of the channels and methodologies through which these contents are taught. Nowadays, students, accustomed to a digital environment and information overload, require more engaging and engaging forms of instruction. Younger generations demand teaching methods that include interaction and experiential learning. This approach fits the characteristics of today's environment, where information is available to everyone, but the real challenge is learning to learn and develop skills that transcend the technical.

For this reason, the interdisciplinary nature of medicine and health has also become more relevant than ever. As S. Ó Tuama points out, health professionals, due to their constant interaction with patients and various agents of the system, have adopted methodologies from the field of adult education. An approach that not only enriches student training but also allows for greater flexibility and openness to new forms of learning, whether through collaboration across disciplines or by integrating practices from other areas of knowledge.

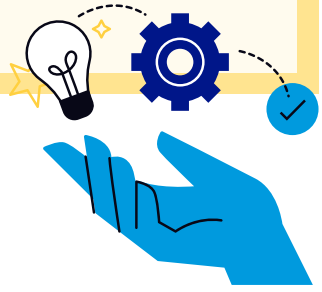
This open and collaborative approach reflects a willingness to learn from other disciplines and from shared experiences, which is very relevant in medicine, where interdisciplinary collaboration is essential to deliver comprehensive patient care.

E. Terán, for his part, shares this aspect, but approached from the classroom: the importance of teaching humility. With technological changes and as students have access to a variety of informational resources, teachers must be willing to learn from their students, as well as foster an environment of collaboration and continuous pursuit of knowledge. E. Terán points out that this shift in mindset is necessary to make the relationship between students and teachers more productive and dynamic.

> *"Communities have a big impact on learning. What we know, we know together."*
>
> **- Ana Sedano, Managing Director of UCF**

In this sense, Tecnológico de Monterrey has instilled in its students a global view of the different health environments. J. Azpiri points out how the multicenter training model is a key differentiator in the training of health professionals, since students have the opportunity to rotate through different models of care (public, private, and social), which allows them to understand the strengths and weaknesses of each system. This approach allows them to look beyond technology and learn that good care depends not only on material resources, but also on human quality and well-implemented processes. He emphasizes that the true value of the hospital and the healthcare professional lies in their ability to provide quality patient care, beyond the technological equipment available.

> *"The best hospital is not the most equipped: the best hospital is the one in which the patient does best. What do you need for that? Talent."*
>
> **- Jorge Azpiri, Director of Development and Expansion Projects at TecSalud**



J. Azpiri points out that investment in educational talent is essential, since the best medical educational centers are those that have the best teachers, and highlights the importance of allocating resources to attract better professionals and thus ensure educational quality and excellence in training.

B. Janssens takes up this aspect and points out the large gap between high-income and low- and middle-income countries in terms of continuing health education. In many nations, continuing education systems are limited or non-existent, jeopardizing the quality of care; however, by underlining clinical mentoring, these training systems have ensured a more systematic and controlled education, which has been beneficial to health systems.

Although all these advances are highly celebrated, M. Rodríguez indicates that university education in many countries continues to face significant challenges. The structure of traditional medical education, especially in countries with established systems, such as Spain, remains slow to adapt to new educational demands. M. Rodríguez regrets that undergraduate health education is still marked by a resistance to change, in part due to the influence of academic institutions and their hierarchical structures. For this reason, she recognizes that the necessary reforms are profound and that change must come not only from educational institutions,

but also from collaboration with public administrations, which play an active role in introducing new methodologies.

Transformations in health education are the result of a complex process that involves not only the adoption of new practices and technological tools, but also a change in the mentality of educators and professionals themselves. The training of future physicians and other healthcare professionals must be more dynamic, collaborative, and practical to adapt to both technological advances and the changing needs of the global healthcare environment. However, this process is not without challenges and requires a joint effort between educational institutions, administrations, and professionals to ensure an education that not only forms highly trained technicians but also individuals committed to patient well-being.

There are various educational trends transforming instruction in different contexts. These trends include innovative pedagogical approaches and the implementation of new training platforms, which are shaping the future of higher and professional education.

Case Example: University of Newcastle

The University of Newcastle has adopted key digital tools to improve accessibility and educational quality. One of the main innovations is the use of Canvas Catalog, an extension of the Canvas platform that allows the university to offer courses and programs to outsiders, which facilitates access to remote education. Students can select specific modules and pay for them, generating additional income for the university and expanding its reach globally.

Regarding the practical assessment of students, the university has replaced the traditional physical logbook used during clinical practices with QuestionPro, a digital tool that allows clinicians to provide immediate and accurate feedback to students. This platform improves efficiency, ensures the reliability of information and allows students to receive useful feedback during their learning process, before their final clinical exams. It also facilitates the management of assessments, preventing issues related to loss or alteration of paper records.

One of these approaches is challenge-based learning, which, according to J. Valdez, allows the development of competencies if the skills to be worked on during the resolution of the challenges are correctly described. This approach is effective when applied in real-world settings, particularly in fields such as medicine, where learning is often facilitated through hands-on practice. Likewise, J. Valdez also highlights learning communities, both within the university and in hospitals. These communities evolve into communities of practice, where everyone, both educators and students, play learning and teaching roles through coexistence and joint work.

Meanwhile, N. Saavedra explains that the National Institute of Public Health of Mexico has adopted simple and technologically accessible educational strategies, such as MOOC-type courses. These, being self-managing and flexible, allow participants to access high quality content at any time, with the certification of outstanding teachers and researchers. Hybrid models, which combine face-to-face and virtual sessions, where students read and access online materials before participating in onsite activities, such as case resolution and teamwork, strengthen the skills of health personnel.

Flexibility in Educational Programs

A. Coda emphasizes that since students face multiple responsibilities, such as working to meet their needs, it is necessary to provide flexible options that allow them to adapt their training into their schedules. In line with this idea, J. Quintillá highlights that virtual platforms offer the opportunity to reach a broader audience, particularly those who would otherwise have difficulty accessing education. Additionally, these tools enable students to manage their time and adapt to their own rhythms. N. Saavedra also shares this view with hybrid models. These approaches not only improve flexibility but also enable greater coverage of competencies and opportunities for continuous improvement and education.

Face-to-face Training

Face-to-face training is still a key component in the education of health-care professionals, despite the advantages offered by digital platforms. Although online methodologies allow for flexible and broad access to content, the risk of disconnection and lack of motivation among students is high when over-reliant on them. Onsite interaction fosters a level of engagement and passion that is often lost in the virtual environment by enabling a more direct and personal experience with teachers and peers.

Moreover, the exclusive use of technologies can give the impression that they are a panacea, but this approach reduces human interaction, a fundamental element in the development of interpersonal skills, effective communication, and teamwork, all of which are essential in the field of health. Face-to-face training also allows students to learn from others through group dynamics, live discussions, and immediate feedback, which is more limited in digital environments.

Although online training is already indisputable, both A. Coda and J. Quintillá agree that it is necessary not to underestimate the value of on-site teaching to foster a true connection and collaboration between future professionals.

N. Saavedra, like J. Valdez, mentions that, in her institution, a migration towards approaches such as competency-based and problem-based learning has been promoted, which has allowed students to develop practical and critical thinking skills, thereby overcoming traditional approaches that focus solely on theory.

A. Interdisciplinarity

In recent years, educational innovation has tended to be increasingly collaborative with greater integration of the different agents involved in the training of health professionals. According to G. Antoja, Barcelona is developing innovative projects, in which hospitals, universities, and other ecosystem agents are grouped together on a common platform. In these projects, nursing students can carry out their internships in an environment where all the agents involved, such as academic and clinical tutors, collaborate continuously and without the traditional separations that existed in the past, which not only favors the training of students but also promotes a more inclusive and bidirectional approach to teaching.

G. Antoja also stresses that this innovation should not be limited to technology but should focus on recognizing and adapting to the context and ecosystems in which it works. In this regard, education is moving from a very directive and regulated model to a much more flexible and two-way model with the participation of various agents through collaborative platforms. This approach has been reflected in the adoption of methods, such as the flipped classroom, that encourage interaction and active learning.

From the perspective of C. Moscoso, training should be conducted in a network and interprofessional approach that recognizes the importance of integrating different healthcare professionals into multidisciplinary teams. Collaboration between nutritionists, physicians, nurses, and other agents is essential to address healthcare challenges holistically. This dynamic of networking adds a layer of complexity to training but is indispensable to ensure quality care.

> *"Now we learn collaboratively."*
>
> **- Mario Mosquera, Director of the Knowledge and Talent Management Area of the Galician Agency for Health Knowledge**

M. Mosquera emphasizes that multidisciplinary teams must be part of the design of educational programs, since there is less and less talk of separate professional categories and more of the importance of working in diverse teams, whose members bring different perspectives. This approach aims to not only improve the quality of learning, but also to foster innovation and the development of new educational programs.

Similarly, R. Anglès suggests fostering collaborative work among students from different disciplines within the field of health. According to her, an effective strategy would be for students, from the early stages of their training, to engage in joint practices, regardless of whether they are doctors, nurses, psychologists, or other healthcare professionals. She argues that this practice helps to avoid the creation of professional "silos," which, over time, can generate conflicts between the different specialties that, in her opinion, should work in an integrated way and as a team.

Although implementing such a strategy is not simple, the doctor believes that interprofessional contact in practices would be beneficial and feasible, reducing bias among professionals in different areas. After all, teamwork is a skill that can be learned. Although some people may have innate skills for collaboration, teaching students to work in teams is required, as these competencies are not always developed autonomously.

Case Example: Elsevier & IESE

Elsevier has developed various technology solutions designed to train and develop competencies in the healthcare field. One of these initiatives is *Transition to Practice*, a program designed to facilitate onboarding for nurses. This system enables them to maintain a reflective journal about their experiences, which fosters both their personal and professional growth. Additionally, the competency assessment is conducted through direct observation and demonstration in real-life situations, ensuring quality in practice. This checklist is an example of how practical and supervised assessments contribute to patient safety and professional confidence.

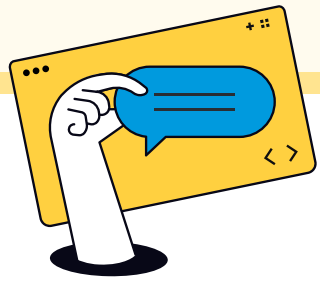
Additionally, in the field of management, Elsevier has collaborated with the IESE Business School in the development of interactive case studies using information and role-playing technologies. These simulations enable healthcare institution leaders to practice introducing technological innovations in a controlled environment, making it easier to learn key competencies.

B. Collaboration and Mentoring

While all these approaches are diverse, they end up being complementary on the importance of practical, collaborative, and integrated learning in the training of health professionals, where traditional and modern models combine to achieve effective results in their preparation.

