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Communication and information in a virtualising world. Foreseeable developments and functions

La comunicación y la información en un mundo que se virtualiza. Desarrollos y funciones previsibles

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The world virtualises the moment information and communication accompany or substitute face-to-face activities. Personal relations are virtualised and so are daily-life activities. Prospective is used here to envisage alternative futures, which will be possible in a virtualised world, while anthropology serves to assess which futures are desirable or not in the horizon of a more humanised world. Scientific and deontological criteria are analysed so teaching and communicative practices contribute to make the desirable future is possible.

KEYWORDS: Virtualisation, social mediations, social production of communication.

El mundo se virtualiza cuando la información y la comunicación acompañan o sustituyen actividades presenciales. Se virtualizan las relaciones personales y también las actividades de la vida cotidiana. Aquí se recurre a la prospectiva para prever los futuros alternativos que serán posibles en un mundo virtualizado, y a la antropología para valorar los que son y no son deseables, en el horizonte de un mundo más humanizado. Se analizan criterios científicos y deontológicos para que la docencia y las prácticas comunicativas contribuyan a que el futuro deseable sea posible.

PALABRAS CLAVE: Virtualización, mediaciones sociales, producción social de comunicación.

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INTRODUCTION

Digital networks have made it possible to establish a virtual space –the environment where Internet users may build relationships and operate with the information at the same time–. In the perspective of their social applications, I hereby define virtualisation as the use of communicative and informative resources to complement or substitute face-to-face activities: 1) Personal relationships; and 2) Daily-life activities are virtualised:

- 1) This is the case of personal relationships every time contacts are developed through the Internet, as it happens, for instance, in this fictional story:

On HIS birthday, HE sends HER a message through WhatsApp from his working place. HE asks HER to order a cake through the Internet to be home-delivered because HE will not make it on time to go to the bakery shop. She accesses the store's website, chooses the cake, orders it and pays for it through the Internet. A courier delivers the cake, and when HE arrives home, SHE receives him with a kiss.

All actions that have been virtualised have been underlined in these interactions. The delivery of the cake has not been underlined as it requires the physical transportation of an object. Neither has been underlined the kiss as it implies physical contact between actors.

- 2) Daily-life activities are virtualised to the extent that actions may be controlled or substituted by digitalised actions.

Actions necessarily requiring physical interaction may not be digitalised –whether they occur in the environment or affecting objects or people–.

Communication and/or information are the resources used to virtualise both the personal relationships and daily-life activities. This universal implication justifies the title of this paper.

COMMUNICATION AND INFORMATION IN A VIRTUALISING WORLD

Referential and multidirectional technologies have enabled virtualisation.² As it will be proven, they allow us to link information, social action and organizations. But the results of this incorporation are multiplicative and not merely summative, since such dimension are –at times– interchangeable. This applies:

- When face-to-face communication is substituted by virtual communication.
- When action is substituted by information, and vice versa.
- When institutions are computerised, and, in this sense, physical organisations are transformed into online programmes.

Social mediation is the action operating with these dimensions. “Mediating” means “operating with the action that transforms, the information that shapes, and the social organisation that links, to introduce a design” (Martín Serrano, 2007a). Virtualisation has removed –material and technical– barriers that limited the binding, shaping and transforming the role of social mediation. Nowadays, they are involved in socio-historical changes, which are irreversible social transformations. This is why they are so influential.³

² Referential technologies provide images, sounds –which have been collected from venues, people, objects– about what they are informing; which are being received simultaneously to the moment they are being collected. In most cases, Internet users may identify, understand and interpret the information contained in the narratives by themselves. Multidirectional technologies have made it possible that any person can act as a mediator. Users may introduce, eliminate, select, modify or spread oral, written and image material in networks (Martín Serrano (1986/2004).

³ In this case, social mediation is an action that contributes to making virtualisation inevitable, continuous and perdurable, while virtualisable activities and interaction exist.

The analysis of socio-historical changes must bear in mind the transformation capacity that social mediation has at any given time. It may now influence these changes at two different levels:

- At the level of social organisations, when mediation affects the way its members relate. These are socio-genetic effects.
- At the level of the nature of our species, when mediation affects the patterns regulating the interactions among humans. These are anthropogenic effects.⁴

The research of such changes requires the epistemological review of the theories providing the analysis criteria and concepts, as research aims have been transformed with virtualisation.⁵

Virtualisation is a process in course. In order to foresee the manner, it may be used and its defects, prospective methodologies must be employed. Such methods are based on the Systems Theory, with which

⁴ Difference between socio-genetic and anthropogenic effects in communication, by Martín Serrano (2007b). Socio-genetic effects affect humanisation, which is the functioning and transformation of societies according to the different rules, beliefs and values in force. Anthropogenic effects that have intervened in hominization, which have set the evolutionary characteristics that differentiate human beings from non-human anthropoids. For further information on these effects, please refer to the book mentioned above, chapter 24: “La comunicación en el estudio de la vida y de la sociedad” (pp. 301-321).

