Telephonies
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COMMUNICATION AS ENERGY AND AS A VITAL ENGINE

Conceiving the technological artifact

Throughout history, the development of the power to communicate has played a key role in the construction and growth of human societies. Though there are still controversies concerning the origin of language and the establishment of social links, it is evident that communication has been essential to ensure community cohesion, not only as a vehicle of information but as a means of cementing the connection between people and reinforcing their mutual relationships. The acts of writing, talking or expressing oneself through any physical or material means have always been as essential to communication as the production of the message and its transmission and reception.

The universe of contemporary communications and its main outcome, namely, information societies, appear to us now as abstract realities. Though they still play a major role as in the past, the communicational acts involved are far less evident, material, unique or connective. Some of their performativity has disappeared or has evolved into something so natural to the point of becoming invisible.

Communication has become less tangible. Its multiplication, profusion and constant flow have led to the loss of certain vital features or recognizable characteristics. The advent of digital technologies has increased this level of abstraction. Nowadays we know that we are crisscrossed by infinite information networks, but we are only aware of them through their effects. The process driving these networks remains unknown to us. It is concealed in black boxes, hidden in memories and screens; it becomes miniature in size to the point of being imperceptible, and abandons the material world to unfurl in the virtual realm.

These transformations affect not only our daily lives but also our physical, community and cultural environments. Paradoxically, in an increasingly materialistic world, dematerialization has become the most outstanding social process. In his reflections on the future of the book, El Lissitzky envisioned this situation in the following terms: "The idea that currently moves the masses is known as materialism; however, the process of dematerialization marks our period. Take correspondence, for example: the amount of letters and of written paper grows, the mass of material consumed spreads until the advent of the telephone brings a measure of relief […] Lazy masses of material are replaced by liberated energy. This is the sign of our times."[1]

El Lissitzky's words sound incredibly prophetic of our own time. This is so not only because he predicted this shift towards immateriality but also because he equated the loss of matter with the increase of energy. Though this relationship stems from the field of physics, the Russian theorist and artist is aware that the same thing occurs at a social level. Communication is an energy exchange, a cultural fuel that powers the human machinery and radiates to the surrounding environment.

This core, energetic and vital nature of communications is at the foundations of cybernetics, the scientific branch introduced by Norbert Wiener in 1948. According to this theory, living beings and machines share the capacity to emit, receive and interpret messages, and it is this capacity that brings them together. In the words of the scientist, "in short, the newer study of automata, whether in the metal or in the flesh, is a branch of communications engineering, and its cardinal notions are those of message, amount of disturbance or 'noise'—a term taken over from the telephone engineer—quantity of information, coding technique and so on."[2]

Wiener works with the operating notion of vital processes according to which any object or organism that is connected with its environment through a flow of communication is equipped with the basic distinctive features of life. "The numerous automata of our time are connected to the outside world to receive impressions and to perform acts. They are equipped with sense organs, effectors and something similar to a nervous system capable of integrating the transfer of information from one to another. They can be described perfectly in physiological terms […] The modern automaton exists in the same sort of Bergsonian time as the living organism, and hence there is no reason […] why the essential mode of functioning of the living organism should not be the same as that of the automaton…"[3]

Cybernetics, art and dynamic processes

Despite the controversial vitalist thesis upheld by Wiener, cybernetics had a significant impact on the art of its times. In a sense, it referred to a universe less centered on bodies and objects (the hardware) and more focused on systems and processes (the software). This observation coincided with what was taking place in the art world, where ideas and actions were gradually replacing the "work of art."

According to Roy Ascott, "Now that we see that the world is all process, constant change, we are less surprised to discover that our art is all process too. We recognize process at the human level as behavior, and we are beginning to understand art now as being essentially behaviorist […] The process structuring of artworks must inevitably reflect the substructure of behaviors in our cybernated ecology."[4]

Faced with a world interpreted in increasingly dynamic terms, art shifts towards participation, interaction, evolutionary developments, systems. It involves, above all, a new notion of artistic production that focuses on its transformational capacity in relation to its surroundings and its public. Since change is both a social and cultural property, artists are committed, even politically, to their time. This new alternative is perceived as a liberating and revolutionary action.