M. Mosquera highlights that certain traditional approaches, such as coaching and mentoring, remain substantial for training; in particular, the relevance of a tutor to accompany the resident during rotations in different specialties, such as ophthalmology, dermatology, and cardiology. This training becomes more personalized and in-depth, promoting a direct and supervised experience. It is also related to the model of the Ministry of Health, which introduces figures of “referents” or mentors in health centers, who not only provide technical training but also training in communication and speaking skills. This accompanies healthcare professionals in both their clinical competencies and their interpersonal skills, vital to performance in real-world settings.

> *"I think the things we intend to teach have to happen in educational institutions."*
>
> **- José María Quintillá, Head of the Clinical Simulation Unit at Hospital Sant Joan de Déu**

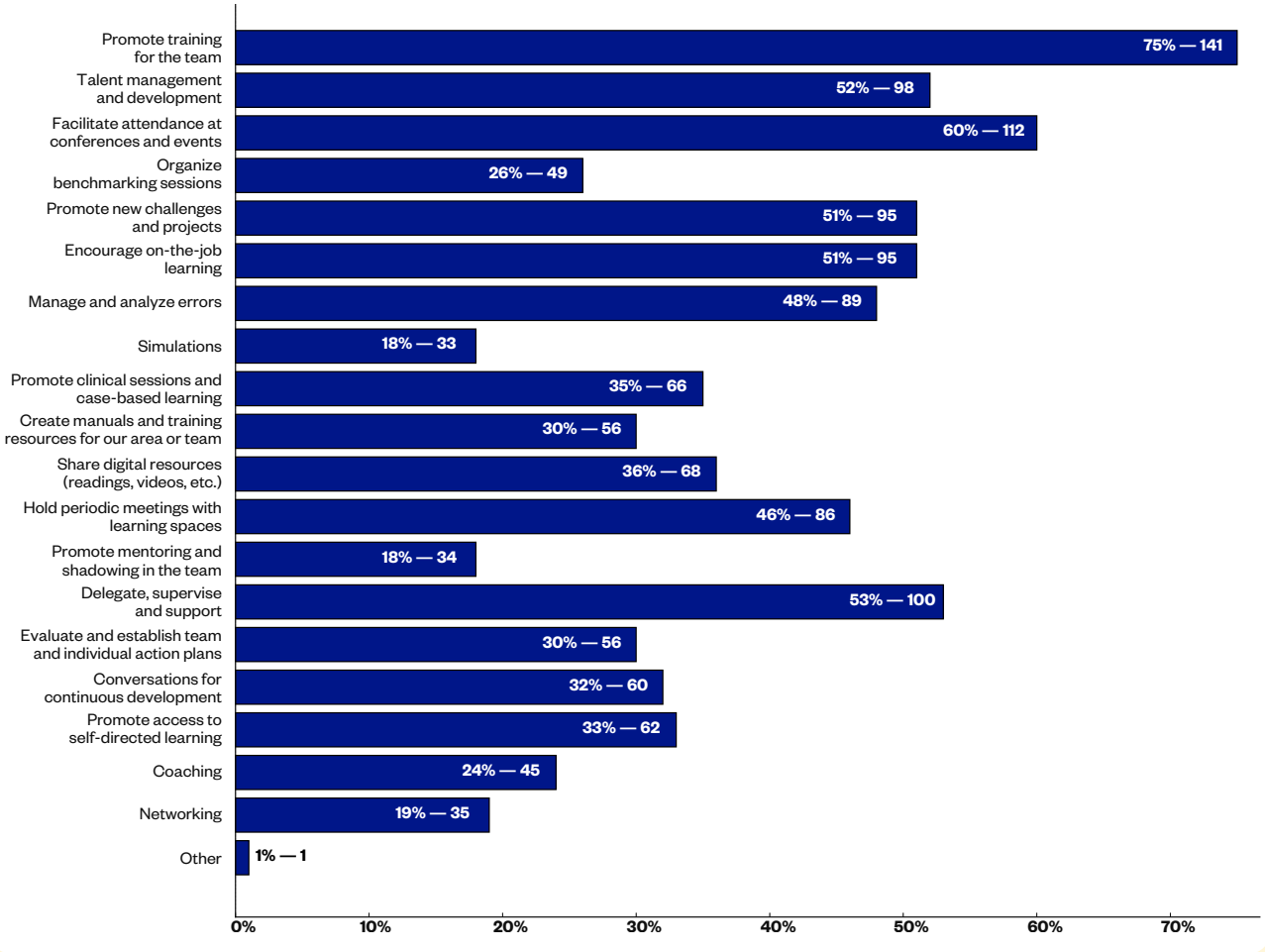


In this regard, A. Sedano underscores the role of healthcare team leaders or directors, who must ensure professionals are properly prepared. In her opinion, their teams' well-being has a direct relationship with the level of preparation of their members, which directly impacts patient safety. She explains that it is paramount to create educational spaces within institutions, clinical meetings, and joint projects between junior and senior professionals, which promote collaborative learning and knowledge sharing among groups. In addition, she advocates for the internal mentor by arguing that, on many occasions, mentors outside the institution cannot replace the knowledge and experience of professionals within the same team.

Strategies Used by Executives to Foster and Support Team Growth

The survey also gathered information about strategies most frequently used by executives to promote the professional development of their team members. Responses provided by executives were:

Thinking about your team, what strategies do you use most to foster and support their growth?



As observed, executives most frequently use strategies such as promoting staff training (75%), facilitating participation in conferences and events (60%), and delegating, supervising, and supporting (53%). Simulation-based activities were the least implemented, selected by only 18% of respondents.

In a practical approach to this collaboration, R. Kearns proposes a hybrid model that combines theoretical online learning with interactive in-person experiences. This model not only optimizes classroom time, but also allows facilitators to identify and address student challenges prior to in-person sessions through pre-reporting. In addition, he emphasizes the importance of students having the opportunity to practice in controlled environments, such as with standardized patients or through clinical scenario simulations, which allows students to receive feedback before facing real-life situations, thereby reducing risks and increasing their confidence. R. Kearns raises the need to rethink forms of assessment and suggests that more authentic methods, such as oral exams or case studies, could be more effective than traditional multiple-choice exams, especially in a context where technologies, such as AI, are changing learning dynamics.

> *"Because people can learn from both good and bad examples."*
>
> **- Robert Kearns, Director of Online Education at Johns Hopkins University School of Medicine**

Case Example: Central University “Marta Abreu” of Las Villas, Cuba

In Cuba, the Universities of Medical Sciences, such as the University of Medical Sciences of Villa Clara (UCMVC), maintain close collaborative relationships with provincial universities, such as the Central University “Marta Abreu” of Las Villas (UCLV). This connection facilitates the integration of theoretical and practical education through “university polyclinics” and “university hospitals”, which serve as training centers for students of medicine, stomatology, and other related careers. These hospitals and polyclinics become spaces where students perform their pre-professional practice under the supervision of tutors, promoting comprehensive learning not commonly found in other educational systems.

Despite these advances, the system faces significant challenges due to constraints in resources, medical and medical electrical equipment, which directly impact the quality of training. The situation has been exacerbated by the COVID-19 pandemic, which has compelled institutions to seek alternatives in their teaching and learning processes. Medical centers also play a key role in training specialists through graduate programs, further reinforcing the connection between theory and practice in medical training in Cuba.

C. Aspects to Consider

The evolution of health education in recent years has been marked by a shift toward more comprehensive and cross-functional approaches with the goal of focusing on health promotion and disease prevention. This transformation is reflected in the increasing collaboration between various healthcare professionals, including physicians, nurses, assistants, and other care team members, which contributes to a holistic approach to patient care, as mentioned by Elizabeth Valencia-Borgert, Director of Community Outreach for Career and Continuing Education (PACE) at St. Cloud State University, and N. Saavedra.

Additionally, the importance of adapting pedagogical methods to meet students' needs has been emphasized. N. Saavedra reinforces that in-person education, although valid without the use of technology, must migrate to pedagogical strategies that consider the characteristics and needs of the student, and avoid traditional methods focused exclusively on the teacher. The integration of technology in the classroom, far from being opposed to face-to-face teaching, can enrich the learning process if implemented properly, which would improve the appropriation of knowledge, as A. Viera points out.

F. Harreguy points out that university teachers must expand their training not only in their technical area, but also in the pedagogical and educational aspects to improve the quality of health education. He advocates for self-criticism within the educational field in order to redirect teaching practices towards an approach oriented toward students and their learning needs.

