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Psychotherapy from 1.0 to 5.0. transformations

Psicoterapia del 1.0 al 5.0. transformaciones

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Abstract

The past thirty years have seen a great evolution in technological and communication therapy modalities. This evolution has gone through various stages (from psychotherapies 1.0 to 5.0) which we will describe alongside several significant theoretical and technical changes. These changes enrich the resources that are available while presenting us with new challenges in group psychotherapies. We are able to imagine the future of online group psychotherapies 4.0 and 5.0 respectively. We will analyse four main features of the frameworks, theories and techniques of online interventions and psychotherapies: Interactivity, synchronicity, multimodality and hybridization (person-machine). Also, their previous implementations, psychotherapies (2.0.), and current (3.0), short-term (4.0) and long-term (5.0). Digitalization is a new process that requires adaptations of our practice in the field of mental health so that we are able to meet today's growing needs and, looking forward to the exceptional requirements stemming from the pandemic. Future transformations in mental health interventions, in the treatment of individuals, groups, children and adolescents and in the training processes in the field of group psychotherapy, form one of the most important challenges of this century.

Key words

Online psychotherapy. WWW. New concepts. New techniques. Future.

Resumen

En los últimos 30 años se ha producido una gran evolución tecnológica y de las modalidades de comunicación terapéutica. Esta evolución ha ido pasando por diversas etapas (desde la psicología 1.0 a 5.0) que describiremos y que evidencian cambios teóricos y técnicos significativos. Estos cambios enriquecen los recursos disponibles y nos plantean nuevos desafíos en las psicoterapias de grupo. Podemos imaginar el futuro de las psicoterapias de grupo online 4.0. y 5.0. Analizamos cuatro de las características principales de los encuadres, teorías y técnicas de las intervenciones y psicoterapias online: Interactividad, sincronicidad, multimodalidad e hibridación (persona-máquina). Sus implementaciones pasadas (psicoterapias 2.0.), actuales (3.0.) y futuras, acorto plazo (4.0.) y a largo plazo (5.0). La digitalización es un nuevo proceso que requiere adaptaciones de nuestras profesiones en Salud Mental, para atender unas necesidades actuales crecientes, y más allá de los requerimientos excepcionales de la pandemia. Las transformaciones futuras de las intervenciones en Salud Mental, en la atención de individuos, grupos, niños y adolescentes y en los procesos formativos en el campo de la psicoterapia grupal, implican uno de los desafíos más apasionantes de este siglo.

Palabras clave

Psicoterapia en línea. WWW. Nuevos conceptos. Nuevas técnicas. Futuro

INTRODUCTION

The evolution of both technology and the evolution of the psyche have a two-way correlation. Profound technological changes affect the functioning of our psyche as well as our ways of relating to one another. Profound changes in our psychic and social evolution result in significant technological evolutions.

Since 1989 and the start of the internet 1.0, we headed toward towards the current stage of internet development, 4.0, from which we are now able to imagine 5.0. In this manner we may follow the evolution of the changes that have taken place in the psyche alongside the development of the internet, and it is possible to reorient and redesign the architecture of the internet depending on new psychic needs.

Technologies have developed primarily in the sectors of economy, commerce, entertainment and the exchange of information, yet much less so regarding human relationships in clinical practise, and it is in this latter direction that new developments seem likely to follow. The question of intersensoriality, the transmission of emotions and techno-biological hybridisation are examples of the important discoveries and advances that might be made in these fields. The combined relationship between machine and machine (m2m) and person to person (p2p) may signify, along with virtual reality (VR) and artificial intelligence (AI), changes that are difficult to imagine.

In this article we will review thirty years of internet history and its relationship to the evolution of online psychotherapies and its wide-ranging applications in mental health. Changes in technology and changes in the understanding of the mind have a significant, interpenetrating and mutually stimulating relationship, which we propose to explore in order to understand our changing world and that of young people and to enter into new theoretical and technical developments in psychotherapies and online interventions. The relationship between the evolution of technology and the mind has passed through different stages, and pioneers in the field of sociology and online psychology include Marshall McLuhan, Sherry Turkle and Nicholas Negroponte.

In *The Guttenberg Galaxy*, Marshal McLuhan (1961) attempts to reveal how the technology of communication (which includes the written alphabet, the printing and electronic mediums) affects cognitive organization, which consequently has profound ramifications for social organization.