⁵ The transformation of research aims is the opportunity for the development of epistemologies and theories. For the paradigm of social mediation (Martín Serrano, 1977c), virtualisation has been the reason to this development, a review that made it possible to write this paper.

There are other publications I have written that serve as a basis for this paper, which are referenced along the article and included in the bibliography section, where links related to these works are provided. This represents a very complete analysis of the content and the development of these epistemological and theoretical proposals, made by other authors, which may be read and downloaded at VV.AA. (2011).

“future scenarios” are created –different scenarios or alternative futures, if preferred– (Martín Serrano, 1976). Since the success or failure of such forecasts can be eventually checked over time, the prospective is a verifiable methodology. In fact, this is the only scientific method to study changing systems.

In order to build up the scenarios, I have developed models that derive from the paradigm of social mediation. They are reproduced and described at Miklos & Arroyo (2016). Table 1 indicates the way they have been applied.

TABLE 1
APPLICATION OF THE SCENARIO ANALYSIS IN THIS PAPER

Scenarios are based on the existing knowledge about the changes reported in the part and those occurring at present times. They are applied in three stages:

- 1) Scenarios that could be considered as likely or unlikely are foreseen. In order to do so, change resistance and trends of social systems are taken into consideration.
- 2) The probability that the different scenarios defined as likely become true is analysed. To this end, the unresolved demands and conflicts, which compromise the functioning of the societies, are identified.
- 3) Finally, desirable and undesirable scenarios are assessed.

Source: the author.

Performing prospective studies require a corresponding retrospective analysis, since future scenarios –as shown in Table 1– must identify the factors involved in the socio-historical changes being studied.

The retrospective time that must be considered to perform the prospective forecasts described in this paper compromises the last half-century. During this time, audiovisual communication becomes referential, and unidirectional communication becomes multidirectional, which are –as mentioned before– the innovations that

made virtualisation possible. The development of these performances and its applications is related to an extraordinary socio-historical change –the transformation of industrial societies into globalised monopolies–.

The retrospective analysis of this transformation, which is –at the same time– technological, scientific and social, is presented in another article published in this very same journal under the title *When and how did the Theory of Communication become Scientific* Martín Serrano (2019),⁶

In order to elaborate the “future scenarios” that may be related to virtualisation, the way it is being operated has been checked at all levels of mediation:

1. The way the mediation of interactions is affecting social action.
2. The way it is affecting social relationships.
3. The way organisations and institutions are mediating.
4. The way mediation is being used to implement and develop globalised social order in daily life.
5. What are the visions on the social uses of technologies that legitimate such mediation, and that are in force. Humanist and post-humanist visions are described.
6. Finally, the way the debate among these visions may be carried out.

These are the mediating activities that will be further examined in this paper. In view of the results, theory and communicative practices play an important role in conclusions when the world virtualises.

The way the mediation of interactions is affecting social action

It has been confirmed that activities and relationships that prior to the emergence of digital networks could only be performed face-to-face are now being transferred to virtual spaces.

⁶ The retrospective view of “When and how did the Theory of Communication become scientific”, together with the view of this present prospective paper, jointly represent a diachronic study of a single process. They range from its origin and projects the socio-historical transformation into the future, where information and communication are being built up on inevitable supports of action, organisation and relation.

The substitution of action for information is like a coin, –two inseparable sides opposed–. This simultaneously creates advantages and disadvantages:

- The main advantages provided by the virtualisation of actions are already known, the number of participants to the interactions as well as their frequency have increased. Please note this only occurs in the “virtual” space.
- Disadvantages emerge when people stop acting as agents –materially involved in activities changing the world– to become either mere observers of the network and what is happening in the world, or a chorus that approves or disapproves (online) what others do.

Digitalisation may limit the participation in face-to-face interactions. It would be convenient to take into consideration that face-to-face relations serve specific purposes in the human development that are not virtualisable, although in some cases they might incorporate contacts through networks. Face-to-face interactions are required for the development of biological and cognitive competence (praxeological abilities regarding space orientation, among others); ontogenetic capacities (for instance, in the configuration of identities and social distance); or relational abilities (for instance, in courtship rituals of collective participation). The deficit of face-to-face interactions in these fields will have sociogenic effects as well as anthropogenic effects. Psychologies –genetic, evolutionary, cognitive and differential– provide knowledge and criteria to prove this.