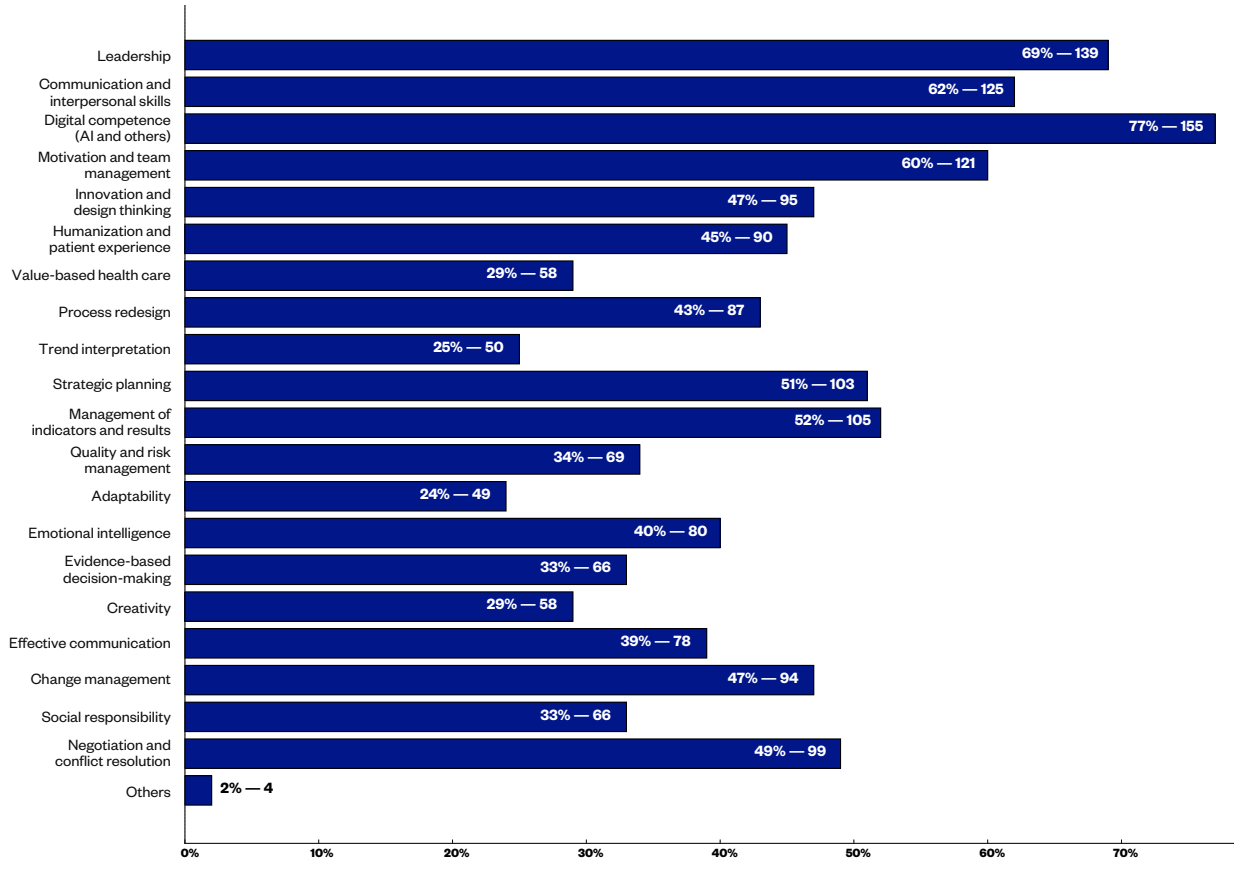
4.3. Training Trends

Institutions must keep up with the erratic times of modernity, so that not only their students, but also their teachers can impart up-to-date, relevant, and timely knowledge. J. Valdez points out that both leaders and teachers must have a shared perspective with a very clear vision and mission, with which to develop excellent talent, address health problems in their entirety, and carry out relevant and compatible research today.

Leadership Competencies

Although professionals with direct patient contact are fundamental in clinical care, the success of hospitals and clinics also depends largely on their executives. The survey asked executives and team leaders which leadership competencies they believe are necessary to address future challenges.

What leadership competencies should be developed to address future challenges?



Digital competencies (including AI at 77%), leadership (69%) and communication and interpersonal skills (62%) are the competencies executives consider priorities to acquire in the near future. On the other hand, competencies such as value-based health care, trend interpretation and adaptability were not considered indispensable in this future outlook.

Leadership is a latent value in the institutional community, particularly for managers and faculty. Assuming leadership consists of two major components: one, assuming innovative leadership that facilitates the incorporation of any novelty that benefits the learning of team members, which consists of detecting such innovations, and two, being able to incorporate them efficiently and correctly into the disciplinary and educational field.

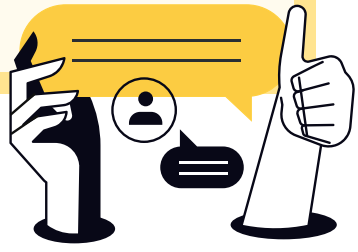
In addition, fostering and having collaborative leadership will be essential to building learning communities and getting used to collaborating with others, not only with the same team, but a multidisciplinary approach must be in place. Every academic faculty must adopt this mentality so that it also permeates students and the entire university community.

It is worth noting that the way and style in which information is transmitted have changed over time. Medical education had very strong hierarchies that today would be considered aggressive; however, the new generations have a different sensitivity, so the times demand a different style both in teaching and in the health sciences. This, coupled with technological, scientific, and social advances, requires students to develop skills and competencies that were not previously considered or included in curricula.

In this regard, A. Viera says: "If in the educational field we have the students at the center, then, when it comes to healthcare, it is the patient who is at the center." For this reason, today's students are not only required to have an in-depth knowledge of their area of expertise, but also the skills that the modern world demands, such as empathy, patient care, ethics, continuing education, and adapting to new technologies. All this helps to provide people with a high value service, care, and accompaniment in times of high vulnerability, both for patients and their families.

Similarly, in a globalized world, where instant messaging is part of everyday life and information, and research results and discoveries can be shared in seconds, it is critical that healthcare specialists constantly update their knowledge. In this way, the potential and performance of the health specialist is maximized, and the integral well-being of the patient is favored.

> *"It is clear that it is necessary to ensure a minimum of digital competencies in healthcare professionals. In addition to these accreditations, certifications must be periodic and assessments must be ongoing. I think in the world we are immersed in, healthcare professionals must be fully trained."*
>
> **- Sergi Iglesia, Vice President of the Catalan Society of Digital Health**



A. Teaching Competencies

It is essential to distinguish between teaching skills and professional skills. On the one hand, professionals possess unique skills and knowledge in their respective areas of expertise. On the other hand, teaching skills are all those competencies and abilities that are focused on facilitating and transmitting learning to a group efficiently.

While healthcare specialists must have the utmost knowledge in their area and be constantly up to date, it will also be imperative that their knowledge transfer be effective. This will occur by reinforcing teaching skills, which encompass a number of values and domains such as didactic planning, active listening, empathy, speaking, patience, adaptability, flexibility, leadership, effective communication, among others.

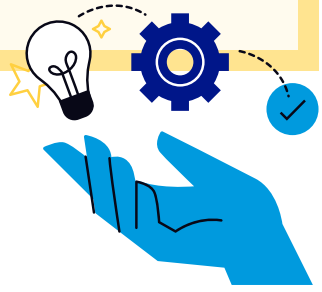
Teaching skills should be essential from the beginning of any health specialist's career and, although it is unknown whether they will be tutors of residents or students in training in the future, these skills will also help them to transmit their knowledge to their patients and families in a more effective way.

A. Sedano points out that one of the successes of UCF is that it accompanies and trains specialists in the health sector thanks to other professionals in the same field who have teaching experience, which helps to complement specialists with a series of teaching skills that are not normally provided.

> *"I think a healthcare professional should have three hats, and they should wear and learn from them from the first year of their career; otherwise, it becomes difficult. A healthcare hat, a research hat, and a teacher hat, because it creates a circle. I research, from research I obtain knowledge that I apply in healthcare practice and from here I can obtain results to improve knowledge through teaching."*
>
> **- Ana Sedano, Managing Director of UCF**

Learning in a traditional setting, at the patient's bedside, and in collaboration with other colleagues, provides invaluable knowledge. However, teaching skills will open relevant channels for specialists to efficiently convey their knowledge from multi-disciplinary clinical sessions sharing patient cases and clinical knowledge. This is the perfect scenario for learning and developing other skills that will be discussed in this section later.

> *"I think we are increasingly aware of the importance of teaching competence. I, who have dedicated myself to teaching almost from the beginning of my professional career, can also tell you that, when I learn the most, it is when I teach best, curiously."*
>
> **- Ana Sedano, Managing Director of UCF**



B. New Roles

In the area of health, the teaching role must be carried out by a professional who, thanks to their knowledge, is able to efficiently accompany the student or junior professional in acquiring knowledge and improving their practice.

A. Sedano shares that, in Spain, there are fewer and fewer teachers teaching on a higher platform than the level of the students, as a metaphor that they are above the others. This model is gradually disappearing and there is now a tendency towards a learning model in which students have a more active role to share and exchange information with the teacher and their peers.

G. Antoja mentions that, in the United States, there is a professional role in hospitals called a preceptor: a referral tutor of a new professional, very common in nursing. They are responsible for validating the learning process of a professional from the institution's point of view, as well as helping them to familiarize themselves with the institution, socialize, and learn about protocols and techniques. In addition, they provide the specialist with tools to improve their clinical judgment and understand the institutional culture in which they will develop professionally.

The roles that encourage and transmit knowledge to professionals have diversified. Teachers no longer only transmit knowledge, but also act as companions, mentors who provide guidance to students. In the same way, students have also changed; they no longer only expect to receive knowledge sitting at their desks, but they are also informed people who can and want to debate, discuss, and propose among themselves and their teachers.

Case Example: Health Technicians in Chile

C. Moscoso mentions that, in Chile, the Santo Tomás Technical Training Center is the main trainer of technicians in the country. Its main training area consists of superior health technicians, called Higher Level Nursing Technicians (TENS), where there are also different specializations.

However, historically in the training processes carried out in public health systems, health technicians receive less recognition compared to other specialists in this same area. C. Moscoso expresses: “If you look at the instruction of health training resources in Chile, for example, about 70 or 80% go to professionals and only 20% go to technicians. But if you look at the configuration of the health teams, it is exactly the opposite, 60 or 70% are technicians and only 30% are professionals.”

Even so, the role of health technicians acquired great importance from the pandemic, for example, in issues related to chronic diseases that are currently affecting countries such as Chile, subject to population aging processes. Chronic patients are accompanied in the self-care process of their health conditions; learning to live with their disease is the only way for the epidemic to be controlled. The role of technicians is critical, even more important than the role of specialists, general practitioners, or nurses.

C. Microcredentials

Microcredentials are certifications approved by educational institutions, which validate the learning of knowledge and skills through short courses or training actions, which can be taught in person or online. Currently, microcredentials have gained popularity in the virtual methodology due to the ease they represent for students, as well as the existence of platforms dedicated to granting them, such as LinkedIn, Coursera, edX, or universities like Harvard, Tec de Monterrey, and the University of Arizona, among many others.

> *"One thing I was excited about about online education 25 years ago was the democratization and homogenization of education, the ability to get an education from a world-class university no matter where you are in the world. I think having that access is very empowering."*
>
> **- Robert Kearns, Director of Online Education at Johns Hopkins University School of Medicine**

R. Kearns mentions that Johns Hopkins University has specialized trainings for physician assistants, nurses, and other health aides, especially because they must be on the front lines of patient care. It is critical that they are up to date with current trends and gain more and more expertise, but this doesn't mean they need to graduate with a new college degree.

Microcredentials meet the goal of delivering targeted learning when needed as soon as possible. This efficiency is accelerating the recognition of these short course accreditations.

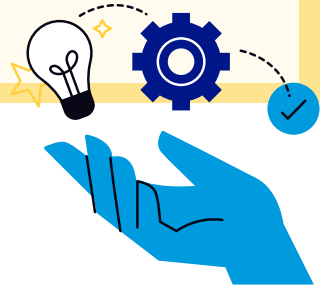
That said, it must be acknowledged that there is still some resistance to microcredentials, particularly when imparted in virtual format; however, more and more people are joining in this type of academic content.

Although the most demanded microcredentials are face-to-face, virtual training is increasingly accessible. In the case of Johns Hopkins University, R. Kearns mentions that they create programs so that anyone in the world can carry them out through Coursera or even their own platforms. Thanks to current technology, it is possible to present the courses in various languages to offer quality education to as many people as possible.