In the early 1960s, McLuhan (1968) in *War and Peace in the Global Village* wrote that the visual, individualistic print culture would soon be brought to an end by what he called "electronic interdependence". In this new age, humankind would move from individualism and fragmentation to a collective identity, with a "tribal base". McLuhan's coinage for this new social organization is the global village.

In his posthumous book, *The Global Village: Transformations in World Life and Media in the 21st Century* (1989), McLuhan, in collaboration with Bruce R. Powers, offers a conceptual framework in order to understand the cultural implications of technological developments associated with the rise of a global electronic network. This is important work by McLuhan as it contains the most extensive elaboration of his concept of acoustic space:

"Acoustic Space has the basic character of a sphere whose focus or center is simultaneously everywhere and whose margin is nowhere." (McLuhan, 1989). The transition from visual space to acoustic space was not automatic with the rise of the global electronic network, but needed to be a conscious project. The "universal environment of simultaneous electronic flow" inherently favours the Acoustic Space of the right side of the brain. Nevertheless we are held back by habits of adhering to a fixed point of view. There are no limits to sound. We hear from all directions at once. However, the acoustic and the visual space are, in fact, inseparable.

Sherry Turkle carries out research into psychoanalysis and human-technology interactions. She has written several books on the psychology of human relations with technology, especially on how people relate to computational objects (1984, 1995, 2011).

In *The Second Self*, Sherry Turkle writes about how computers are not tools as much as they are a part of our social and psychological lives, writing that technology "catalyzes changes not only in what we do but in how we think." (Turkle, 1984).

She looks at how computers affect the way we look at ourselves and our relationships with others, claiming that technology defines the way we think and act. Turkle's book allows us to view and reevaluate our own relationships with technology.

In *Life on the Screen* (1995), Turkle presents a study of how people's use of the computer. The book discusses how our everyday interactions with computers affect our minds and the way we think about ourselves. Turkle questions our ethics in defining and differentiating between real life and simulated life.

In *Alone Together* (2011), Turkle would shift her position on the relationship between psychology and technology, not demonstrating the same optimism as in previous decades. We find it interesting to include this comment owing to the fact that we have found similar hesitations

in our relationship with technology have been found. It seems to us that we are still learning to use technologies for different aspects of our lives. Using them as an aid to improve our relationships with others is one of the avenues for further research.

Being Digital (Negroponte, 1995) is a book about digital technologies and their possible future, the book provides a general history of several digital media technologies, many that himself was directly involved in developing. The message is that eventually, we will move toward an entirely digital society.

A new language evolution, the creation of binary language, has a fundamental influence on the development of the architecture of this universal techno-representational system that is the internet (Negroponte, 1995). Another author, a discipline of McLuhan , Derrick de Kerchove (2006) explains that the digitalization is based on a language constructed of 0's and 1's organized in extensive sequences of information, non-information and pauses which allow representation, paradoxically, of the diverse modalities of information (text, audio, image) whereas with the alphabetical language (27 letters in the Spanish alphabet) we are able to represent texts but we are not able to represent images or sounds. This is how the binary code allows us to construct a multimodal representation of the world which can be fragmented and observed in parts or can be integrated and observed as a whole. *Atom (physical-chemical unit), Bit (information unit) and Representation (psychic unit) constitute a whole that allows us to establish the basis for understanding the phenomena observed in physical chemistry, digitalised information and the human mind in the Online World.*

Our theoretical and technical framework, synthetically, consist of considering the online psychotherapies and interventions, which are the psychological interventions mediated through communication technologies, establishing a transitional online space, part reality and part fiction, part inner and outer world, self and non-self. This transitional online space is registered through the digitalisation process transmitted by means of electromagnetic waves. The digitalization of information makes it possible to generate subprocesses of fragmentation and integration of different aspects of the self, through various communication modalities (sound, word, text and image) with an immense technological memory and reproducibility capacity, and with the possibility of interaction in small and large groups at a global level.

Digitalisation favours important innovations in online psychotherapeutic techniques that facilitate certain processes of mental transformation and establish specific indications and contraindications in the clinic.

Working hypothesis: From the study of the evolution of psychotherapy and communication technologies, can we describe the evolution of the theory and technique of online psychotherapies and make some predictions about the future of online psychotherapies?

