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Through the modernization of the sciences and education it can be seen how the technology-enhance human interaction in the so called modern society has disseminated progressively in the last three decades. All those who have been daily in contact with computers since that time are privileged witnesses of the switching from the use of the big computers in the government institutions, that is, universities, city halls, ministries, etc., first in the business, commercial, industrial context, etc. then in the home and finally in the personal and mobile domain (tablet PC, iPhone, etc.), whether it is individually or in a group.

In the decade of the '80s the role of each one of the members in the educational and computer science process, for instance, were very well defined. The team or individual work allowed to surmount the limitations imposed by the hardware in the personal computers, such as was the memory limitations of the processor, in the BASIC (Beginner's All-purpose Symbolic Instruction Code) programming of the early videogames, oriented at pastime and/or education. Those were artisanal and highly creative moments, where the printed listings of the programs were gone through many times with the purpose of optimizing the final versions, that is, the executable programs, once they were compiled, and with zero mistakes. An identical procedure for other programming languages such as Cobol (COmmon Business-Oriented Language), the Fortran (Formula Translation), the C (ANSI C), among others, oriented at the management of accountancy offices, centres of analysis of statistic data, warehouses of industrial components, to mention a couple of examples. In those times, in the public and private institutions, with a certain size, for the great investments in software and hardware, as were the calculation centres, many started as computer operators switching then to programmers, systems analysts, until becoming systems engineers. That is, it could be seen in time a logical and growing evolution of the professional role in the clearly computer science domain.

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In the educational context, the teachers started to develop the inclusion of computers in the teaching process. In this sense, it is to be stressed the excellent task developed by Seymour Papert, especially among children. In them he saw the need that they learned the use of the computers in an easy and entertaining way, and that at the same time they fostered the thought process. For which reason, together with Danny Bobrow and Wally Feuerzeig developed the Logo language. This programming language quickly became an exceptional tool to teach the process of thought and learning to the youngest, based on the graphics and basic geometry. A triangular cursor called turtle. The head will show the user where the cursor will move. The movements in the screen have different direction and/or actions (turn right, turn left, forwards, backwards, etc.) drawing lines with which the neophyte user see immediately what is the result of her actions.

Synthetically speaking, a turtle that fosters the use of graphics, the notion of recursivity and the making of listings. Without any doubt, the qualitative attribute of friendliness exists in the Logo, since it is related to the turtle and how to use it, as an object with which to think. Besides, from a didactic perspective and of programming, the Logo has a more structural method with regard to the first versions of BASIC. The BASIC constantly resorted to the “goto” command, which in programmes with a high number of programming lines required a long time to the programmers, systems analysts, etc., to locate the failings or programming errors derived from “goto”. In other words, the birth of Logo has been a bridge product where the human pillars like Seymour Papert, Marvin Minsky, Jean Piaget, among so many others, allowed a real intersection of the formal and factual sciences. An innovating space which with the passing of time has progressively disappeared in the children education domain and the New Information and Communication Technology (NICT) in the new millennium.

The computer aided education (CAE) allowed to train in private computer science academies located in the centre or the neighbourhoods of the main cities a myriad of future users of personal computers, especially in applications related with office automation, such as texts processors, broadsheets, databases, presentations, etc. With the appearance of the clone computers, that is, built by electronics, computer science technicians, etc. starting from each one of the components. Components which were made mainly in the Asian countries in the 90s. It was so that with the arrival of those personal computers to the home it was accelerated in an exponential way. The commercial videogames colonized the homes of millions of users thanks to the multimedia hardware advances, especially in the high quality graphic cards, fast speed processors,

CD/DVD readers, loudspeakers, joysticks, among other peripheral components of input/output. First it was a family fruition, and later on it became a personal fruition. Physically, in the south of Europe, first they were in the living room and later they moved to the sleeping room or studio. All of that happened at the late '80s and early '90s.