R. Kearns notes that microcredentials are a huge growth area for Johns Hopkins University, as well as the entire academic industry. The advantage of this educational medium is that it not only allows courses to be provided that last a couple of hours, but they can also have a duration similar to that of an academic semester; so it is possible to offer different modalities. As science and medicine change rapidly, this training model can deliver courses on the latest discoveries, procedures, and technologies quickly, which in turn encourages lifelong learning.

However, the value of these courses depends on the geographical context, because, as Florencia Rubiolo, Director of Insight 21 at Siglo 21 University, describes, in Argentina there are few universities that offer microcredentials and, unfortunately, there are even fewer people who recognize these academic means as an element of curricular value. In this country, the university career, as structural training, continues to have the greatest weight in the academic trajectory of people.

> *"In the healthcare sector we need a different focus on education and training, whether it's virtual reality or augmented reality, professional practices, or short-term credentials. But we are seeing, particularly in medical schools, an inclination towards lifelong medical education by not only doctors and nurses, but also other professions in the health sector."*
>
> **- Amy Heitzman, UPCEA Deputy Executive Director and Director of Learning**



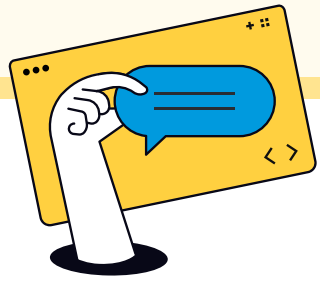
Microcredentials are an efficient way to stay on top of new modern world methodologies, technologies, and discoveries, and to train interested individuals who possess basic knowledge on a specific subject or topic. In short, they are an alternative to diversify the workforce and expand the curriculum of health specialists.

D. Lifelong Learning and Continuing Education

Continuing education brings new skills and knowledge, and keeps our brain healthy. It also helps people develop not only personally, but also professionally.

Staying up to date on the technological and work changes that occur internationally means that professionals have invaluable knowledge to provide better care, which significantly improves job performance and community well-being. Continuing education is not only a professional obligation but also a prerequisite for enhancing the patient experience and ensuring the quality of healthcare.

> *"Human beings are essentially lifelong learners. We all do this all the time, and there is no way to turn this off. It's the same as breathing air and drinking water. It's part of who we are and what we do."*
>
> **- Séamus Ó Tuama, Director of Adult Continuing Education (ACE) at the University of Cork and Chair of the ASEM Education and Research Hub for Lifelong Learning**



F. Harreguy says that, based on his experience in Uruguay, the youngest people are not always the ones who are most interested in continuing education, but there is a percentage of people closer to 50 who participate more than the youngest. This is because more years have passed since they left formal education, and now they want to resume it in a more intense manner. Today, with the vast amount of information being generated constantly, it is imperative that specialists of all ages are continually trained.

An advantage that exists in Uruguay, says F. Harreguy, is that the University of the Republic is free, allowing anyone to enroll without having to pay a tuition fee. This makes it easier to update knowledge and improve self-fulfillment through study.

Likewise, in that country many institutions have started to accredit modular trainings with certificates of update that can be validated as subjects of some graduate degree. This helps people bet on a line of training that allows them to have higher certifications in the future.

E. Valencia-Borgert says that the advantage of continuing education is the agility with which it responds to market needs, since it is faster than a four-year university degree. For example, at UPCEA they are aware that updating curricula can be so slow that, by the time they are ready, they are already obsolete. Continuing education is the most effective way to learn more while staying up to date.

Due to personal and professional responsibilities at a certain age, continuing education can become complicated. S. Ó Tuama says: "We are all lifelong learners, and we have to create opportunities for people to learn continuously."

Academic institutions must be committed to a culture of lifelong learning so that people become familiar with the concept and continuously study. Similarly, it is crucial to consistently develop programs and courses that support this motivation. Through a study at his institution, F. Saavedra shares that they were able to identify four profiles that are motivated to continue studying:

1. Newly graduated students seeking continuing health education to differentiate themselves from their colleagues. They are individuals looking to explore the subspecialties of their careers and who graduated within the last three years.

2. People who found a specific sector of practice in their profession, for example, a nurse who likes and aims to specialize in the area in which they are in order to consolidate in that sector.

3. People wanting to change areas. This may be because they have been in the same area for a long time and are looking for development possibilities, so they may choose to pursue a sub-sector of their professional development, specialize, and change their curriculum.

4. Specialists seeking to delve into the latest updates and discoveries on certain topics. They are not striving to switch career paths but want to stay updated in their specialty line.

M. Choulli distinguishes two specific groups of physicians in relation to their professional practice and their access to continuing education:

- **Doctors in the private sector:** They usually manage their own cabinets or clinics, are absorbed by daily care and access training sporadically, mainly through congresses.
- **University doctors:** In addition to caring for patients, they teach and participate in research activities; therefore, they have more time and opportunities to access continuing education and participate in professional development projects.

> *"I think that health professionals, because of the context, because of the demand, constantly seek to update their skills, their competencies. We see more and more health professionals committed to healthcare, with an eye towards the user."*
>
> **- José Raúl Ñaupari, Head of the Continuing Education Management Unit at UPCH**

Case Example: Continuing Education Model in Cuba

Estrella María de la Paz Martínez, Director of Postgraduate Education at the Central University "Marta Abreu" of Las Villas (UCLV), points out that the continuing education model of Cuban higher education is generally structured in three components:

- Undergraduate training in broad profile careers, which ensures training in the basic and specific aspects of each profession.
- Preparation for employment, which is aimed at developing and perfecting the Modes of Action of the recent graduate in the workplace.
- Postgraduate training for the specialization, reorientation, and permanent updating of university graduates.

This model is based on the fact that "education is a right of all persons and responsibility of the State, which guarantees free, affordable and quality education services for comprehensive education, from early childhood to graduate university teaching." This position is reflected in the Constitution of the Republic of Cuba and responds to SDG 4: Quality education, by guaranteeing and promoting lifelong learning. (Constitution of the Republic of Cuba, 2019, cited by Estrella María de la Paz Martínez)

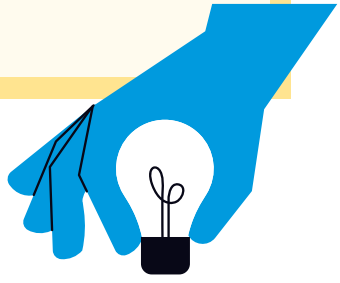
From these descriptions, academic opportunities can be created that attract these specific profiles, promoting continuing education and the design of training programs that align with the interests of different environments.

A. Viera shares that, in order to motivate its employees and students, needs are identified annually, and based on this, continuous education proposals are generated. It has been identified that the best thing that has been adapted to the user population of said university is the short courses that can be taken in combination: on one hand, some theoretical online activities and on educational platforms, on the other hand, practical sessions.

For their part, E. Arrighi, and A. León share that one of their main strategies to promote lifelong learning is to foster support networks; that is, educational communities that allow keeping the community updated. Through institutional platforms, free and educational activities such as webinars and collaborations are shared.

In addition, both experts commented that there is also the option of a membership with more extensive content, created with the goal of building a community interested in patient-centered care to address new models of health. Thanks to this subscription, members have the possibility to update themselves through webinars with experts, newsletters and content published through their digital networks and to have access to the academic offer of the institution.

> *"I think we have to fight in college so that critical vision is not lost. In addition, we must try to encourage people to do more continuous training, to continue training throughout life, and that everything is integrated. It is necessary that people do not abandon that, that they not only study to work, but also to form themselves as integral people."*
>
> **- Fernando Harreguy, professor at the Central Unit of Permanent Education of the University of the Republic of Uruguay**



To foster the culture of lifelong learning, D. Sánchez says one necessary tool is feedback interviews. These interviews, formalized through a model of questions between the manager and the professional, help to know areas of improvement with questions such as: "What do you need?" and "What would you want to develop in?" Through these interviews, it is possible to develop strategies and programs tailored to the needs of health specialists.

In order to help train people in their continuing education, J. Ñaupari says that one of the most used strategies in his institution is to make schedules more flexible and create online courses; in addition, they constantly evaluate user satisfaction after each session to improve day by day.

Unfortunately, it is not easy for many people to train continuously. Many countries lack regulatory frameworks that encourage continuing education, and public budgets are insufficient. In Chile, Colombia, and Brazil, there are national systems of accreditation and mandatory re-accreditation for doctors.

For example, in Uruguay, people who are dedicated to nursing do not usually have a single job, but they have up to three to achieve their economic livelihood. For this reason, it is not easy to find a space between work time and staff. This lack of time does not help, and they also do not have the financial resources to cover the expenses related to an education.

For his part, S. Ó Tuama mentions that educational institutions must pay careful attention to the way in which programs are designed and presented, because today people's lives are so saturated that it is difficult to find the space, time, and energy to add another activity to their busy schedules, as they have to balance family and work life. Institutions should focus on the student when designing programs to be more accessible to them, not to the academic institution's agenda.

Case Example: Structural Challenges in Continuing Education in Africa

To boost continuing education in Africa and address the structural structural challenges this contintent faces, M. Choulli identifies a number of opportunities that higher education institutions must activate:

1. Lead the drive for continuing education through innovative and quality programs.
2. Foster public-private cooperation, both between African entities and with European institutions, and pay special attention to alliances with Spanish entities to share resources, experiences, and training capabilities.
3. Generate learning and collaboration ecosystems that contribute to the equitable development of the territories and that reduce social and health inequalities.

These opportunities need to be addressed urgently, as their activation may favor an environment where professionals find real incentives to develop, exercise, and remain on the continent.

J. Quintilla emphasizes that one of the great barriers to continuing education is the bureaucratic and pragmatic structures of the same academic institutions. These can make incorporating new methodologies and educational programs more difficult due to the number of documents, justifications, and approvals that must be made before they can be implemented. This entire process can take a considerable amount of time or may be denied altogether.

For example, in the United States, regulatory and accreditation restrictions surrounding education are the stumbling block. R. Kearns explains that there are many programs that he would like to implement in his institution, but it is not possible due to the accreditation challenges, either by the state of Maryland (which is where Johns Hopkins University is located) or specialized accreditors, which, in addition to hindering the processes, are usually very slow, as they are responsible for protecting the profession. In his words: "The regulatory and accreditation restrictions that come in conjunction with education translate into our inability to be as innovative as we would like."

> *"The tradition of certain institutions means that jumping on the bandwagon of what is happening in the world can be a greater challenge for them."*
>
> **- José María Quintillá, Head of the Clinical Simulation Unit at Hospital Sant Joan de Déu**

Case Example: Issues with Medical Talent in Africa

M. Choulli points out that Africa faces a dual issue with regard to medical talent in two dimensions:

- **Quantitative dimension:** There is a significant shortage of medical personnel in Africa. In some regions there is even a single doctor for every 10,000 inhabitants. In addition, many health specialists trained on the continent emigrate to other countries, such as Canada, or to Europe to complete their studies and practice their profession.
- **Qualitative dimension:** In this country, there remains a lack of continuous training for practicing professionals, especially in relation to the development of non-technical competencies (teamwork, communication, time management, among others).