How do these new theoretical and technical concepts influence online interventions and group psychotherapies?

EVOLUTION OF THE WWW FROM 1.0 TO 5.0

We describe the evolution of the Web throughout the history of the internet, and how this history is related to that of online psychotherapy. The World Wide Web (WWW) is the information network used worldwide. Created in 1989 at CERN in the city of Grenoble, the internet allows any person, through connection to the internet as well as a browser and a computer, to access the website of their choice through an internet connection. A webpage is a document or electronic information capable of containing text, sound, video, software, links and images adapted for the so-called World Wide Web.

Web 1.0 – *Web 1.0 works as an architecture of communication that connects people through the web, which is the starting point of static information.*

Web 1.0 was the beginning of the development of digitalised telecommunications. It first appeared in the year 1989, and at that time it was only possible to consume content. The created pages were in the HTML code, which were difficult to update and with zero interaction between users. The information could be accessed, but without the possibility of interacting; it was unidirectional. Web 1.0 is the most basic form that exists of text-only browsers, with few creators of content.

Web 2.0 – *Its architecture allows people to connect and collaborate with people, along with the emergence of collective intelligence as an information centre and the syntactic web (searches for information without interpretation of meaning and working only with keywords).*

In summary, its significant characteristics are:

- The web functions as a platform.
- It uses collective intelligence.
- It offers a participatory architecture.

Web 2.0, the second generation of the web, began in 2003 and gave rise to communities of users. It is also known as the 'social web' because of its collaborative and social construction focus. Information is constantly being changed and exchanged.

Blogs and social networks were on the rise. A significant feature was that they could be created by users with access to desktop publishing systems.

Web 3.0 – *Its architecture allows many diverse Web applications. Its architecture allows the use of various web applications which amplifies the possibilities and functionalities. People remain the centre of information and the Web is semantic. The term semantic web refers to aspects of the meaning, sense or interpretation of the meaning of a given element, symbol, word, expression or formal representation, working with defined and linked meanings.*

Web 3.0 originated in 2006, based on a more "intelligent" internet. User were able to carry out searches using language closer to their natural form. In the field of e-commerce, a range of companies used it to achieve more accurate data manipulation. Web 3.0 has also been used to describe the evolutionary path of the web leading us to artificial intelligence. In the sphere of social and psychotherapies relationships, the appearance of video conferencing systems, using image, sound and text simultaneously, brought about a significant qualitative leap. Zoom, created in 2011, allowed videoconferences of up to 15 people; nowadays it is possible to connect 500 people in interactive and synchronous video conferencing architectures. Its growth multiplied exponentially in 2019 due to the COVID-19 pandemic.

Web 4.0 – *It is an architecture of people connecting with people and Web applications ubiquitously, adding technologies such as Artificial Intelligence, making sites intelligent and capable of interaction. It includes voice as a vehicle for intercommunication to form a Total Web.*

Some of the characteristics of Web 4.0 are:

- Understanding of natural and daily language.
- Communication between devices (m2m, machine to machine).
- Use of related information (GPR, temperature sensors, etc).
- New forms of interaction between users.

Web 4.0 is all about bringing intelligences together. It is where both people and things communicate with each other to generate decision-making. For example, the GPS that guides vehicles and helps the driver to select the best route or to save fuel. Its risks may include the algorithmisation of society and dehumanising destructiveness, drone as weapons being an example of this.

Web 5.0 – *Coined the Sensorial Network, it correlates to a web in which equipment and devices will have the power to translate information, emotions and sensations into virtual and digital information. It requires human-machine hybridisation through bio-technological devices.*

	Web 1.0	Web 2.0	Web 3.0	Web 4.0	Web 5.0
Characteristics	• One way • Static information • Read-only	• Interactive and collaborative • The rise of blogs and social networks • Syntactic web • Desktop publishing	• Shift to the cloud • Evolution of multimodal communication modalities • Multi-device • Semantic Web	• New models of communication, machine to machine • Rise of the voice in the interaction through the technological interface	• Human-machine hybridisation through technological devices. • Sensory Web
Advantages	• The presenter of the information has the majority of control	• Allows sharing of information • Promotes shared learning	• Available from anywhere • Increases presentiality	• An increase in the possibility of social transformation	• An increase in the possibility of creativity, social transformation and economy
Disadvantages	• Read-only • No interactivity	• Eliminates physical interaction • Addictiveness • Problems of confidentiality, deception, impersonation and dissemination of identity arise	• Major security problems • More complex and costly technical requirements	• An increase in the possibilities of human destructiveness • Higher vulnerability and safety issues	• Risk of evolution toward unnatural beings

Table 1. Web 1.0 to 5.0. Characteristics, advantages and disadvantages.