It is noteworthy that most of us are participating in *the virtualisation of existence*, –apparently in an enthusiastic way–. Please note that, bearing in mind that the population is used to exchange messages through WhatsApp, anywhere and anytime. This *virtualosis* characterises a globalised pandemic. It must be assumed that over time a better balance will be restored between *doing things* or *telling the things that are done*. And this will be so as long as operating with WhatsApp becomes an annoying habit. In any case, the extension of the virtualosis at a global scale has a predictable limit that will be reached when the digital divide

is closed. This will happen when every person with the ability to use digital networks may use them for his/her interactions with any other person.

In general terms, the virtualization of a face-to-face activity saves time. However, since existential time is not elastic, the more time it is devoted to online activities, the less total time it is devoted to face-to-face activities. This distribution of time may be measured in absolute or relative quantities to build up indicators of the virtualisation of activities. This process is already producing structural or functional modifications in societies, which are sociogenic transformations.⁷

The way the virtualisation of interactions is mediating in the configuration of social relations

The importance of social interactions may be differentiated on the basis of their functions, which are related to the proximity of the link existing among the agents of the communication (see Table 2).

TABLE 2 CORRESPONDENCE BETWEEN THE IMPORTANCE OF SOCIAL INTERACTIONS AND THE PROXIMITY OF THE LINK EXISTING AMONG THE AGENTS OF COMMUNICATION		
Interactions according to functions		Links according to their proximity (examples)
1)	Intimate	Partners
2)	Cooperative	Family; Friends
3)	Instrumental	Acquaintances (not friends); Among acquaintances

Source: the author.

⁷ The “Social Identities and Communication” Research Group of the Universidad Complutense, directed by Professor Olivia Velarde, PhD, is currently performing this study on the structural and functional modifications of societies with relation to virtualisation, as part of the research entitled “The Uses of Time Concerning Virtualisation. Generational Transformations”.

These correspondences create a “system of social distances”.⁸ This is the way it works in the following example.

1. With partners, we have intimate relationships, which eventually may be cooperative and instrumental.
2. With relatives and friends, we keep cooperative and –sometimes– instrumental relationships; but no intimate relationships are reported.
3. With acquaintances or people we do not know, we just have instrumental relationships.

This configuration of social distances is reflected in the topics of interpersonal communication. This may be observed when the information that is exchanged is analysed. In theory, such correspondences may be altered in virtual interactions. For instance, intimate content is shared in communication with friends, and/or acquaintances or unknown people through digital networks. Or even when acquaintances deal with instrumental aspects that are usually shared with friends and relatives.

These verifications have already been initiated. The reference objects on the basis on which communication on the Internet takes place have been identified, according to the link existing among communication agents. The results, so far, determine that the system of social distances regulating face-to-face interactions are operating in virtual interactions (Velarde, Bernete & Casas-Mas, 2019; Velarde & Casas-Mas, 2018). It would be necessary to periodically repeat these verifications for – maybe– several generations because the reproduction or the change

⁸ “The social distances” are analyses introduced by Von Uexküll, founder of Animal Ecology. Regarding the existential sphere of every person, it is important to highlight three different interaction environments represented in concentric circles. Such circles differentiate the spaces in relation with the rest at a cognitive, affective and behavioural level. These differences reflect the perception we have about the way the relationships with other people may affect the “external world” in which we develop our “inner world”, Von Uexküll (1909).

of the configuration social distances have is a matter of importance for the human sciences. Such a relevance is due to the following: the differences among the functions that meet the interactions according to the link existing among the people, which is a behavioural pattern. This pattern regulates the organisation and functioning of human societies from the beginning of the anthropogenesis, and it has a reproductive value, since it contributes to the preservation of the group, its human, symbolic and material resources; as well as to collective and individual security (Martín Serrano, 2007b).⁹

Anthropogenic patterns establish limits that cannot go beyond the structural and functional changes of societies (sociogenic changes). This limitation will only disappear in the case such sociogenic changes are reflected in human selection (Martín Serrano, 2007b).¹⁰

The most consistent forecast from the point of view of anthropogenesis is the following, the system of social distances that establishes face-to-face communication will continue to regulate virtual communication, because any changes reported in this configuration of social relations require adaptive transformations in our species, which imply the passage of many generations in case this happens. Such a hypothesis will be verifiable in the future.

The way virtualisation is being mediated by organisations and institutions

Through their policies to transfer contacts and formalities with citizens to the virtual space, public and private institutions are taking ownership of greater proportions of our activities and our time. They are contributing to disproportionately limit the part of our existence happening in the physical world. But what is really interesting now about the virtualisation of the relations between the administration and

⁹ Social distances are a manifestation in the human species of “the affinities”. I have subsequently used this term to refer to the hereditary pattern regulating intraspecific and interspecific interactions according to the links. Affinities overdetermine the transformation of animal communication into human. Developed in Martín Serrano (2007b).