As can be seen, one of the most relevant strategic challenges is the loyalty of talent trained in that country. Continuing education can act as a key lever to offer professionals opportunities for learning, development, and well-being within the continent itself. It should be noted that the African continent has a high epidemiological diversity that covers almost all known diseases, making Africa an exceptional laboratory for professional development in the field of health. This situation enables the creation of a work and vital environment that makes it attractive to stay and develop within the country.

To ensure quality education, Á. Vidal points out that one of the great challenges is evaluation. Despite being a very valuable aspect of learning or implementing new programs, technologies, and many other aspects, feedback is often a forgotten, incomplete, or even missed step, whether due to underestimation of this practice or lack of time within the educational process. Á. Vidal notes that many institutions fail to adopt this culture, which is crucial for the ongoing improvement and evolution of the educational system and its professionals.

C. Moscoso, who also agrees with the above, expresses that in many institutions there are also resources to generate evaluations. Unfortunately, there's a tendency not to assess the impact or how these evaluations lead to better services for users. A system that works regularly to measure this is required, but at the same time, it must be cost-effective, adaptable to the resources of each medical institution, and rigorous enough to provide reliable data to guide decision making, continuous improvement of service quality, and training of healthcare personnel.

N. Saavedra, who coordinates the Continuous Improvement area of the Mexican School of Public Health, describes that one of the greatest challenges she has dealt with in relation to continuing education is technological access. Much of the education at this institution is conducted virtually to train healthcare professionals nationwide.

Since the National Institute of Public Health reports directly to the Federal Secretariat of Health, N. Saavedra states that she has the order to train the professionals who are in the different state health secretariats. She must first identify needs according to what the Mexican health system dictates, as well as the current healthcare needs of the population. With this information, she has to design an academic program to train specialists.

However, the challenge arises from the fact that the trainings are virtual, since not all state health secretariats have efficient internet access; as a result, the trainings do not reach all areas of the country. One option to counter this problem would be to train face-to-face; however, this involves a significant investment of resources, which adds another challenge. The lack of budget to train in person has limited the professionals who serve this sector nationally, and their skills are limited by this situation.

R. Kearns brings another perspective to continuing education, specifically for professionals who do not hold a bachelor's degree or a master's degree in medicine. R. Kearns states that there are high school students who, beyond a career in medicine, also seek a career in other areas of health, such as radiology technicians, assistant technicians in medical physics, and genetic counselors, among other specializa-

tions. However, for this, training programs must exist at initial levels to introduce them to these sectors.

Similarly, there are also individuals who are already more familiar with the areas where they work and may be looking to specialize. Providing programs, for example, for genetic counseling assistants who want to become genetic counselors or receptionists looking to grow and aspire to be medical office managers opens up hundreds of possibilities for creating jobs in the health sector.

Case Example: Cadi Ayyad University's Efforts in Continuing Education and Simulation

This institution has a dedicated unit for Continuing Education (CE), which incorporates clinical simulation techniques. A guiding principle governs this methodology: "Never with a patient the first time," which involves designing and implementing learning environments that allow medical staff to be rigorously trained through simulations before facing real users.

Lifelong learning allows for the flexibility that enables institutions to provide these options, thereby attracting more people than would enroll in programs that last 2 to 4 years.

Case Example: Santo Tomás Health Center

Chile's aging process over the past 20 years has meant an increase in the burden of chronic diseases, creating enormous pressure on health networks.

Santo Tomás University in Chile has a student body of 90,000 people, half of whom are dedicated exclusively to the area of health, specifically in the area of continuing education. It has more than 700 clinical fields (hospitals, private clinics, etc.) throughout the country, as well as 23 locations.

F. Saavedra, National Director of Continuing Education, and C. Moscoso, Director of the Center for Advanced Health Training at this institution, comment that they are designing diplomas for technicians, since universities are often dedicated to professionals and do not give access to technical professionals. As the Santo Tomás Health Center, the institution faces the challenge of building multi-year training paths and plans that allow the development of a training process for health teams and not so much for specific professionals.

F. Saavedra also mentions that public sector health professionals in Chile have an official career system in which continuous training generates points and allows them to promote their career, therefore, there is a clear and direct incentive. This is a public policy that allows many officials to be constantly concerned about training and staying up to date.

E. Soft Skills

Soft skills are a set of competencies that enable individuals to interact effectively with others in various situations. These include skills such as teamwork, communication skills, empathy, and more.

The development of these competencies is considered crucial throughout the professional ecosystem of the healthcare sector, including physicians, nurses, technicians, and administrative personnel. Ongoing training should reinforce the idea that caregivers are not acting in isolation, but as an integral part of a multidisciplinary team.

> *"Personal skills are recognized as a priority, but little is done to adopt them."*
>
> **- Paulo Speller, Rector of the Afro-American University of Central Africa**

M. Rodríguez emphasizes that it is very important that people who want to dedicate themselves to any discipline in the area of health must be very aware that they must not only study complicated concepts and procedures, but they must also manage the emotions of the patient and family, as well as their own; since there will be several occasions in which crisis situations and heavy emotional burdens have to be handled.

Although many times it is not mentioned, the management of these situations is key to obtaining favorable results, and it is essential to raise awareness among students of health careers, who will need to have these skills. Unfortunately, students may frequently underestimate these abilities; however, this situation is due to the fact that the same institutions do not give them the importance they deserve, for the simple fact that they do not include them in the programs, or, at most, they are relegated to the end of the programs.

Communication is an essential skill in any job; however, when it comes to health, it can be a key competency in explaining sensitive diagnoses. Sometimes, greater efforts are required to explain concepts that can be complicated for non-specialists, which is compounded when there is a large generational difference.

Guillermo Sánchez, Scientific Director of the Méderi Hospital Network, highlights that these very marked generational changes have been accentuated after

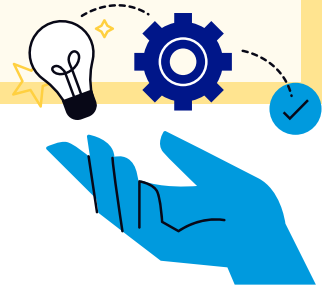
the pandemic due to the transformation of health roles and the expectations of professionals.

A. Heitzman highlights that older people have very different learning models than younger generations, so the health specialist must be aware of these significant distinctions. It would even seem like they speak different languages, so maintaining a generational mindset is an essential communication skill in the area of health.

M. Rodríguez believes there has been an increasing amount of talk about the need for cross-functional competencies in the healthcare setting in recent years.

Competencies such as ethical training and communication and research skills have started working not only in face-to-face workshops, but also virtually or through simulation. Non-technical skills are as important as techniques, as 75% of errors in the health environment are related to the lack of relational competencies.

> *"We can be very skilled at operating a brain, but if we don't have a good ability to relate to the team, the patient, or the family later, we can make critical mistakes."*
>
> **- Mónica Rodríguez, Director of Teaching at Vall d'Hebron and Principal Investigator of the Center for Advanced Clinical Simulation at Vall d 'Hebron University Hospital**



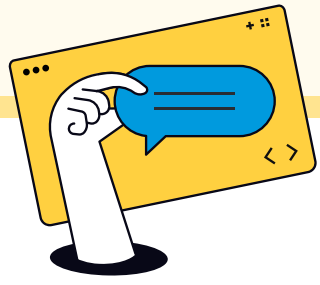
N. Saavedra points out that, at her institution, they have tried to promote the development of soft skills through diplomas and courses, in addition to reinforcing them in optional subjects and workshops.

However, trying to integrate these skills into the curriculum is a challenge due to the resistance to modifying the subjects and the priority given to the technical aspects. Unfortunately, this situation is not an isolated case; it is common in many health-care institutions around the world.

Despite this, there are also institutions that attempt to enhance these vital competencies. B. Janssens says that his Human Resources department does much work related to the development of competency structures, in which many of the skills required by health specialists are coded.

B. Janssens also shares that, in his previous experience working at the MSF Academy for Health, simulation exercises are an effective way to teach cross-sectional skills, as they help combine technical skills with soft skills, resulting in greater competency development in patient management. Having a good simulation team is very helpful for learners because they can revisit recordings of their own practices to analyze and reflect on their performance.

> *"The way companies and organizations view academic degrees is very different than 10 years ago. Today, specialists are taught the elementary, the technical can be learned; however, now the student or professional has to have the ability to connect with people and also have empathy, communication, interculturality, and teamwork."*
>
> **- Elizabeth Valencia-Borgert, Director of Community Outreach for Professional and Continuing Education (PACE) at St. Cloud State University**



F. Patient Focus

The global context does not only demand that a healthcare professional possess strong technical knowledge. More and more institutions are actively caring about delivering quality patient care-based service. A. Sedano mentions that, in Catalonia, physicians will have to evolve because patients are changing, as happens worldwide. Every day, professionals are facing patients who get information from multiple social networks, making them knowledgeable, expert patients, regardless of whether the information is true or false, but are more aware of their condition, treatments, etc.

> *"Patient care, that is, the possibility that the patient recovers, begins with a factor that we always forget: that patients themselves do their part and follow the procedures to heal. That's always ignored: the patient is not a subject of care, but an object of care."*
>
> **- Cristian Moscoso, Director of the Advanced Health Training Center at Santo Tomás University in Chile**

Now, patients are not only sitting waiting for them to be attended, but they also question more and want to co-decide; feel increasingly responsible for their disease and processes, and want to know all the information regarding their condition, so they require it to be transmitted to them in a way that can be easily understood. This requires healthcare professionals to possess good communication skills, be friendly and patient, and have a teaching ability.

