Engineering and health, two ways to reach a new social space

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The ongoing technological evolution and ever-increasing number of users are taking us to new, unexplored scenarios.

When we talk about health technologies we are in fact expressing a concept that involves everyone on this planet.

Within this new framework, we can thus structure our work as:

1.- Health. As pertains to increased quality of life with less overall economic burden. This not only referring to active professionals educated in the use of technologically oriented therapies, but also to the average user as indicator of our capability to use, prevent and access said technological advances in a timely fashion.

This concept therefore directly links to distance technologies, such as domotics or telemedicine. Hospitals, which we could term 2090 Hospitals, where everything is oriented towards a user-friendly environment that can be updated as needed. It is important to keep in mind that, if lifespan grows, this means that we are longer lived and greater in number, an scenario that only works if we use technology.

In order to correctly manage all these health related issues, professional training is a must. The only ethical way to acquire proper training is through simulation technologies in combination with veterinary teaching departments that, when properly planned and implemented represent the best complement to the system. This synergy allows not only the safe development of new techniques, but also professional training in them, greatly decreasing morbidity.

2.- Engineering. It is within the University Campus that all the above mentioned advances become a reality via the coordinated development with Health sciences as a whole. Here, all the new tools for the management of age-related lesions come into being. Lesions that, as population ages, will appear sooner or later in many elder users, as a reflection of the unstoppable changes happening in today's society.

Knowledge is therefore increasingly more abundant and easier to access, and it is necessary to correctly store and update it, since "We can't study to forget", and only through these capabilities can we improve. Continuous storage can be based on the human body architecture, anatomy, which is the foundation of Medicine, so that the health professional can get more time to perform its number one function: caring for the patient. Upon these

developments rests the capability of creating teaching spaces where longer procedures, over two hours, can be condensed in minutes, or structured in a way where access can easily and rapidly be obtained to whatever knowledge is needed each time.

Reviewing surgical processes is a vital part of teaching and improving knowledge, as well as creating markers that could be used to detect processes before irreversible consequences are reached. An example could be made in the case of the diabetic foot, which rates as the number one cause of limb amputation in the Canary Islands.

The possibility/necessity of gaining access to non-local health professionals, or the requirements of said professionals to keep quality knowledge updated determine the need of working with increasing technological advances for communication: videoconferences and clinical videoconsultations.

Drones and other transport uses will contribute to an easier relationship between the patients and his health with this engineering support: no-one can afford to be invisible in Health.

3.- The fourth space. This is the space created comprising all the concepts described above. Originally, some years ago, old age, that in Spain we call third age, was defined as that "extra" time lived by people that lived longer than their original life expectancy.

With the population growth from 3 million to 7.5 million people in just 50 years, the people comprising youth, that is, born and developing but who have not decided on a profession yet, will definitely change their definition of old age. This is a great majority of people under 20 today, and that will most probably live beyond 100 years, and they represent the reason behind the continuous need for updates in engineering, training and health sciences.

In summary, this Fourth Space is the one that will be occupied by all those citizens that are being born in the present and those who are under 18 years as of today.

The only way teaching and education become a meaningful reality is if we inform about a truth different from our own. Towards this end, methodologies based on both personal experience and engineering and health at large will help living in this new Space.

Age groups (Spaces) as we know them today need to work together globally, considering that those adults in our society, middle aged, will be required to learn new professions, some of which most probably are not even invented yet, so that education and knowledge can be formally transferred to life in the Fourth Space.

In summary, Engineering and Health need to go hand in hand to improve the Fourth Space.