This is expressed in declarations and manifestos. In a text written in 1963, the Groupe de Recherche d'Art Visuel (GRAV) reads: "Within the scope of our possibilities, we wish to remove the spectator from the apathetic dependence that makes him accept passively not only what is imposed on him as art, but also a whole system of life […] We consider the spectator capable of reacting […] We propose to involve him in an action designed to unleash his positive qualities in an atmosphere of communication and interaction."[5]

The growing number of proposals for participation in the art world relativize the notions of work of art and artist in order to give the public an increasingly prominent role. The idea is to spur the spectator into action with a view to familiarizing him/her with a society undergoing constant changes. However, the notion of *system* underlying many of these propositions[6] limits the degrees of freedom of the spectator. A system is basically an organized structure. This arrangement admits a measure of autonomy, but also contains elements that cannot be modified without causing the collapse of the entire structure. The notion of system leaves a very narrow margin for contingency, chance, the unpredictable. It is still closely associated with structuralist visions and a relatively deterministic view of modern science.

That view vanishes over the subsequent years. In both the field of technologic art and that of science there are growing references to indeterminate processes, chaos theory, evolutionary systems, open orders. Nowadays, coordinated configurations have given way to complex, highly unpredictable structures, not only for the user—formerly the spectator—but also for their creator. Looking for inspiration in the dynamics of nature, reality or social life, the artist sets out to give expression to a type of experience that is subject to the processes that govern life.

According to Roy Ascott, "We begin to understand that chance and change, chaos and indeterminacy, transcendence and transformation, the immaterial and the numinous are terms of the centre of our self-understanding and our new visions of reality."[7] The challenge, therefore, lies in the manner of articulating all these elements into a new type of artwork that is truly open and processual.

Participation and indeterminacy in the work of Mariano Sardón

Ever since his first ventures into technologic art, Mariano Sardón focused on the production of pieces with certain degrees of freedom. Searching for inspiration in the world of physics,[8] he developed a series of works in which he investigated the changes in the properties of matter for purely aesthetic purposes. He concentrated on the variations of certain physical qualities and the consequences they produced on their immediate surroundings or on the spectator. He proceeded to construct a group of objects and installations in which such changes were perceived sometimes by sight, and others by touch or hearing.

In his series *Diagnóstica* (2000-2001), colored liquids contained in glass test tubes drip onto a hot surface and rapidly turn into steam. The process is violent but contained. The outcome is a modification of the sounds in space and some stains caused by remains of the pigment on the hot plates. As time goes by, the installation undergoes a series of changes: the floor gets stained, the plates become covered with die and lose their heat, and the dripping varies in intensity. In one of its versions, the falling drops alter a number of texts that are projected against the walls. The whole system progresses through a subtle combination of indeterminacy and control.[9]

The presence of fragments of text becomes a constant in a group of interactive installations he addresses some time later. In *Divergencia diferente de cero* (2001-2002) two groups of words with opposite meanings are listed on two open books. When the spectator claps his hands, the words shift from one book to the other

blurring the discrepancies. Both the words and the books are bright in color and are placed in a room that is completely in the dark. The experience is both conceptual and sensitive since it involves light, color and sound.

In his following pieces, the texts are not meant to transmit information but rather appear as pure materiality or as a presence and are often associated with space, the activity of the spectators or the flow of communication. The possibility of reading the texts becomes increasingly difficult and poses a further challenge to the readers who persist in their interaction with the work in the hope of grasping the meaning of the text. However, this seldom occurs because the artist's interest is focused on encouraging participation, making the act of reading reflective in itself. Moreover, the artist seems to be pointing out that the texts convey not only a (literary) meaning, but also certain keys that we use to construct reality.