TRANSFORMATIONS IN THE PSYCHE AND IN PSYCHOTHERAPY

Throughout the evolution of the internet, from web 1.0 to 5.0, transformations in the working of the psychic have also taken place, running parallel to the technological transformations. Some thinkers in the field of philosophy, such as the previously mentioned McLuhan, or in psychology, such as Sherry Turkle, were ahead of the curve in terms of the conception of social transformation and intersubjectivity by means of the technological network. Although in the field of applications, the network has developed much more in aspects linked to the economy, work and entertainment. In these three decades, the modifications produced include the ways of perceiving oneself, of perceiving others, and the modalities of relationships between people when they are produced through technological mediation. We can highlight an evolution that indicates transformations around some main ideas:

1) interactivity
2) synchronicity
3) multimodality
4) hybridization (person-machine)

These axes of evolution work in the form of an inverted conical spiral, which expands and allows for progressive and regressive movements in the use of the different online intervention resources.

For example, in the initial stages of online psychotherapies we can observe the importance of the use of written text, with a significant delay between the emission of the message and its reception of it, through fax chains or e-mails, and in the second moment, using Web 2.0 architectures, through textual forums and with different degrees of synchronicity. These archaic modes of operation of the network have shown us important utilities that are still proving fruitful nowadays. Let us give some examples where textual communication with different degrees of delay between message and response is useful: for neurotic disorders when we want to facilitate the development or growth of spaces for intrapsychic reflection before the spaces of inter-subjective relationship; in borderline pathologies with a predominance of impulsive functioning, it is useful to establish spaces of silence and waiting between one message and another; situations in which the presence of the image of one's own face or body becomes uncomfortable or disturbing.

1. Interactivity

In psychology 1.0, we can see a black segment (see figure 1) which represents an individual connected to a technological device through which she connects with a space that we call cyberspace and that, in the initial states of web development, was basically configured by organised databases and with different information search devices. It functioned in a unidirectional way, in the sense that it was difficult to interact with other participants in the communication phenomenon, except through the data or information contained in cyberspace, which was difficult to edit, let alone co-edit. Interactivity evolved in a significant way, in psychology 2.0, through forums with a short delay in communication; interaction with other participants connected to the network had appeared. Important issues arose relating to connectivity and the availability of devices with sufficient power to begin transmitting information with a much larger information load, such as sound or image files. In the more advanced versions of the forums, it was possible to exchange, with some difficulty, photographs and audio files. Following the surge of video conferences, the topic of interactivity has changed tracks and, something that years ago would have belonged to the realm of science fiction, became a tangible and common reality, at least in the exchange between two people, which was what the technology offered in the early days of online videoconferencing.

Subsequently, the number of people who would be able to participate in a videoconference was increased. 3, 4, 6, 8 and currently up to 500 people may be connected simultaneously with image, sound and co-editing capacity. In architectures such as a webinar, since not all participants are present via an image, there can be an audience of up to 10,000 people connected who can interact through written text or access the information individually.

The possibility of long-distance interaction with participants from different parts of the planet, nowadays in a synchronous fashion, opens new possibilities in the field of therapeutic communication, for example, in social or cross-cultural issues; in the field of training future professionals, the possibilities of transferring knowledge are increased, without spatial or language barriers. Furthermore, possibilities have been shown in the field of mental health with regards to prevention, through work in online or in hybrid groups.

Online psychotherapy groups have taken place throughout this technological evolution, and in previous research we can confirm the development of therapeutic processes and micro-processes through online participation (Vaimberg: 2010).