¹⁰ For further information, read Martín Serrano (2007b).

its users are the social consequences that may be related to the fact that the administrations are accumulating information on the characteristics and activities of all citizens.

This concern has existed since the eighties of the last century, before the emergence of the “network of networks”, when it was impossible to suspect the benefits the digitalised system to be called the “Internet” would provide. But it was assumed that a system for the exchange of information would be implemented that would make it possible to unify, process and store information files. In addition, we could also predict that this advancement would be replicated –at a social organisational level– in an increasing integration of social sub-systems that operated with relative independence to date. Specifically, it was envisaged that this integration would affect cognitive, communicative, action and cultural sub-systems.¹¹

It was projected that the technological network would forge links between the cognitive, expressive, executive and assessing activities. They could all be integrated in a system of accumulation, production, processing and distribution of energy, information and codes. But this link did not imply that understanding would be the same as expression, nor that both could be identical to performance, nor all of them would be similar to knowledge preservation.¹² So “the new era” –as it was

¹¹ In 1985 the prospective book *Nuevas Tecnologías en la Vida Cultural Española* (Martín Serrano, 1985) was published, which includes a chapter under the title “Technological innovation, social change and social control” (pp. 203-212), where it is described the “future scenario” in which links and its predictable social consequences are described. These forecasts were based on the fact that it would be possible that “a concept could be translated into a sign, a sign as an element triggering an action, and all of them grouped together into a single operational system with formalised rules and a repertoire that could remain in the memory” (p. 209). The forecasts that time has confirmed are references taken into consideration in this paper.

¹² The integration of social sub-systems reduces their autonomy, but does not destroy them, because the cognitive functioning responds to different laws from the ones operating in the communicative exchange, both differentiated

described then– would be the “time of connection” and not –as it was supposed to be– “the time of communication”. “It is extremely dangerous to confuse these practices, because the first does not necessarily guarantee the second” (Martín Serrano, 1985, p. 209).

In a network system, this integration process of social sub-systems affects everything that can be computerised. But everything that can be computerised may be controlled. This is an observation that I believe could be interpreted as a postulate, *if we are computerised, we are controlled*. The dimension this process may reach is reflected in the following quote:

We may computerise anything that could be:
Expressed and/or executed and/or organised and/or stored
But everything that can be computerised may be coded. And everything that is coded may be controlled (Martín Serrano, 1985, p. 210).

Controls have increased the influence capacity of mediators when they may intervene simultaneously in a set of social sub-systems while operating with the information.

The progressive integration of social sub-systems is one of the deepest socio-historical changes one can expect from virtualisation. The fact that everything that can be expressed, executed or organised may be coded or stored in memories is an extraordinary contribution to technologies. It also provides the opportunity to increase existential options and people’s autonomy. This paper subsequently describes the way these features may be used to advance towards the humanisation of societies.¹³ But this integration also enables the control of institutions over individuals and collectives –an undesired scenario, but likely to happen as it is explored below–.

from the ones governing in social behavior, and all of them different from the ones found in the preservation of knowledge and believes. See Martín Serrano (1985).

¹³ “Humanisation is the production of tools, culture, and different and complex social organisations. Organisations regulated by rules, believes and values (Martín Serrano, 2007b, p. 165).

In so far as sub-systems that operate with information from citizens link up, it is necessary to provide centralised follow-up of all public and private activities from which institutions collect information. As it is known, data protection laws limit the integration and the use of computerised data by public and private organisations, they limit, but they do not avoid. We are subject to “voluntary” and “imposed” controls over private information and our activities.¹⁴ In the face of choosing whether to favour security over privacy, criteria may vary depending on the circumstances.

The point is that this integration –although it is illegal– is already possible. And if something is possible, it may be put into practice, which is usually the case. This is because laws may be changed and may be violated. There are government agencies whose main function is precisely to control private information without controlling it.

There is a link between the virtualisation of citizens’ relations with the public or private organisations and *Leviathan*, which is the world of full integration where institutions fully control the existence to perpetuate themselves (Hobbes, 1651/2009). This nightmare would come true if it were obligatory to provide information revealing the “Big Brother” the knowledge, the relations and the activities of collectives and people because the follow-up and the assessment of these data will determine the position and performance of each individual.

Politicians should be aware of the risk to which they expose humankind when they promote that the (technological) capacity to computerise becomes (political) coercion. Should a new Hitler reach power and decide to select and locate his/her particular candidate to “the final solution”, he/she will find no obstacle. It would be enough to

¹⁴ - There are controls “voluntarily” accepted”: For instance, when they represent a necessary condition to use essential services, such as email. Please remember the information retained and used by Google about our habits, preferences and locations.

