# Conclusion

In the compilation of these research works, the existence of evaluation methods, techniques, instruments and strategies has been revealed that for many years have yielded excellent results in local, national and international educational contexts, for example. These positive experiences, between users/students and new technologies, together with the negative aspects collected over a long period of experimentation, have allowed the development of a diverse set of factors that positively favour education through the new media. The new media observed from the perspective of communicability, and taking into account the theoretical-practical heritage of social and computer communication, for more than four decades. Added also to the experiences accumulated in the field of the first off-line and online interactive multimedia systems.

In addition, throughout these pages it has been confirmed that there is a kind of parallel reality in many areas of educational and scientific knowledge. The latest health crisis has worked as a kind of trigger to bring to light many truths that lay hidden. Therefore, knowing the duality of this reality allows us to have an accurate vision of the feasible horizons in the short, medium and long term. All this, regardless of the announcements made, inside and outside, of academic and scientific institutions, resorting or not to new technologies. For this reason, before establishing collaboration links with national or international entities, a piece of advice associated with prudence is to consult these compilation works, since they contain a broad synchronic and diachronic vision of ICTs, centered on the human being. Although these entities or institutions may have an excellent online institutional image abroad and be very positively evaluated in social networks, the tangible reality tells us that little or nothing is known about it, its members and the *modus operandi* of the same, to mention a few examples.

Successful techniques have also been presented to motivate students in global emergency situations, whose contents range from art to comics, through computer animation cinema, to name a few examples. In the experiments carried out, the interest of young people belonging to the new generations has been verified in everything that has meant a radical change in the past or the implementation of new paradigms to follow in the immediate future. Therefore, the important role that knowledge of the evolution of science has to motivate future generations in the study and continuous learning is verified once again. Through this knowledge, the principles and rules that have masterfully guided scientific knowledge for decades can be revalued. Rules that today are not respected by the members of the Omega generation, for example, but that the new generations at least have the moral right to know about them. The current disinterest of young people towards science can be found in the behaviour of the Omega generation.

At the same time, the process of positively weighing traditional resources from cultural and natural heritage has been verified through some of the experiments carried out with the young participants. In other words, for them it has been like a kind of source of inspiration, to rebuild everything that has been destroyed in catastrophes, regardless of whether they have been natural or artificial. In addition, as one

of the immediate horizons of the future is quantum computing. This is a new era of computer science which can also facilitate the safeguarding of the environment and its inhabitants. As long as the paths to follow are correct, in the evolutionary processes of the investigations. At the same time, in these experiments it has been detected how the integration of human beings in the scientific and educational communities plays a fundamental role for the evolution of science, and in particular, science education.

Hence the need to include examples from the origins of interactive systems in the 20th century to the present day, to serve as a guide to everything that can be done and what needs to be avoided, so as not to fall into the same mistakes from the past. In this sense, resorting to history is advisable, remembering one of the famous phrases of Miguel de Cervantes Saavedra (author of Don Quixote) when he says: "... **truth,** whose **mother is history, who is the** rival **of time, depository of deeds, witness of the past, example and lesson to the present, and warning to the future."** It is precisely this fleeting or not review of the past which allows us to broaden our horizons towards a better future. Not only does it allow us to correctly judge the efforts made by the pioneers for the advancement of technology and science, but also to know how they have overcome all the obstacles of the historical context, which they have had to live through.

Simultaneously, literature, painting, comics, the press, cinema, television, video games, interactive systems, etc., have proven to be valid instruments to generate activities among young people of generation Z or Alpha. The new media should have these contents periodically adapted to the potential offered by the new software and hardware, in the wide range of computing devices, whether they are intelligent or not. However, these interactive and didactic contents must be carried out by those teachers who are dedicated to authentic teaching. In short, excluding those who are only dedicated to the task of boasting in social networks (for example, through counters, indexes, lists, and so forth, of doubtful veracity) and presenting themselves as the "owners of public universities" or hybrids.

Another modest but important consequence of the health crisis has been the return of students to simpler means of communication with each other, such as "unintelligent" or "dumb" multimedia telephony as many currently define it. This name derives because these cellular phones carry out the basic functions of the first mobile phones which today have been destined for the elderly. Therefore, many of the fashionable paradigms in certain elitist universities, which are located in the first positions of the statistics, will begin to decline, such as the abusive use of transmedia and video / photography applications, etc., within the classrooms, instead of generating genuine content according to the context in which they and their students are immersed.