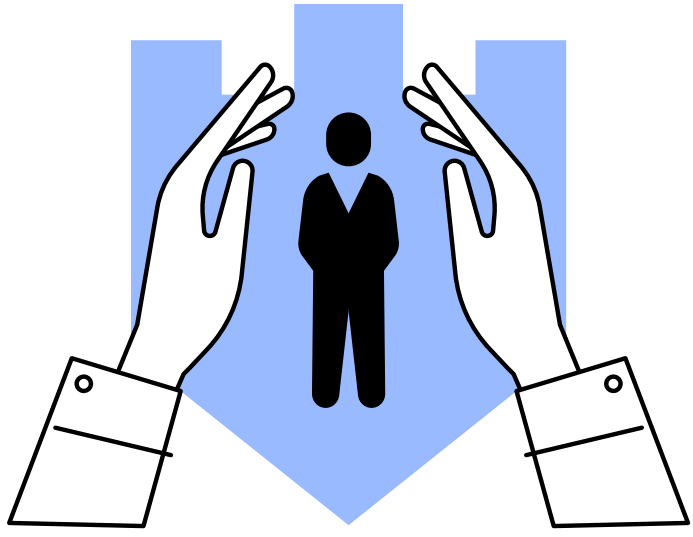
E. Arrighi and A. León note that health literacy is a strong area of research at UPF. They try to understand how much patients understand the information they receive in order to lower the barriers to Spain's healthcare system and to be able to make appropriate decisions. In this regard, UPF has developed a training program for healthcare professionals and leaders of patient organizations, who can guide and accompany both patients and caregivers.

In this sense, the WHO itself promotes policies to strengthen the development of competencies in health or health literacy. Data shows that people with low health skills have more difficulty locating the services they require, record more hospital admission days, have worse adherence to treatments, and a worse prognosis; this also leads to a health system expenditure that's four times higher.

If professionals are not trained in health literacy in order to detect and accompany those vulnerable populations, optimal health outcomes will not be achieved, regardless of the technology available and the degree of technical expertise of the professionals.

That said, the lack of resources and the increase in healthcare pressure together with the increase in life expectancy have made it necessary to urgently implement strategies that guide self-care and that enable people to better manage different chronic conditions. The Kaiser Permanente Pyramid already warned that the healthcare system will only be able to absorb 15-20% of the needs, representing the most complex cases; the remaining percentage should be addressed by offering the patient and caregiver the necessary tools to improve their self-care.

In addition, it is necessary to consider the increasing specialization and technical preparation, together with the precariousness of the profession with respect to various conditions, including salary and professional development opportunities.



G. Scientific Research

"Every methodological and cognitive advancement in the medical sciences is the result of research, as it is a fundamental part of acquiring and generating new knowledge." (López-Ortiz, & Mazón-Ramírez, 2016).

We need to generate new solutions to address health-related challenges, so new treatments and prevention models are required, which can be achieved through scientific research. The research area is a field in which, despite the lack of interest in this career path, many health professionals need to be trained on to improve their clinical decisions, promote evidence-based medicine, and constantly update their knowledge.

J. Alvarado points out that a health specialist must be an innate researcher, in particular because of the speed and amount of information that is handled and transmitted today.

He believes that the specialist who lacks curiosity to investigate and pursue novelty has a deficiency. In addition, being a researcher also helps develop competencies to generate critical judgments and criteria, which is known as evidence-based medicine.

Being a researcher, having a critical judgment and knowing the foundations of medicine make up the basis that gave rise to this science as such, so this ability should not be neglected.

H. Professional Skills

In this area, the competencies that professionals must develop not only encompass technical knowledge, but also more general skills or soft skills, which are equally important for adequate performance in the clinical environment.

According to G. Antoja, to master technical skills, such as the use of advanced technologies, simulators, or 3D models, professionals can access tools that improve the learning experience, such as interactive simulations that allow studying inclusive anatomies. However, he also highlights the importance of balancing these technical skills with more general competencies such as clinical reflection, communication, and teamwork, skills that are required in professional practice.

For his part, C. Moscoso emphasizes that the approach to health education must integrate both technical and social-emotional competencies, given that the current challenges in healthcare require an advanced capacity for effective communication and active listening. In a context such as the current one, with the increase in chronic diseases in the population and rising migration, person-centered care and shared decision-making have become fundamental competencies, as has the ability to handle complex situations and offer local solutions through methods like design thinking.

T. Espinal notes that in the simulation environment, non-technical skills, such as empathy and interpersonal communication, are at the core of health science education. The ability to interact empathetically with patients is crucial to the development of comprehensive and compassionate care. These skills not only complement technical competencies but are also the foundation upon which all other professional skills, such as diagnosis and performing procedures, are built.

For his part, R. Kearns explains that the establishment of a relationship of trust with patients, which is achieved through empathy and communication, is one of the most important elements of the work of health professionals. The focus on these power skills should be an essential part of continuing education, since without patient confidence, it is not possible to deliver quality care or improve health outcomes. Using technologies to facilitate access to information, such as classroom recordings that allow students to review content at their own pace, provides a valuable tool to spend more time engaging directly and developing these essential social skills.

In this sense, G. Alemán points out that teachers, being examples of collaborative work, resilience, and creativity, play a key role in the development of these skills. Through active practices, simulations and debriefing, students can experience situations that favor the learning of interpersonal and ethical skills, which are necessary to ensure that future professionals are able to face challenges both inside and outside the clinical setting. This integrated and practical approach allows students to become active agents in their learning process.

Case Example: Patient and Family University (UPF)

The strategic lines of UPF's projects include training in patient advocacy, empowerment, and self-care programs (such as the Expert Patient Program), health literacy, and patient experience, as well as patient navigation, health leadership and humanization, communication, and empathy programs.

In 2016, UPF published a consensus article in collaboration with more than 49 experts from eight countries in which the core curriculum for medical training was defined. One of the main contributions was the identification of 34 objectives, called the "core of the core", which focus mainly on doctor-patient communication. These objectives, focused on overall communication ability and clinical interview development, are considered the basis for an effective curriculum in clinical communication. (García de Leonardo et al., 2026).

Despite technological advances in diagnosis and prognosis, surveys of patients in Latin America reveal persistent difficulties in consultations, such as a lack of time and the complexity of medical language, which highlights the importance of a relationship based on empathy and trust. The lack of training in personal skills and emotional management represents a gap in the training of health professionals despite the growing interest in improving communication with patients and caregivers.

UPF offers specialized programs to develop these skills in both healthcare professionals and patient organizations. One of these fully virtual programs addresses topics such as humanization of care, shared decision-making, and the use of health literacy as a tool to improve health communication and access to services.

The integration of personal skills and cross-functional training is a priority, as several experts agree that while technical training remains critical, competencies related to communication, teamwork, critical thinking, and empathy are essential to an effective practice of the profession.

For example, Á. Vidal emphasizes that, although technology has made great advances in the hospital field, it cannot be the only tool that defines the capacity of a professional. In his opinion, multidisciplinary knowledge and practice are essential elements for developing real and applicable competencies on a day-to-day basis. Nursing, according to him, is an example of multidisciplinary integration that has made progress in this regard; collaboration between different disciplines not only optimizes care, but facilitates practical and effective learning among professionals in different areas. This multidisciplinary approach, which is already reflected in the creation of clinical guidelines and follow-up committees, seeks to integrate professionals into an ongoing decision-making process that includes the experience and knowledge of all the disciplines involved.

> *"Mere knowledge does not make you a good professional. You are a good professional if you know how to work as a team, if you are human. We do not say that people have to be sympathetic, but they don't want it to be unpleasant or not human."*
>
> **- Ángel Vidal, former Chairman of the Board of Directors of the Catalan Institute of Oncology (ICO)**

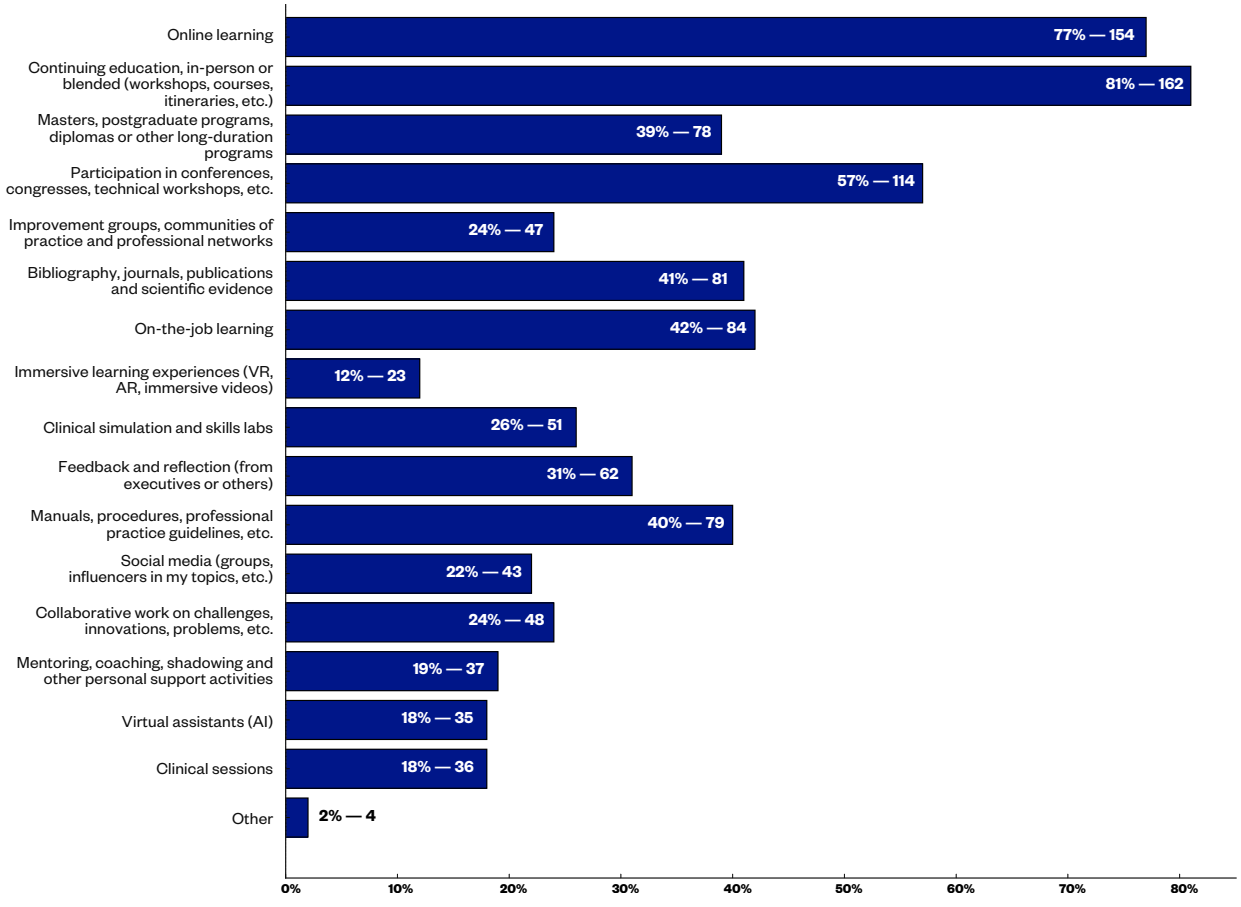
For her part, D. Sánchez points out that, in addition to technical skills and knowledge, institutions must instill critical thinking in health professionals. This mindset enables them not only to perform the assigned tasks but also to question and refine their methods; in many cases, it sparks creativity and leads to the implementation of innovative practices, as it involves enhancing medical techniques, as well as developing self-awareness and self-leadership skills. These aspects enable new generations to address the challenges of today's health system, where the immediacy of modern life can hinder deep reflection.