- And there are “imposed” controls. As is known, they are mainly applied for security reasons. For example, digital passports and CCTV cameras, which create databases at a global scale, while they are used at the same time.

connect the data banks referred to citizenship, police, treasury, health care systems and justice.

The way in which mediation is used to implement and develop the globalised social order in daily life

Ever since the emergence of the stage of global monopoly in which we are currently living, the crises have become fix in daily life without interruption. The current order is continuously reorganising the functioning of societies at all levels. This rhythm is incompatible with the time required to reorganise social institutions existing between families and educational systems. In addition, there is no sufficient time to stabilise the changes in values, which must correspond with such reorganisations. As a consequence, social values and organisations that have become stable transform into temporal life frameworks, which are conceived to be consistent and evolve in an asynchronous and dissonant manner (Martín Serrano, 2007a). In such a dissonant scenario, social mediation is used to promote adjustments, and this is done –as stated– by linking communicative, executive and organisational actions.

Such imbalances are structural, but they affect existence and particular relationships because they require both deep and quick transformations of individual and collective subjects. Communicative mediation is a resource serving these transformations when they are used to help people adapt to *living in the change*. This happens when crises are described as an inevitable consequence of society adaptations to the constant technological advancements and they are valued as the price one must pay for well-being and freedom.

In these narratives, it is taken for granted that there is no alternative to this state of institutionalised crisis, and it is suggested that people readjust themselves to adapt to living in a permanent status of crisis, without questioning the global system.

It is expected that each individual can change his/her life and “change him/herself” as many times as necessary.¹⁵ This mediation

¹⁵ The analysis of the content of the narratives of public communication is a common line of research in papers and doctoral theses in our academic field. These references allow us to monitor the way crises are represented

presents the structural imbalances that make people unhappy, as if they were originated and resolved by simply changing moods or behaviours. In this way, the conflicts that could confront citizens and institutions are transferred to the interpersonal relationships.¹⁶

The transformations in the forms of production create structural imbalances that are reflected in social stratification. They are at the origin of the depreciation of the economic value of youngsters, which lasts until the moment they find a stable job (Martín Serrano, 2005). But this mainly affects elderly people, because the depreciation of their value is irreversible for them (Martín Serrano, 2003). This also relates with the main criterion for women's social valuation, which is now linked to labour activity (Martín Serrano, 2008) and with population movements that massively displace those who are trying to escape from hunger and war.¹⁷ For all that, in Spain and other countries of the European Union, the management of marginalisation and anonymity created by the globalised monopoly capitalism is mostly transferred to the following interpersonal relationships:

and what are the adaptations required. The following narrative offers a repeated example:

New technologies improve the management of our daily life. They expand our social networks. They provide training and employment. If, despite all this, we fail to have control over our time, find a partner, or the relationship does not last long, or we do not manage to invent the Internet application that allows us to find a job, we may infer that this is because we are not capable of doing so. Or even worse: we are obsolete.

- ¹⁶ For instance: the closest correlation with family violence is given with structural factors. In Spain: with work overload, long commuting times, unemployment, alcoholism... these determinants are rarely mentioned in public communication. Violences "are explained" as the manifestation of a confrontation according to gender; and lastly as the competence between genders (Velarde & Martín Serrano, 2009).
- ¹⁷ The rise of nationalisms promotes the decomposition of the European Union and the fragmentation of some countries, such as Spain. Immigration is one of the determining causes.

- 1) From youngsters to adults, both of age. Imbalances represented as “generational conflicts”.
- 2) Between men and women. Defined as “gender conflicts”.
- 3) Among natives or legal immigrants with illegal immigrants. Described as “cultural conflicts”.

Communicative institutions assume their mediating function in this collective adjustment. They generate and spread public information for private consumption. But private information is frequently made public by, for instance, reproducing contents in social networks. In most cases, such information leads to the same type of cognitive mediation. It interprets the structural imbalances as private conflicts. The system analysis proves that this could not be done in any other way. When present in networks, many people, who belong to the population as a whole, participate in a debate theme –as it happens in this case– redundancy and stereotypes are multiplied, and representations aligned with the “established order” prevail.¹⁸

At the same time, a productive sector devoted to adjustment has been developed. People pay and receive for free the help of specialised mediators (social assistants, for instance) in the face of defeats, anomies or conflicts. For example, those who, as children have failed in their studies, usually take drugs or divorce as adults.¹⁹

¹⁸ The moment communication stopped being unidirectional, agents started participating as message issuer in the social production of communication. We hoped or feared –depending on the case– that their contributions to the visions of the world were more informed and more informative than those prevailing. That was an erroneous conclusion. This may be checked at Martín Serrano (2015).