The quality of the commercial products in the domain of the hypertext, multimedia and hipermedia systems for education, general information, pastimes, etc., mainly, was very high given the limitations in the use of dynamic media (computer animations, video, music, etc.), because of the space they took in the off-line supports. These limitations would disappear as the Internet democratized and the wideband, especially in optic fibre, was expanding geographically speaking. Now in that democratizing process the user lost his ability to program because he entered naively in a high consumption spiral of multimedia titles, as if they were multiplex movies. In this sense, the audiovisual industry did not develop to generate qualitatively and quantitatively multimedia contents to meet the demand of the market which grew vertiginously.

Oddly enough all of this happened in spite of the financial assistance that existed from Brussels, and which many representatives of the decision or power groups had been trained in industrial schools or polytechnic universities. Once again the Achilles heel of those communities was the lack of originality or creativity of the rulers in the educational domain, the opacity in the actions of the public servants of the sector, the lack of vision of the future in the power groups, and equality of chances for those professionals capable of innovating the human-interaction in the modern societies. In few words, the contents were developed thousands of kilometers away with regard to where the potential users of those interactive systems were to be found.

We are in the face of the great failure of the educational model which linked to healthcare are the two main pillars of modern societies. These failed models or rather antimodels little by little were set in other overseas communities whose students and teacher did not have the latest technological novelties, had survived for centuries, though, without the mercantilist factor, in their study plans. The failure of those models is such in the places where they originated, that currently the PhD thesis in many modern societies are tantamount to the end of study projects of the engineering degrees or graduates of the 80s, obtained in many public universities of cities in the American continent. In this reality, even the words of a same language do not have the same meaning with reality, specifically when they are compared with the professionalism of the users located in the Old World and the American continent, for example.

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This linguistic gap, the division of classes in the population pyramid, the access to multimedia information, among other failures, have found in the multimedia mobile phones a kind of panacea to all the evils of regression in the quality of life inside the modernized communities or not. However, the central axis of the solutions goes through the human being.

A human being which daily sees the digital world that surrounds him grow and who starts not to distinguish at sight the real world from the virtual one. Therefore it is necessary to find a balance in this regard and for that it is necessary to know the technological evolution, that is, where we are, where we come from and where they want to take us. In this sense, our simple contribution has been to have a diachronic view (always placed in the reality of the of the time and without underrating the achievements obtained since the media or tools of that time will always be different to the current ones) and positive of the neutral technological advances applied to the development of training, health, interactive systems, free information online, social communication among others, and a very critical and denunciation perspective towards anything that damages the progressive advance aimed at fostering the common good of all humankind.

All the works that make up the current proceedings have been submitted since the start of 2014 until the end of 2016 in the following international events (conferences and/or workshop and/or symposium): ADNTIIC (Advances in New Technologies, Interactive Interfaces and Communicability), CCGIDIS (Communicability, Computer Graphics and Innovative Design for Interactive Systems), ESIHISE (Evolution of the Sciences, Informatics, Human Integration and Scientific Education), HCITISI (Human-Computer Interaction, Telecommunications, Informatics and Scientific Information), HCITOCH (Human-Computer Interaction, Tourism and Cultural Heritage), HIASCIT (Horizons for Information Architecture, Security and Cloud Intelligent Technology), MSIVISM (Multimedia, Scientific Information and Visualization for Information Systems and Metrics), RDINIDR (Research and Development in Imaging, Nanotechnology, Industrial Design and Robotics), and SETECEC (Software and Emerging Technologies for Education, Culture, Entertainment, and Commerce). The book is organized into 14 chapters. Now, a short summary of each one of them to indicate the main aspects and contributions of the work research carried out by their authors:

In Chapter 1, “UNESCO, Digital Library, Interactive Design, and Communicability: An Excellent Example Online” their authors Francisco V. Cipolla-Ficarra, Jim Carré and Valeria M. Ficarra, present a new category of interactive design called “eidomix”. Besides, they submit the results of the

evaluation of the communicability applied to one of the websites related to the online and free access dissemination such as the “World Digital Library”. A detailed examination allows to know the mainstays of the current website, regarded by its authors as an excellent example for online information, with regard to the dissemination of cultural heritage through the UNESCO. The results obtained in the current work have allowed them to elaborate a first guideline to create interactive contents. Contents where the culture variable is a constant value, especially oriented at the era of the expansion of communicability called “quantic-nanotechnological-self-sufficient”. Besides, for a better understanding of some notions, the authors have included a summary of the “UNESCO Declaration on Cultural Diversity.”