In this regard, N. Saavedra adds that healthcare professional training should foster creativity and critical capacity. Interdisciplinary collaboration is one of the foundations on which this training approach is based, as it allows professionals to share experiences and work together to solve complex problems. Developing programs in conjunction with universities around the world gives professionals tools that are not only limited to a local context, but also give them a global picture. This dimension reinforces the idea that healthcare agents must be prepared to work in diverse environments and face challenges that go beyond their immediate community.

Learning Methods for Faculty Development

Faculty trainers are a key pillar in the training of health professionals, and they themselves participate continuously in development processes aimed at their improvement and professional growth.

What are the main learning methods you use as a faculty member for your improvement, growth, and development?



The most frequently used methods are in-person or blended continuing education (81%), online learning (77%), and participation in academic and update events (57%). This reflects a strong tendency toward formal and structured training models, whether in-person, virtual, or combined. There is active interest in staying abreast of trends and advances in the field. Virtual AI assistants and clinical sessions were rated among the least relevant methods, with both receiving a rating of 18%.

Similarly, J. Valdez emphasizes the importance of interprofessional education to address complex issues requiring the intervention of more than one type of specialist. This type of training not only improves knowledge and skills, but also reinforces the ability to work as a team, an irreplaceable competency in modern medicine. In addition, this approach allows students to develop collaborative leadership skills; understand that, in a team, each member plays a crucial role, either as a leader or as a follower.

J. Quintillá reinforces this idea by pointing out that interdisciplinary work guarantees a complete view of the patient. Health cannot be addressed from a single perspective, as patients undergo multiple stages and services during their care process. For this reason, interdisciplinarity not only enriches the diagnosis and treatment process but also improves the patient experience by ensuring a comprehensive approach. For his part, E. Terán emphasizes that medicine cannot depend exclusively on technology; it is imperative that doctors maintain the ability to establish human contact, to listen to their patients, and to transmit confidence and empathy to them.

The humanization of medicine is now presented as a trend. R. Cunillera states that health outcomes should not only be measured in terms of technical processes, but should also consider the patient's experience. Healthcare professionals should ensure that the patient feels accompanied throughout their care, especially in contexts of continuity of care. Humanization implies that the patient is not lost in the health system; on the contrary, there must be continuous accompaniment that provides safety and confidence to improve clinical outcomes, as well as reduce patient anxiety and stress.

In this regard, M. Rodríguez emphasizes the importance of incorporating soft skills from the outset of medical training. She asserts that students have to understand from day one that managing emotions, empathy, and the ability to work in a team are core competencies of their professional future. She also argues that while technical competencies are critical, they cannot overshadow the importance of social and emotional skills. For her, it is more important that doctors know how to manage their emotions and communicate effectively with patients than having a detailed knowledge of anatomy, because in an increasingly digitized world, where technol-

ogy facilitates access to information, professionals must master the art of human interaction.

> *"I believe that no one who is acting professionally, who understands the importance of education in the field of health science, thinks that an individual can do more than a team."*
>
> **- Jorge Eugenio Valdez, Leader of the Research and Innovation Unit in Health Sciences Education at the Institute for the Future of Education (IFE)**

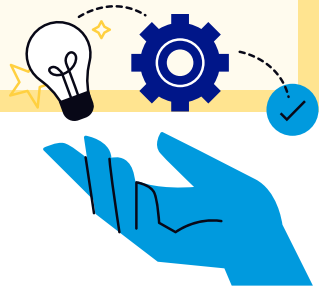
Reflection on soft skills is not only limited to the ability to interact with patients, but also to how healthcare professionals relate to each other. These skills include the ability to work as a team, recognizing the importance of other professionals' contributions, and having collaborative leadership. This approach extends to the educational system of medical schools, which are increasingly giving importance to interprofessional education, as J. Valdez points out.

J. Sung also underscores the importance of teaching these skills by example. In his experience, many aspects of effective communication and empathy cannot be taught only in the classroom, but must be modeled by professionals on a day-to-day basis. Physicians' behavior during clinical teaching, especially when interacting with patients, has a direct impact on students as they tend to mimic both good and bad observed practices. Professionals serve as a model in terms of attitude, language, and the way they interact with patients and colleagues.

I. Verbal and Written Communication

The ability to communicate effectively, both verbally and in writing, is a cornerstone in the training of any professional. In the words of A. Coda, although technical knowledge and scientific evidence are essential, they are worthless if they cannot be adequately transmitted to patients. In a clinical setting, the ability to communicate clearly and understandably to patients is instrumental in establishing a trusting relationship and ultimately ensuring their return to the service. A. Coda points out that communication is not limited to technical content but must be adapted to the circumstances and audience with which one interacts; for example, the language used to explain a complex pathology to a child requires a simple yet effective approach.

> *"At the end of the day, a human being is not a disease, but a person. And the way you communicate with that person can be very important."*
>
> **- Séamus Ó Tuama, Director of Adult Continuing Education (ACE) at the University of Cork and Chair of the ASEM Education and Research Hub for Lifelong Learning**



For several years, various training systems have recognized the importance of communication in the field of health. D. Sánchez mentions that communication has been an integral part of the annual training plans and that, recently, steps have been taken to advance the level of interaction with patients. This progress is reflected in the incorporation of techniques to influence shared decision-making, a concept that involves not only the transmission of information but also active collaboration with the patient in the decision-making process. In this context, communication evolves from a mere exchange of information to an interactive and collaborative process, raising the level of patient involvement in their own care.

However, as N. Saavedra points out, even highly qualified health professionals can have difficulty in trying to disseminate their knowledge in an accessible and understandable way. These professionals often excel at researching and publishing high-level scientific work, but struggle to communicate those same accomplishments in a way that is understandable to the general public. This mismatch between technical ability and communicative ability can limit the impact of their research, highlighting the need to incorporate outreach as part of academic and professional

training. The difficulty of communicating what was learned and investigated effectively is a gap that many professionals face and requires attention within the training curricula.

The challenge of communication extends not only to healthcare professionals when interacting with patients, but also to their families. S. Ó Tuama assures that, on many occasions, communication is carried out in a unidirectional way; doctors address patients' families instead of the patients themselves. This approach is unacceptable, as the patient needs to receive direct information about their health status and the treatment options available to them. The complexity of this task lies in the need for professionals to not only communicate medical information, but also in a way that is understandable and accessible to the patient. This type of communication, which must be respectful and clear, allows a trusting relationship to be established to ensure that the patient understands their situation and the decisions that will be made regarding their health.

The reflective aspect of communication is another dimension than M. Rodríguez takes into consideration and suggests that students should be trained to self-critique their communication practices and question their communication performance in search of continuous improvement. This type of reflection not only benefits professionals but also has a positive impact on the quality of care they provide to patients. However, M. Rodríguez points out that this training in self-criticism and reflection on communication does not yet have a sufficient presence in current training programs, which implies that a change in pedagogical approaches is necessary for a deeper incorporation of these aspects.

In a broader context, Lyndsey El Amoud, Deputy Director of Adult Continuing Education (ACE) at Cork University, also highlights that communication skills should be integrated cross-sectionally into the training of healthcare professionals. In her perspective, communication skills should not be limited to a specific module but should be an integral component of the entire educational process, evidenced through reflective tasks, professional presentations and other exercises that pro-

mote effective communication. Communication training should cover both writing and speaking, as both aspects are essential for effective clinical practice. In this regard, communication skills are not only necessary for treatment with patients, but also for interacting with other professionals within the health team.

This comprehensive approach to communication is also reflected in recognizing the need to adapt to different contexts and audiences. Written communication, for example, plays a critical role in documenting patient interactions and creating detailed and accurate clinical records. Both verbal language and written record must be tailored to the recipient, whether it is a patient, colleague, or administrative authority. The use of clear, understandable, and accurate language in medical reports not only ensures correct interpretation but also contributes to patient safety and transparency in care processes.

5. Future Remarks

The future of health education is not defined by a trade-off between tradition and innovation, but by its intelligent, ethical, empathetic, and critical fusion. This integration will be indispensable in a context where technological advances and social demands redefine modes of continuous learning. In addition, equity and inclusion must be ensured to educate professionals and citizens who are informed and committed to their self-care and their environment.

Classrooms as real scenarios of attention will drastically change due to the entry of new methodologies, tools, and emerging technologies; however, C. Moscoso reminds us that innovation in education should not be reduced to the technological field exclusively. It will need to incorporate pedagogical methods focused on meaningful experience and approach health from a biopsychosocial and spiritual perspective as well. Without this methodological and conceptual adherence, health training could be insufficient. Accessibility and assurance of continuing education for all professionals, regardless of their rank in the profession, will also be key in ensuring that all teams prepare for future challenges that already appear today.

Similarly, F. Saavedra emphasizes that challenge-based learning will be a growing demand, especially in continuing and interdisciplinary education. However, he points out that current solutions tend to be individual, even though technology already enables collective experiences. The barrier is not technical, but rather of educational design and institutional will. Training and clinical practice will increasingly be based on collaboration between different areas and specialties.

For their part, E. Arrighi and A. León warn that professionals, due to lack of time and work pressure, prioritize technical content and reject improving their relational skills, such as communication or leadership. However, they recognize that new generations will have greater digital literacy, with increased access to data and a greater desire to actively participate in their own health. For this reason, collaborative decision-making between patients and professionals will become increasingly relevant while also acknowledging the urgency of including marginalized populations in education and prevention processes.

Learning will no longer be restricted to an initial stage of training but will develop steadily throughout the professional life. M. Rodríguez and L. El Amoud provide experiences on the use of microcredentials and gamification-based learning (such as escape rooms and clinical olympics) as resources that will be transformed into training activities to strengthen health education. They also highlight the importance of continuous learning as an axis of professionalization, including in managerial roles in health, as described by J. Azpiri, in which it will be essential to train medical personnel to exercise sustainable and transformative leadership.

According to R. Kearns, over the next five to ten years, personalized AI will transform learning, offering tools that will alter the way students access knowledge, many of them perhaps outside of education or healthcare regulation. This situation will require educators to be prepared not only to integrate these technologies but also to guide their critical use. He also foresees that regulatory and accreditation frameworks will have to become more flexible to enable shorter, more accessible, technologically enabled programs with modular and stackable credentials, both in initial training and in lifelong learning.