¹⁹ “An important and increasing part of social resources coming from different origins –private, public or volunteering– are devoted to mediating activities. Investments in infrastructures, services and goods for social mediation have a reproductive use, as they are necessary to guarantee the socio-economic model lasts. And they are also productive as any other investment. The management of the collective adjustment reproduces consensus as well as benefits” (Martín Serrano, 2007^a, p. 18).

In this scenario, advertising continues to perform mediating functions. It illustrates how one must settle. In other words, it shows how to be and how to do, what to desire and what to have in each moment in line with the variety of values and ways of living.

HUMANIST AND POST-HUMANIST VIEWS OF SOCIAL USES OF TECHNOLOGIES IN FORCE

Ever since the beginning of the Industrialisation, the uses of technologies are involved in two opposed visions of society and people transformations. This debate is presented in the following terms, whether technologies must be incorporated and used under humanistic or instrumental criteria. Both visions are described below.

Humanist approaches on the social uses of technologies

Humanisms are the anthropologies of Modern times. In the 18th century, the Enlightenment conferred upon them the status of political agenda. This reference is still pertinent for our topic and our time, because they try to clarify what are the social uses of education and public communication that humanise, and those that dehumanise.²⁰ They stated that the main role of written publications and schools was to make it possible the access to “clarifying” knowledge for everyone. They clarify the knowledge that releases from narrow-mindedness and submission, because they understood that both come from the ignorance in which people lived. The clarifying information is “illuminist” because it makes “human dignity” visible, a beautiful metaphor.

²⁰ The opposition between humanisation and dehumanization emerges in the 15th century. This is the criterion according to which Utopists determine happiness or unhappiness of people and the future of humankind. They conceived that historical changes would go in one sense or another, according to their applications of scientific and technological innovations in the future. This foundation for the studies of social transformations would give origin to Sociology and continues to give an invaluable contribution from Utopists. For further information, please read Martín Serrano (2008).

The application of the illuminist agenda by communicative and educational institutions would promote enlightenment and solidarity. Let us not forget about the meaning of the following terms during the Enlightenment, to “enlighten” means “developing the capacity to use one’s understanding” as Kant described (1784/1964),²¹ and “solidarity”, which means “including all humankind among “our people”, Von Humboldt (1793/1993).²²

In fact, there are now technologies that simultaneously serve to operate with the information and to interact virtually. Such innovations already allow that:

- The technical division between information producers and consumers is reduced to merely instrumental aspects.
- Communicative interactions among groups and individuals stop being constrained by special and time separations.

And, above all, the integration between informative and communicative systems makes it possible to open collective memory and creativity to shared knowledge. They allow us to share the immense cultural heritage of our species, which contains the knowledge of each individual in addition to the knowledge of our ancestors (if recorded in any inherited source) (Martín Serrano, 2015).

With these interactive features, the digital connection makes it possible to virtualise the intellectual co-production. There are already proposals in force to promote collaborative ways of using knowledge in

²¹ “Enlightenment is man’s emergence from his self-imposed nonage. Nonage is the inability to use one’s own understanding without another’s guidance. This nonage is self-imposed if its cause lies not in lack of understanding but in indecision and lack of courage to use one’s own mind without another’s guidance. Dare to know! (Sapere aude.) “Have the courage to use your own understanding,” is therefore the motto of the enlightenment. (Kant, 1784/1964).

²² Solidarity consists of “linking our inner self with the world (with the objective that) the concept of “humankind” acquires in us the richest content possible” (Von Humboldt, 1793/1993).

networks named, for instance, “connective intelligence” or “collective intelligence”.

It is interesting to figure how would people who conceived “Enlightenment” understand it now that the world is becoming global. Perhaps, in this way, enlighten will mean sharing the knowledge that unites us, so the world can be shared one day. Once more, a utopia,²³ but maybe such progress towards solidarity will be the next stages we will cover in the long process of humanisation.

Instrumental approaches on the social uses of technology

Please remember these are the “progress” visions that propose that societies adapt their organisation and functioning to technological changes. Currently, “Post-humanisms lead this vision. The name itself clarifies that Humanisms are supposedly being surpassed by technologies; more specifically by cybernetic applications.