In Chapter 2, under the title “Biomedical Test Instruments: Usability, Ergonomy, and Communicability Assessment” the authors Francisco V. Cipolla-Ficarra and Jim Carré reveal the results of a heuristic evaluation between ergonomics, usability and communicability applied to an instrument of worldwide use, such as sugar measurer in the blood for those people with diabetes, especially of the Melitus II type. In the study are revealed the main difficulties in the use of those instruments, as the models change with the passing of time. It is also described in the case of the elderly population the motivations why several healthcare instruments (including those related to multimedia mobile phones) oriented at the self-control of health, require the constant assistance of another person to know the results of the tests made with said instruments.

In Chapter 3, the research work “Multimedia, Scientific Information, and Visualization for Information Systems and Metrics” the author studies the importance of quality in the communication process, mainly in interactive communication. Across the text are enumerated and explained some primary keys to easily detect the presence or absence of qualitative attributes in the online and/or offline interactive systems. In this regard they work with methods and techniques to work out metrics which measure the quality attributes under the formula “Low-Cost and High Quality”. Simultaneously, Francisco V. Cipolla-Ficarra presents some analysis strategies of the interactive design and the importance of making measurements, whose origins go back to the first systems of off-line multimedia, commercial, and with a world-wide dissemination, as well as the scientific information and visualization for information systems. Finally, the current research work contains a summary of the human and/or social factors which prevent a harmonious era of the expansion of communicability in the modern societies.

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In Chapter 4, “An Exemplary Interface for All” is the short title chosen by the authors, Francisco V. Cipolla-Ficarra, Alejandra Quiroga, Jim Carré and Jacqueline Alma, to highlight the qualities of a videogame that has surpassed a quarter of a century of life: SimCity. A videogame thought for the whole family, for instance, that has known how to adapt to the demands of the users in all these years, as well as the evolution of the hardware and the software. It is in this last component where the authors have focused the research, specifically in the study of the interface and the incorporation of the novelties coming from the social networks. With this purpose they present in a comprehensive way the importance of the isotopies to interrelate each one of the categories of the interactive design, starting by the interface. Besides, it is stressed how the application of semiotics in the design stage is positive for the potential videogames users. The set of chosen examples makes likeable and facilitates the understanding of the main and secondary topics that have been dealt with in the research.

In the Chapter 5, “A Lisibility Assessment for Mobile Phones,” Francisco V. Cipolla-Ficarra, Jacqueline Alma, and Jim Carré, stress the importance of the lisibility or readability factor in mobile phones, especially for the adult population. A series of experiments where they interrelated the notions of usability, ergonomics and communicability that are presented by abc to underline some of the main problems in the reading of contents, to which are exposed daily millions of users of mobile phones across our planet. From a theoretical point of view, the authors make a synthetic analysis of main design models of hypertextual systems, multimedia and hypermedia enunciated in the last decades. The purpose is the verification of the evolution along time of said models and whether they have been applied in our days in the field of multimedia mobile phones, for instance.

In Chapter 6, Francisco V. Cipolla-Ficarra, Alejandra Quiroga, and Valeria M. Ficarra are the authors of the research which they have called “Kernel of the Labyrinths Hypertextuals”. In it are established bidirectional relationships among literature, the social sciences and programming concepts in computer science. They study the semiotics notions such as the semantemes which have already allowed them to detect negative behaviour of the users in cyberspace. A diachronic analysis where literature interacts with the basic notions of the labyrinths, and the main aspects of the hypertext, today may become valid analysis instruments such as those used by the authors in the current research. A set of real examples has allowed them to verify the hypothesis set at the start of their research. This verification is pioneer in a first approximation

to detect illicit behaviour in the current social networks and the traditional Internet communication channels.