In $a = b$ (2003), that was presented at the Museo de Arte Latinoamericano de Buenos Aires (Malba), the movement of the spectators in front of a screen makes a concealed text come into view. The text refers to the Museum's permanent collection and is based on the manner in which the works on exhibition are described. As the spectators move in front of the screen, they deconstruct the institutional texts and alter categorizations and classifications. Movement always brings into view a fragment of the didactic texts, thus exposing their temporary and partial nature. In *Libros de arena* (2003-2004) the texts appear, once again, as incomplete realities. In this case, the texts are projected onto the hands of the spectator when he/she moves the sand in a glass cube. The texts comprise information on Jorge Luis Borges obtained from the Internet. The fragmentary nature of these texts contrasts with the powerful writings of the Argentine author.

In recent years, Sardón has developed a new type of pieces focusing to a greater degree on the indeterminacy produced by certain everyday situations. Up to now, there was a measure of control over the surroundings and the actions involved in the installations. However, Sardón's current installations leave room for processes that occur beyond the artist's control, though he may be able to predict their outcome. In his previous projects, the artist constructed his installations with a view to encouraging certain forms of participation and interaction. Now he uses these participatory and interactive processes as a starting point and creates his works with a view to integrating these processes into his aesthetic and conceptual proposal. The mechanisms involved are now far more complex, open and indeterminate and, consequently, require a greater degree of study, analysis and experimentation.

Culturas estocásticas (2005) belongs to this type of projects. It was presented at the Museo de Arte Latinoamericano de Buenos Aires and is designed as a specific intervention, not of space now (as in the case of $a = b$) but rather of the museum's operations. In a dark room, words and letters fall on open Petri capsules accompanied by changing sounds. The appearance of words and letters depends on the typing taking place on the keyboards of the computers set up in different administrative sectors of the museum. When the employees hit the keys, the capsules start to fill with words and the sound changes; when they pause, the words gradually disappear. The relationship, however, is not direct but is rather set by algorithms that add complexity to the experience. The outcome is a sound and visual installation that translates the movement going on in the museum, its activities and rhythms.

The *Telefonías* project (2008) was developed specifically for Espacio Fundación Telefónica along this same line. In this case, the process under study is the flow of telephone communications that are managed in a specific area of the building hidden from the public view. As in the case of *Culturas estocásticas*, the creation of this installation involved a detailed preliminary study of both the space on which the intervention was to occur and the telephony activity itself, in addition to the implementation of a mechanism to view this activity and the creation of a series of aesthetic devices consistent with the process under study.

The *Telefonías* project

The starting point for this project was the Espacio Fundación Telefónica, a venue that has become a referent for the artistic and technological production of Buenos Aires. The center occupies the old Central Juncal, a building created by the Unión Telefónica in the early 1920s that originally functioned as a telephone exchange equipped with hundreds of machines and artifacts operated by a large number of employees.[10] The exchange is still in operation, but now occupies a considerably smaller space as a result of the automation and synthesis afforded by information technology. Concealed by walls and panels, but insinuated behind windows and glass columns, the exchange coexists with the cultural activity going on in the building, while it is the hub of communications for the surrounding community.

In the first place, the *Telefonías* project set out to view this flow of communications bringing to light the hidden life of the building. Through a series of interventions in its architecture and in the traffic of incoming and outgoing calls, it attempted to give body and materiality to the communicational process by revealing the

underlying dynamics. In doing so, Espacio Fundación Telefónica is not only the venue harboring the artwork produced in connection with this project, but is also its underlying physical and conceptual foundation, its body and its soul.