Post-humanisms provide theories and programmes to substitute the human being by other post-humans, who are designed and produced like robots. They take for granted that the use of technologies will require the use of implants controlling the functioning of body and mind in cybernised societies. And they recall that these devices are already being used. For example, microprocessors are implanted from which impulses are sent from the brain to bionic arms (Sandberg & Bostrom, 2006). It is about connecting the biological and technological organs that intervene in information and communication so that they function as a system.²⁴

²³ A utopia is a desirable objective that is likely and reachable. “Utopias relate to what can be done with what needs to be transformed. They have provided “the future options” to precisely understand the transforming potential of technical innovations ... they humanize what the technocracy dehumanizes; they promote the theoretical creativity that instrumentalization suppresses” (Martín Serrano, 2008, p. 1).

²⁴ McLuhan (1967) already understood the link between biological organs and “new technologies” participating in communication as a system. He described them as “extensions of the senses”. Post-humanists learnt from this theory and reverse the link, the senses become an extension of new technologies.

The modification of organisms and human minds to equip them with superhuman *Robocop*²⁵ skills will be the complement of genetic transformations. Genetics will choose and manufacture the most suitable specimens.

Post-humanisms believe the time has come to re-open human evolution to improve the physical and intellectual skills of our species. “Trans-humanist studies” advocate for the radical review of the differences between biology and technology, as well as between natural and artificial, including the concept of human nature.²⁶

In any case, the scenario of a future post-human is likely to happen, and according to critics –among which I include myself–, it is undesirable. This will eventually lead to the elimination of the difference between free will and programming. Inequalities will rise between humans and posthumans, which will serve as an excuse to put into practice programs originating in social Darwinism, such as euthanasia and the selection of the most capable.

Some believe that such scenario is unlikely, as it is difficult to image that humankind uses its knowledge to substitute itself for cyber-anthropos. However, it would be prudent not to be overconfident. In order to analyse the likelihood of the symbiosis of humans and machines becoming true, we must take into consideration whether this integration would make new specimens more productive or controllable. We must be attentive to see if the ruling system maddens as much as to put its own reproduction before the reproduction of the human species.²⁷

²⁵ RoboCop: a reference to the cinema character created by P. Verhoeven in 1987 for the film of the same name.

²⁶ An important reference on this line of study is the *Programme on the Impacts of Future Technology* jointly developed by the Faculty of Philosophy at Oxford University and the Oxford Martin School.

²⁷ The substitution of humans for post-humans could be used for domain. Previously, technologies serving for domination were used, no matter their catastrophic consequences. For example, the nuclear fusion. If Murphy’s Law is taken seriously, it was inevitable that, at a certain point, it would be used for the worst of its applications: the atomic bomb. And even this humanicide use made an example like Hiroshima inevitable.

THE DEBATE BETWEEN HUMANIST AND POST-HUMANIST APPLICATIONS OF TECHNOLOGIES

This debate must be ultimately solved in reference to anthropology, which is the way it is presented in the present paper. To this end, the positions opposing these approaches are summarised at first:

- Humanisms propose to develop our natural capacities. Intellectual, creative, and moral attitudes that are not being used yet, or that are limited by the status of societies. Technologies would be used to eliminate these limitations, to transform societies and not to select/eliminate people. These are sociogenic changes.
- Post-humanisms propose to grant humans artificial capabilities. Technological and genetic interventions will end up substituting the current “Homo Faber” for another post-human. These are anthropogenic changes.

The resource to anthropology clarifies the links that human communication establishes between our natural condition and our social practices (Martín Serrano, 2007b). In *Teoría de la comunicación: la comunicación la vida y la sociedad*, it is stated that human communication evolved as another way to ensure life. The protection of those that nature would have eliminated has initially been the reason why we have values and culture.²⁸

Humanist ethics confirm that altruism is the original value from which the rest of values derived. And this is certain, because solidarity is a selective behaviour. The communities that have become human throughout evolution and have remained as such were organised on the

²⁸ In the communities of pre-human ancestors, emotional links operate, which generate solidarity behaviours. While communication becomes human, this emotional solidarity becomes altruism. A specifically human behaviour, which is not only dynamized by feelings, but also responds to values. The ethics promoting altruist values, such as the Humanist, strengthen solidarity behaviours. These analyses, which will not be analysed at this point, are further explained at Martín Serrano (2007b).

basis of altruism. Therefore, Humanisms are the moral dimension of humanisation. And altruism –which served as the basis for Kant’s ethics as well as of the rest of enlightened– is a differentiating behaviour for our species.²⁹ The “social contract” is recovered for science and politics –a reference to the kind dimension of our nature as a support to cohesion in human societies– as Rousseau wrote (1762/1968).³⁰

CONCLUSIONS

Communicative theory and practices when the world virtualises

Man sciences are clearing up the anthropological horizon for communicative studies (Martín Serrano, 2009), which is an extraordinary epistemological event. This occurred after understanding that communication is the link between sociogenesis and anthropogenesis. These processes were initiated with the existence of human species and will remain open to continue our path to the “unfinished and endless humanisation of society”.³¹

This open process towards humanisation is a valid scientific criterion to interpret the anthropological sense of globalisation. In order to contribute to the fact that globalisation has this perspective when the world virtualises, it is necessary to produce and disseminate teachings based on the humanising dimensions of communication. This perspective provides the knowledge that enables the knowledge and understanding of the so varied and essential links established by communication:

²⁹ Since altruism is a selective behaviour, throughout history society models have not remained, and as well as societies that lost that link with altruist values. This disappearance includes civilisations, whose aggressiveness allowed them to prevail for some time (Martín Serrano, 2014).