In Chapter 7, the rhetorical question “Digital Television and Senior Users: Design Evolution or Involution?” is the origin of the research work made by Francisco V. Cipolla-Ficarra, Jacqueline Alma, and Miguel Cipolla-Ficarra. Through it they activate some lab experiments to the purpose of detecting whether the triad simplicity, universality and ergonomics of the remote commands allows the access or not to the DTT in the 100% of potential viewers. The work has as a universe of study a random sample of elderly people in the south of Europe. The results obtained do not only point at the digital divide for ergonomic motivations, but also to the permanent fruition of the audiovisual contents. Finally, in the learned lessons and the conclusions there are some research lines for the immediate future tending to solve the problems detected in the current research, in the context of interactive design, ergonomics, usability and communicability among others to reduce the gap between potential users and new technologies.

In Chapter 8, the study “Computer Animation for Ingenious Revival” underlines the importance of computer graphics and especially computer animation in the historical reconstruction of ingenious, stored for centuries in paper support. Francisco V. Cipolla-Ficarra and Miguel Cipolla-Ficarra are the authors of the chapter where gradually are disclosed the advantages of the user of computer graphics notions to reproduce in 3D and animation, starting from graphics, sketches, two-way plans, belonging to mechanisms of complex accuracy of the cultural heritage of humankind, such as: machines to extract water, water clocks, musical automats, etc. Across the chapter it is also researched about the traditional importance and the differences between emulation and simulation of reality through computer graphics, when that reality is depicted in the many devices of the last generation screens. Lastly, in the study is determined the intensity of the communicability in the naturalness of the metaphor, and the reusability of the information, from which is inferred not only the informative aspect of the studied interactive system but also its didactic component.

In Chapter 9, with the title “Poiesis and Video Games for Adults: A Good Example for the Cultural Heritage” its authors, Francisco V. Cipolla-Ficarra, Jacqueline Alma, Miguel Cipolla-Ficarra, and Jim Carré, examine the Greek notion of poiesis in the creative process of the videogames. Consequently, they carry out an evaluation with adult users at the moment of interacting with a videogame, in all its versions across its history. Experiments which

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interrelate poiesis with communicability and usability. The distribution aspects of the basic components in the interfaces and the usability are analyzed in detail from the start. Besides, the theoretical aspects of the chapter have a wide set of references which allows the interested reader to keep on delving on the presented topics, if so wishes. The figures that accompany the text boost the presentation of the subjects that are developed gradually from the start. Also indirectly are revealed the tactics of interactive design, used in a videogame that has been adapting itself to the passing of time and the revolution of the ICTs.

In Chapter 10, the authors, Francisco V. Cipolla-Ficara and Valeria M. Ficara respond to the question “*Quo Vadis* ‘Interaction Design and Children’ in Europe?” through the current work. In it is analyzed the context of interactive design aimed at the EU children in the university research. The purpose is to detect the presence of absence of neutrality of the formal and factual sciences in this kind of studies related to the human-computer interaction for children; the fostering of the digital divide in Europe: the butterfly effects in ICTs among other topics. In this sense the work is oriented mainly at the academic domain and the transfer of technologies in the south of Europe. Also is researched the genesis, constitution, promotion and realization of the international events –conferences, workshops, symposiums, etc., or the conformation of scientific publications, for instance, magazines, handbooks, etc., whose main and/or secondary topics are related to the eventual answer to the rhetorical question. Besides, the *modus operandi* is investigated of the members of the different committees of the events/publications in the face of the appearance of an eventual or potential competition inside the HCI sector and the new technologies. Lastly, is examined a heuristic equation for the professional activities in an autonomous way.