For her part, G. Alemán states that the combination of AI, robotics, and augmented and virtual reality is revolutionizing medical procedures, which even allows remote surgeries. However, she emphasizes that the key will be to humanize these tools, as technology without human interpretation and judgment is limited. She also predicts

that epigenetics and predictive medicine will play a progressive role in the diagnosis and treatment of patients.

A. Sedano reflects on the lessons learned from the pandemic, where the effectiveness of combining technology, open science, global collaboration, and human values such as accountability, solidarity, and commitment was evident. She says that although previous practices and routines have returned, people have changed. Health education must resume that fusion-collaboration model to move forward. As T. Espinal states, technology does not teach empathy or humanity, so an intentional synergy between both dimensions will be necessary.

Health education is envisioned as a modular, personalized, interdisciplinary experience enabled by technology, but deeply human. From this perspective, it will be essential to train not only competent clinical professionals but also leaders, communicators, managers, and citizens committed to equitable, preventive, and participatory health.

6. Conclusion

Health education has undergone a profound transformation, shifting from hierarchical, rigid models focused on teacher authority to more horizontal, empathetic approaches tailored to the individual needs of students. While generations of professionals are formed in an environment marked by accelerated changes and high levels of academic and personal demand, educational institutions begin to rethink teaching content and methods, as well as forms of emotional, wellness, and human development accompaniment. Learning can no longer be understood as a one-way transfer of knowledge, but as a comprehensive training experience.

Health training should not be limited to the clinical or technical part, since today it is essential to incorporate relational skills such as empathy, interdisciplinary work, and a deep understanding of the other, especially in complex contexts such as healthcare. Integrating technology has also been fundamental; however, this should not be seen as an end in itself, but rather as a tool that facilitates processes, releases operational loads, and creates more space for human interaction. However, this will only be possible if adequate digital literacy is guaranteed and technological skills are included in the training of future professionals.

Education must teach not only knowledge, but also how to continue learning, adapt to new technologies, treatments, epidemiological challenges, and social changes. This ability to continually update will be crucial in maintaining the quality of care, responding to unexpected crises, and treating people with humanity in an ever-changing world.

As E. Valencia-Borgert points out, education can no longer be thought of as a single vaccine applied in youth, but as a series of inoculations throughout life. This paradigm shift is indispensable in a landscape where knowledge is evolving at a rapid pace, and professionals must continually update themselves to stay current and competent.

L. El Amoud complements this view by affirming that continuous learning should not be understood only from the logic of employability or technical skills, but as a tool for integral human development. In a world affected by global crises, conflicts, climate change, and geopolitical tensions, learning is also an act of conscious citizenship.

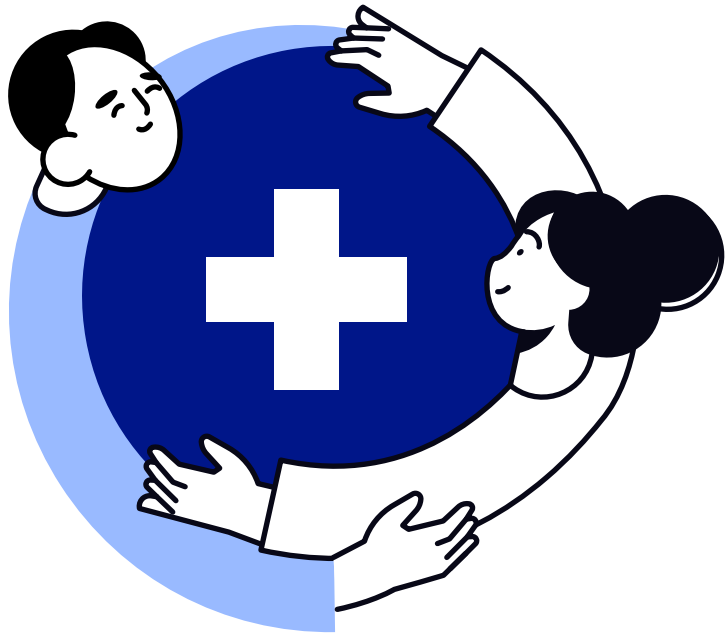
Moreover, B. Janssens anticipates a significant transformation in the type of diseases that health systems will face (from pathologies linked to aging to new infectious diseases associated with globalization and antimicrobial resistance). These conditions will require a more flexible medical training, with adaptability and a deep knowledge of molecular biology, genomics, and personalized medicine. In addition, he warns that AI tools will enable the development of automated and personalized courses that can adjust in real-time to individual learning needs, including immediate accreditation mechanisms.

In this new learning ecosystem, A. Heitzman suggests that AI could free professionals from repetitive or "mundane" tasks, allowing their creativity and critical thinking to be oriented to more complex problems. Oscar Estuardo Navas, Director of the High Level Business School (ENAN) of the Panamerican University of Guatemala, highlights the importance of alliances between institutions to democratize access to knowledge, share resources, and respond to the specific needs of certain contexts, such as Guatemala, where certain training offers do not yet have a presence.

The ethical and human dimension will be vital, because, as J. Alvarado indicates, technology has made the doctor-patient relationship impersonal and it is imperative to train professionals who are not only technically competent, but also "good

people," capable of listening, accompanying, and recognizing human suffering beyond the screens. J. Azpiri recognizes this need, as he questions a training focused exclusively on healing that does not promote health or prevent disease from a population perspective.

In summary, health education must combine technological innovation with human values, promote lifelong learning as part of professional and citizen practice, and integrate technical, ethical, and social knowledge to train professionals capable of responding to the evolving challenges of a globalized and diverse society. This is the only way to ensure truly comprehensive, equitable, and people-centered healthcare.



7. References

BBC. (n.d.). *What is AI, how does it work and why are some people concerned about it?* https://www.bbc.com/news/technology-65855333

García de Leonardo, C., Ruiz-Moral, R., Caballero, F., Cavaco, A., Moore, P., Dupuy, L., Pithon-Cyrino, A., Gorostegui, M., Loureiro, E., Bosch, J., Duarte, L., Kretzer, L., Arrighi, E., & Jovell, A. (2016). A Latin American, Portuguese and Spanish consensus on a core communication curriculum for undergraduate medical education. *BMC Medical Education, 16*(99). https://doi.org/10.1186/s12909-016-0610-8

IBM. (n.d.). *¿Qué son las alucinaciones de la IA?* https://www.ibm.com/mx-es/think/topics/ai-hallucinations

López-Ortiz, G., & Mazón-Ramírez, J.J. (2016). La importancia de la investigación clínica en Medicina Familiar. *Atención Familiar, 23*(3), 73-74. https://www.elsevier.es/es-revista-atencion-familiar-223-articulo-la-importancia-investigacion-clinica-medicina-S1405887116301274

Prados Castillejo, J. A. (2013). Telemedicina, una herramienta también para el médico de familia. *Atención Primaria, 45*(3), 129-132. https://doi.org/10.1016/j.aprim.2012.07.006

Serna Corredor, D. S., & Martínez Sánchez, L. M. (2018). La simulación en la educación médica, una alternativa para facilitar el aprendizaje. *Archivos de Medicina, 18(*2), 447-454. https://doi.org/10.30554/archmed.18.2.2624.2018

Stryker, C., & Kavlakoglu, E. (n.d.). *What is artificial intelligence (AI)?* IBM. www.ibm.com/think/topics/artificial-intelligence

8. Credits and Acknowledgements

Galician Agency for Health Knowledge
Mario Mosquera

Elsevier
Gabriel Antoja

Santo Tomás University in Chile
Fernando Saavedra
Cristian Moscoso

Catalan Society of Healthcare Management
Ramon Cunillera

Catalan Institute of Health
Roser Anglès
Dolors Sánchez
Carlos Plá

Catalan Institute of Oncology
Ángel Vidal

Vall d'Hebron University Hospital
Mónica Rodríguez

Sant Joan de Déu Hospital
José María Quintillá

Nanyang Technological University (NTU)
Joseph Sung

University of Marrakech Cadi Ayyad
Mohamed Khaled Choulli

AAUCA Afro-American University of Central Africa
Paulo Speller

WHO Academy
Bart Janssens

UPCEA
Amy Heitzman

St. Cloud State University
Elizabeth Valencia-Borgert

Johns Hopkins University School of Medicine
Robert Kearns

ACE (Adult Continuing Education) | University of Cork
Lyndsey El Amoud
Séamus Ó Tuama

University of Newcastle (UON)
Andrea Coda

San Francisco de Quito University
Enrique Terán

Méderi Hospital Network
Martha Lucía Ospina
Guillermo Sánchez
Nelson Sierra

Institute of Public Health of Mexico
Nenetzen Saavedra

Mondragón University
José Luis Alonso Andreano

High Level Business School (ENAN)
Panamerican University of Guatemala
Oscar Estuardo Navas
Jorge David Alvarado

Central American Technological University
Thania Lineth Espinal
Glenda Yadira Alemán

Universidad Siglo 21
Eugenia Giannini
Florencia Rubiolo
Fátima González Palau

University of the Republic of Uruguay
Fernando Harreguy
Annalet Viera

Caixa Andorrana de Seguretat Social (CASS)
Catalan Society of Digital Health
Sergi Iglesia

Cayetano Heredia University
José Raúl Ñaupari

Patient and Family University
Emilia Arrighi
Ana Paula León

Marta Abreu Central University of Las Villas
Estrella María de la Paz Martínez

TecSalud
Jorge Azpiri

Unió Consorci Formació (UCF)
Ana Sedano
Òscar Dalmau

IFE Europe
Miguel Ángel Montoya

Institute for the Future of Education (IFE)
José Escamilla de los Santos
Michael J. L. Fung
Jorge Eugenio Valdez
Verónica Sánchez Matadamas
Lyrema García Vera

IFE Observatory
Esteban Venegas Villanueva
Mariana Sofía Jiménez Nájera
Andrea Cristina Alvarez Pacheco
Nohemí Vilchis Treviño
Karina Fuerte Cortés
Christian Salvador Guijosa Ocegueda
Sofía García Bulle Garza
Melissa Guerra Jáuregui
Paulette Delgado Roybal
Rubí Román Salgado

Editorial Design
Quintanilla Ediciones

Translation and Proofreading
David Rodolfo Areyzaga Santana

Created by IFE Observatory for the Institute for the Future of Education and Unió Consorci Formació (UCF).

Tecnológico de Monterrey

Institute for the Future of Education

ucf UNIÓ CONSORCI FORMACIÓ

LAUNIÓ Associació d'Entitats Sanitàries i Socials

CSC Consorci de Salut i Social de Catalunya

Helix Healthcare education & learning innovation experiences

tec.mx/en/ife

DOI: https://doi.org/10.60473/ritec.143

January 2026