With regard to these **statistical data, it is always necessary to be accompanied by "Mrs. Prudence", since 100% validity is non-existent, regardless of the type of plasma screen where these figures are shown. The same goes for the combination of algorithms used to** obtain such results. In other words, they are data and information that leave much to be desired, from the point of view of veracity, and that in our case of analysis extend from Alaska to Tierra del Fuego (American continent), and from Lisbon to Moscow (Eurasian continent). Particularly, when the propaganda mechanisms used within those study houses, to attract students or clients are discovered. In such situations, once again, the need to value quality over quantification is highlighted. In this sense, small changes are already being observed in social networks or search engines, such as the exclusion of negative opinion totals (YouTube), or the total number of times it is repeated on Internet pages, what is done by searching with Google, to mention two examples.

**With the passing of the millennium, the** era **of communicability began to** move, **which has already been oriented towards the "Quantic-Nanotechnological-Self-Sufficient" era.** Learning to use

interactive systems (usability) has been largely surpassed by the Z and Alpha generations. It is enough to observe the agility in the use of smartphones, tablet PCs, PCs, and so on, by these two generations. **The user experience** (UX), **together with the educationoriented HCI leaves much to be desired, when the consequences of human or social factors are seriously analyzed, in the infinite expansion from the formal and natural sciences in the field of social sciences.** This lack of respect for the epistemological limits towards the social sciences will lead to the end of the credibility of the works in the field of HCI and UX, as they have been known and defined in their origins. All this is due to the poor results observed with students, teachers, tutors, parents, etc., in pre- or post-pandemic times, particularly within the distance education sector.

The technical and/or pedagogical aspects of the pre-university environment that are related to the strategies for improving grades, in subjects and activities with greater difficulties, such as: mathematics, reading, writing, text comprehension, concentration of attention, etc.), will be aspects to be developed in the future. We also consider as a pending issue the establishment of norms and mechanisms through psychotherapists for the psychiatric and periodic evaluation of all the members of educational institutions, which are directly and indirectly related to the educational process, which ranges from pre-school age to the university, all included.

The subject of neuroscience is a line that will also be left open for development in the future, since it is necessary to establish precise limits. This is due to the interference of the field of new technologies (formal and natural sciences) in it. In this regard, it is necessary to remember that for decades there has been a constructive interrelation between social psychology, social communication, and neurosciences. The hypothetical specialists or experts in neurosciences and new technologies do not respect the epistemological limits of the sciences, such as the current cases of HCI, user experience, usability engineering, information retrieval, audiovisual, among many others. This compilation of works can serve as a guide for teachers of pre-university education, even if they do not have a great academic or classical training, to know the different points of view that the students they are training will have to face when some of them decide to study in college.

Before concluding, we dedicate all the effort made in this compilation of research works, experiments, reflections and guidelines for a better future, to all those, who for direct and indirect reasons with the pandemic, are no longer with us, eternally thanking their wise advice and all their good deeds. Below is the list of all of them, following a respectful alphabetical order: Angel Salada, Ignacio Aso, Ernesto Rivera, Daniela Busetto, Marco Romero, Monica Borgonovo, Montserrat Trepat, Nuria Pons, Paul Dubois, Peter Rowland, and Timothée Lambert.

Finally, there is this set of famous phrases, which can serve as a kind of compass in current and future times: *"Among the greatest sins that men commit, although some say it is pride, I say it is ingratitude, sticking to what is usually said. that hell is full of the ungrateful"* (Miguel de Cervantes Saavedra); *"To keep your character intact you cannot stoop to filthy acts. It makes it easier to stoop the next time"* (Katharine Hepburn); *"Never bend your head. Always hold it high. Look the world straight in the eye"* (Helen Keller); *"I was taught that the way of progress was neither swift nor easy"* (Marie Sktodowska Curie); *"Poor is the pupil who does not surpass his master"* (Leonardo da Vinci); *"Is there anyone so wise as to learn by the experience of others?"* (Voltaire); *"We should always allow some time to elapse, for time discloses the truth"* (Seneca); *"Let the future tell the truth, and evaluate each one according to his work and accomplishments. The present is theirs; the future, for which I have really worked, is mine"* (Nikola Tesla); and *"What in the world would we do without our libraries?* (Katharine Hepburn)