In Chapter 11, the authors of the work “Anti-Models for Architectural Graphic Expression and UX Education” are Francisco V. Cipolla-Ficara, Jim Carré, Alejandra Quiroga, and Valeria M. Ficara. It is a work that examines how in certain educational environments, especially the industrial schools, depending on the universities, sometimes the creativity in the offer of courses and pedagogical solutions does not exist. The authors indicate the techniques and tactics used by power groups that act from public universities in the coast of the European Mediterranean. They also indicate how they manipulate daily public opinion, with regard to the ICTs, human-computer interaction, UX, Architectural Graphic Expression, CAD, etc., in the traditional media, such as: magazines, newspapers, radios, etc., and in the social networks, in the local, national, regional, European and international environment, with the

purpose of expanding real educational antimodels within and without their national borders. Finally, the authors describe the profile of the dynamic persuader and his negative actions, which from the university website fosters wild mercantilism in education and the need of the fact checking in the educational and scientific community.

In Chapter 12, “Free Emails in Bad Portals” is the title chosen by the authors, Francisco V. Cipolla-Ficarra, Alejandra Quiroga, and Valeria M. Ficarra, to study the phenomenon of the loss of quality in the information contents of the websites where free email services are offered. The authors carry out a detailed study of the evolution of the websites, the categories of interactive design, the online news service, among other main and secondary subjects such as: “Browsers: A commercial and informatics evolution”; “Textual information news plagiarism and manipulation”; “Visual design: Topology of the information elements in the user interface and international connotations”; “An analysis of the content of the website by communicability experts”, etc. The chosen universe of study in the Yahoo Spain portal. Besides, they investigate how in the new century there is a trend towards a radial and centralized structure in each one of the interactive design categories of those portals. Lastly, they present a series of examples where the objectivity of the online information does not exist as well as the first results of the evaluations made with users.

In Chapter 13, Francisco V. Cipolla-Ficarra, Valeria M. Ficarra, and Miguel Cipolla-Ficarra are the authors of an analysis strategy called “Inverted Semanteme,” reason for which they have titled their work “Inverted Semanteme into Financial Information Online.” It is through semiotics and linguistics from where they have been able to elaborate the strategy they explain in the chapter, accompanied by figures of real cases. It is a tool that allows them to verify the veracity of the financial information in the Spanish portals, with ISO quality certificates, with a high rate of reliability and with reduced costs. In the analysis carried out in a former firm, it denotes the lack of credibility in the ISO certification and the damage to the image of the institutions that back said portals through their logos. Simultaneously are investigated the social factors that damage the communicability and credibility of the current financial information when it is false, putting a brake on economic recovery in the modern societies after the international financial crisis initiated in the past decade.

In Chapter 14, through the notions stemming from semiotics, descriptive statistics, online interactive design and communicability, the authors, Francisco V. Cipolla-Ficarra, Alejandra Quiroga, Jim Carré and Valeria M. Ficarra,

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of the work “Statistics and Graphics Online: Links Between Information in Newspapers and User Experience Evaluation” have decided to establish a bridge of analysis of the iconicity of the statistic graphics belonging to the Spanish digital newspapers, and the interaction of the users with that modality of online information. In the research work the authors stress the importance of computer graphics, and the validity of the graphics with statistic data, by using funny vignettes, pictures, maps, etc., which accompany the online information texts. It is also stressed the importance of including 3D computer graphics techniques to boost the communicability of the figures among the readers of the online information. The wealth of examples which make up the current chapter is accompanied by the results of the evaluation by the readers of the newspapers.

All these research works that wouldn't have been possible without the collaboration of a human team that has known how to adapt itself to myriad adversities, originated from the outside by those who oppose the freedom of the democratization of scientific knowledge, in the great global village, and the equality of the human beings which must continue to exist in the new millennium. In the view of those exogenous factors alien to our will, we can only say that we will keep on rowing in the middle of the wonderful and universal tsunami of the new technologies and all their derivations. Once again, thanks a lot to all those who believe in foster our modest and very honest effort for over a quarter of a century.

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