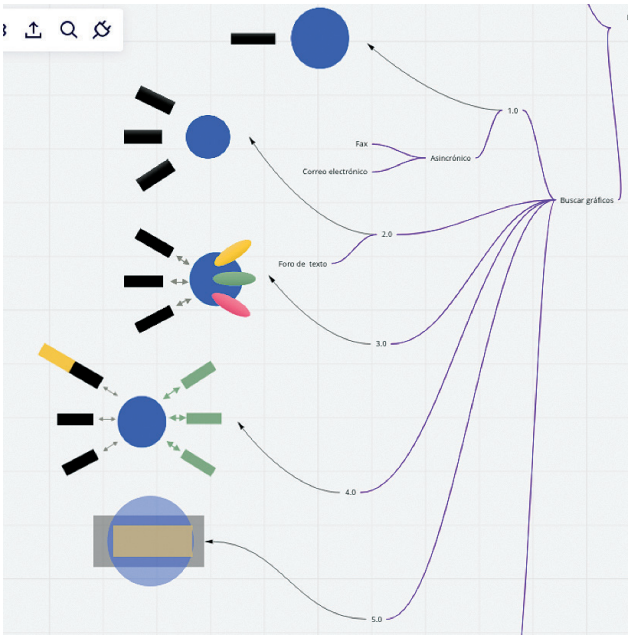

Figure 1. Socio-technological Architectures of psychologies 1.0 to 5.0. (Figure created by the author with a free and open access software) Blue circles: represent cyberspace; black segments: people connected through technological devices; coloured ellipses: web applications; green segments: machines; figure 5.0: biotechnological hybridisation represented by the overlapping of cyberspace, technological devices and the human body.

2. Synchronicity

The paradigm of synchronicity has been organised with the aim of reproducing online, as reliably as possible, presential communication, one of the characteristics being the simultaneous presence in time and space of the participants taking part in the communicative event. This question continues to be significant, but from the deepening of knowledge of online communication systems, we have discovered the many possibilities of fragmentation and reintegration of times, spaces and modes of language. These new technical possibilities offer different applications in the field of therapeutic interventions. We are able to reconfigure the temporal sequence by altering the timeline in terms of past, present and future. We can alter the delays in the communication phenomenon, ranging from the almost absolute synchronicity of videoconferencing to the time-spaced exchange in the manner of ancient epistolary communications. It is possible to fragment and integrate spaces, images, sound, text and the body itself, which offers a plethora of possibilities regarding the investigation and intervention in psychotherapy.

3. Multimodality

Static and moving images, sound, text, a word, are nowadays brought together in a single system for recording information, which we call digitisation. Multimodality allows us, in much the same way as synchronicity, to move toward the phenomenon of presentiality, although at the current moment of technological evolution, there still remains a long way to go in terms of questions of touch, contact and smell. The landscape of bi-dimensionality and tridimensionality have shown important advances in the last few years through the development of virtual reality devices.

The fragmentation of different language modalities also offers new possibilities in the development of therapeutic intervention and transformation devices. We can work with superimposed planes, altering the relationship between images, sounds, voices, or generating creative configurations that facilitate the work of therapeutic transformation. Such as when in psychodrama we use the technique of the double, we have various combination possibilities between the image of the protagonist and the different doubles they can possess, with or without an image. The psychodramatic mirror technique, when in online interventions we are faced with a real technological mirror, can be explored, also amplifies the possibilities of therapeutic transformation. We are moving in the direction of a multiple mirror which is formed of as many people that are connected to a given event, and we are on the way to configuring new identity modalities or different ways of perceiving oneself in the online world.

In the current state of online interventions, still predominantly two-dimensional, the multiple intersensory connection between the different participants of the event is hindered. For example, the impossibility in a multi-videoconference of direct and simultaneous looks between the participants in a group. Many of these difficulties posed by technologies require, on the part of the online psychotherapist, an active participation and a particular ability to 'three-dimensionalise the link' through the communication of the subjective experiences that appear in the here and now of the participants of the online event.