³⁰ As is known, Rousseau believes that altruist principles are part of the “human nature”. “Justice and kindness are no mere abstract words, but true affections of the heart enlightened by reason” (Rousseau, 1762/1968).

³¹ Humanization is initiated when the anthropogenesis incorporates values and will continue with the transformation of societies until the disappearance of our species (Martín Serrano, 2012).

- Links between nature and society. Between individuals and communities. Between private and public.
- From the expressive manifestation to the executive action.
- From organisation reproduction with their transformations. Eventually: from reason with ethics.

A horizon that would correspond to the one existing when Modern times took over from Middle Ages. Now as then, we have the opportunity and the need to reconstruct the knowledge to transform the practices, practices using virtualisation to show the different perspectives of the events. A diversity that makes it necessary and possible to link multiple encounters with others, sharing the knowledge that illustrates. The kind of complete and rational information that fosters independence of judgment and the critical use of information.

In order to transform the practices, the resource to virtualisation must be, at the same time, a way to facilitate face-to-face relations and direct participation in physical activities, which require the use and preservation of the environment in which we live.

Globalising the social production of communication in this anthropological perspective opposes to its instrumentalization at a universal scale, which is what happens when it is used to intimidate collectives, capitalising the conflicts or disasters created by the system itself. The communicative production that legitimise such policies eventually deglobalizes and contributes to the fragmentation and confrontation among societies.

Teaching sciences and communication should not be instrumentalised, denaturalised and dehumanised resources to legitimate the control of instrumentalising, denaturalising, and dehumanising institutions (Martín Serrano, 2015). This is so in communication as it is in the rest of fields, as it is not intended to legitimise the control and make it more efficient, but rather to unveil it.

It behoves us all as researchers and professors to explain why this manipulating and irrational model has been established in public communication. And how it is undermined when population is not informed and mobilised on the basis of fear of freedom. And it is our duty to clarify that the representations offered by this model on how

information and communication work in a globalised world are not valid because they sacralised technologies but ignore their socio-historical dimensions, because they hide that communicative technologies mediate and that communicative products are mediated.

Now that we know that humanisms are the moral dimension of humanisation, it is necessary to propose that it becomes a criterion for the training of communicators during their professional practice. Humanisation of communication has anthropological functions, which must be preserved to guarantee our survival as species (Martín Serrano, 2007b).

Few generations have had the opportunities our generation has to work on such a creative intellectual task. We have our own objective, which may be studied both in Nature and in Societies. Communication must be taken into consideration when one is interested in humankind, its origin, its organisations and its works (Martín Serrano, 2013).

Professors, researchers and theorists of communication are involved in the production and reproduction of representations on communication nature, its uses, functions and effects. We may contribute to enlightenment and solidarity. Therefore, I state we are *humanisation professionals*. We contribute to the development of the many capabilities aimed at improving societies that allows the management of shared information. In a nutshell, we have ahead a fascinating task, producing mediation and train mediators who do not renounce utopia (Martín Serrano, 2013).

This function –scientific and ethical, theoretical and practical at the same time– confer dignity to our academic and scientific works. But, above all, this confirms the believes of those who are convinced –as it is my case– that the true knowledge will never contradict fair social practices.

Within this framework, theory provides epistemological and axiological references, which are needed to guarantee instrumental teachings are not degraded to the condition of degrading teachings. From rational support to social awareness. It makes explicit the reasons required to face blind and deaf irrationality, as well as ignorance, which may be strong enough to destroy everything.

Let us theorise to return in a scientifically renewed and confirmed manner a conviction that remains in current utopias, the conviction that humanity appears and lasts when individual freedom and collective solidarity are reconcilable. I believe, and therefore I state, that this has been the principle that has made our species the only human species to remain. And this is the principle that must be pursued to guarantee that the upcoming sociohistorical changes progress in the sense of humanisation.

I conclude with a wish. I hope in fifty years' time, whoever is working in the position I perform to date may announce that science, teaching, and communication practice have contributed to make desirable transformations of the world possible.

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