On the ground floor, a number of typewriters invite us to recover the tactility of communicating via a mechanical device, the sound of its operation, the texture of paper. However, the texts produced by the spectators are immediately manipulated by the flow of calls that the telephone exchange is processing at that same moment. The texts have leaped from the pages into the unpredictable space of the screen, where circulation is not ruled by the laws that govern the physical world. The immobile text on paper comes face to face with the lability of computer-generated communications, a world both ephemeral and fragile in nature.

Hundreds of people from their homes, studies and offices determine the properties of this virtual universe and join the spectator in composing the textual symphony that unfolds on the screen. Without even noticing, the person doing the typing is really participating in a joint work of art. The creation of a work of art, which is normally associated with subjectivity and introspection, now forms part of the interconnected world of communications. Though at first sight the typewriters create a certain aura of nostalgia, the piece is a reflection on the current state of the world, on text as an intermediary in human affairs and on the role played by the individual in information societies.

On the upper floor, a set of peristaltic pumps is used to give matter to the communications circulating in the building. A digital device integrated to the pumps introduces air into the flow of colored liquids driven by the pumps following the rhythm of incoming and outgoing calls. The liquids flow through plastic tubes in the middle of the building and offer a clear view of the communication dynamics at the heart of Espacio Fundación Telefónica.

This activity now takes the shape of an intervention of space, as if the telephone exchange demanded a more prominent role. The idea does not seem so far-fetched if we recall Norbert Wiener and his vitalist theory. To a certain extent, Espacio Fundación Telefónica could be considered a living being, not only because of the cultural activities taking place within it, but rather because of this other permanent activity that connects it with its surroundings. One and the other may not be separate after all. In any case, Mariano Sardón's intervention binds them together for good.

Surrounding the pumps, a twofold extended projection reveals the telephone wiring through which the communications circulate and creates a visual resonance with the hoses strung all over the place. In other sectors, the programs, algorithms and processes governing the installation have been translated into simple visualizations laying bare the structure of the entire intervention, thus allowing us to glimpse into its black box.

In this way, Espacio Fundación Telefónica functions like a sounding board of the silent activity that goes on inside it. Through these interventions, the public is invited to come into close contact with these invisible dynamics in a playful and intuitive manner. In the hands of Mariano Sardón, technology discovers itself, exposes the magic of its operation and encourages participation and reflection with a view to offering us an aesthetic insight into the unique technological world we live in.

Notes

[1] El Lissitzky, "The Future of the Book," in *New Left Review*, January-February 1967.

[2] Wiener, Norbert, *Cibernética o El control y comunicación en animales y máquinas*, Barcelona, Tusquets, 1998, p. 68.

[3] Wiener, Norbert, ibidem, p. 69. Wiener contrasts Newtonian time, that remains always unchanged and immovable (the time of physics phenomena), with Bergsonian time, that presents the characteristic of irreversible dynamic continuity (the time of living organisms).

[4] Ascott, Roy, "Behaviourables and Futuribles" (1967), in Stiles, Kristine and Selz, Peter (eds.), *Theories and Documents of Contemporary Art. A Sourcebook of Artists' Writings*, Berkeley & Los Angeles, University of California Press, 1996.

[5] GRAV, "Assez de mystifications," Paris, October 1963, reproduced in Aupetitallot, Yves (ed.). *GRAV* (exhibition catalog), Grenoble, Le Magasin, 1998.

[6] In our country, the notion of *systems art* was developed by Jorge Glusberg in several publications and in a number of exhibitions organized in the early 1970s.

[7] Ascott, Roy, "Is There Love in the Telematic Embrace?" (1990), in Stiles, Kristine and Selz, Peter (eds.), *Theories and Documents of Contemporary Art…*, op. cit.

[8] Mariano Sardón obtained a degree in Physics from the University of Buenos Aires.

[9] For further information on this and the other works mentioned in this text visit www.marianosardon.com.ar

[10] The history of the Juncal telephone exchange is described in García Romero, Graciela, *La central Juncal. Historia de la telefonía en la Argentina*, Buenos Aires, Fundación Telefónica, 2005.