4. Hybridisation (human-machine)

In the last few decades, we have generated a progressive integration between ourselves and technological devices. We have named technological devices as 'technological prostheses'. Our relationship with technology has evolved from early stages of discomfort and uncertainty, frequent failures in online communication and increasing complexities in its operation. Slowly but surely, they have surpassed limits that were considered unsurpassable. In the early years, it was considered that if we spent more than two hours a day using or connecting to technological devices, we were in the realm of so-called abusive use or technological addiction. These days, we are connected through technology for extended periods of time,

sometimes more than we are in presential relationships. We now need to have our phones permanently with us as we move from one place to another, and it we don't it will cause discomfort. Based on this last observation, I believe that the conditions are ripe for the development of technological hybridisation devices, such as in-body devices like glasses and hearing aids or, even further, with the possibility of developing technological grafts below the surface of the skin and, probably, in direct connection with our nervous system. That moment would mark the beginning of psychology 5.0, as is imagined in one of the uncomfortable episodes of the television series *Black Mirror*. The future of online group psychotherapy allows us to imagine immersive, synchronous and collective virtual reality spaces in which we have advanced the possibilities of online intersensory connection.

CONCLUSIONS

In the online world we observe the rise of new modes of communication and relationships. Online psychotherapies require new theoretical concepts and psychotherapeutic techniques, as well as a necessity of training for professional who use online psychotherapy, as well as training for professional that use online psychotherapy,
both in new theoretical concepts and in training in the use of new technical possibilities. The new technologies broaden, through the various resources presented in this article, the possibilities of knowledge transference and the creation of spaces for learning and solidarity.
In online psychotherapy groups, modalities of purely online intervention, mixed (a combination of online and face-to-face interventions) and hybrid (a simultaneous online and face-to-face experience) have been developed. This range of technical modalities give rise to the possibility of different frameworks in small, medium or large groups and in ephemeral, short or and long-term interventions.
The changes in subjectivity and inter-subjectivity have been significant. As in other times, the emergence of the *new* brings up fears and ghosts, but perhaps in recent decades change has occurred at great speed. We are witnessing important possibilities for transformation and creativity and also risks that we need to address, especially in vulnerable populations in the field of mental health.
I would like to finish with a reflection. I think it is daring to try to study the relationship between the evolution of technology, psychology and psychotherapy, but this is the world in which we live and in which our young people live, a new online world, which we hope will help lead us towards a better world. The traumatic situations that have occurred on the planet in recent years have had online spaces that favour solidarity, collective listening and the organisation of action. This last year, with a certain strangeness, I have found myself walking between nature and computers, and I am thinking that perhaps they are not so far away, especially if we are the ones who actively move from one to the other. Atoms, bits and the capacity for psychic representation form a fluid whole that forms the basis of the online world.

Digitalization is a new process that requires adaptations of our professions with the field of mental health so that we are able to respond to the growing current needs and, looking forward, to the exceptional requirements stemming from the pandemic. Changes for the future, in the care of groups, children, adolescents, severe mental disorders and in the training processes in area of prevention and of psychotherapies, are creating one of the great and most exciting challenges of this century.

BIBLIOGRAPHY

Kerchove, D. (2006). Els biaixos de la electricitat. Lección inaugural del curso académico 2005-2006 de la UOC. http://www.uoc.edu/inaugural05/esp/kerckhove.pdf.
McLuhan, M. (1962). *The Gutenberg Galaxy: The Making of Typographic Man.* (1st ed.). Toronto: University of Toronto Press.
McLuhan, M. (1964). *Understanding Media: The Extensions of Man* (1st ed.). New York: McGraw Hill.
McLuhan, M. (1967). *The Medium Is the Massage: An Inventory of Effects* (1st ed.), with Quentin Fiore, produced by Jerome Agel. Random House.
McLuhan, M. (1968). *War and Peace in the Global Village* (1st ed.), with design/layout by Quentin Fiore, produced by Jerome Agel. New York: Bantam.
McLuhan, M.; Powers B. (1989). *The Global Village: Transformations in World Life and Media in the 21st Century (Communication and Society).* Oxford University Press.
Negroponte, N. (1995). *Being Digital.* New York: Alfred A. Knopf.
Turkle, S. (1984). *The Second Self: Computers and the Human Spirit.* Simon & Schuster, Inc., New York.
Turkle, S. (1995). *Life on the Screen: Identity in the Age of the Internet.* New York: Simon and Schuster
Turkle, S. (2011). *Alone Together.* Basic Books.
Vaimberg, R. (2010). Psicoterapia tecnológicamente mediada. (PTM). Estudio de procesos y microprocesos basados en participación online (Tesis doctoral). http://diposit.ub.edu/dspace/handle/2445/42573
Vaimberg, R. (2012). *Psicoterapia de grupo. Psicoterapia de grupo online.* Barcelona: Octaedro.