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Epistemological challenges in Knowledge Organization in the digital age

Epistemology emerged in European modernity as a construction of symbolic order, establishing itself as a way to legitimize knowledge and as a strategic means of controlling it. Scientific knowledge has gone through different stages and has not always been built on the same epistemes, having been subject to constant epistemological changes. It is necessary, therefore, to analyze the experience of order from the experiences that exist in every culture. Our values and the way we think and know are integrated in the framework of the episteme in force, in the age in which we live. Discursive practices may seem free, but they are strongly conditioned by the epistemic structures that embrace them.

Technological postmodernism has emerged, based on a fundamental switch to the primacy of technology over science, and specifically of digital information technologies, with a new virtual world of electronic information, enabling the transmission of an overall vision of both cultural and historical experience. Thus, since the beginning of the 21st century, digital information technologies have become the driving force of the information and knowledge society, an agent of socio-economic change and a scientific discipline par excellence which has led to the technological determinism current in today’s world.

Accordingly, a global interconnection of information and semantic information is generated, which can also produce an exponential pattern of technological growth. In our postmodernity, the digital network has triggered revolutions in a variety of contexts, whether mediatic, scientific, epistemic, symbolic or organizational.

Objectives

Epistemology is the central discipline in the construction of scientific knowledge, addressing the fundamentals, criteria, and validation through which knowledge is justified. It is a metadiscourse dedicated to order and scientific analysis. Epistemology emerged in European modernity, as a construction of symbolic order, establishing itself as a way to legitimize knowledge and as a strategic means of controlling it.

In the history of science and culture, in every age, there is always an underlying order that regulates knowledge. This silent order is what enables and adjusts the constitution of knowledge – that knowledge contained in each moment. Thus, scientific knowledge has gone through different stages and has not always been built on the same epistemes, having been subject to constant epistemological changes. It is necessary, therefore, to analyze the experience of order from the experiences that exist in every culture. Our values and the way we think and know are integrated in the framework of the episteme in force, in the age in which we live. Discursive practices may seem free, but they are strongly conditioned by the epistemic structures that embrace them.

This paper thus aims to illuminate the configurations that have given rise to different forms of knowledge and ways in which scientific knowledge is produced in each epoch, keeping in mind that the fleetingness of epistemology and current volatility necessarily
leads to the dissection of the old epistemology.

Moreover, all cultures are immersed in and constituted by the differing technical levels that fostered and shaped them (García Gutiérrez, 2002). The scientific perspectives imposed in the age of science are very different. Currently, in the context of epistemology, the paradigms of chronologically replaced processes have given way to new paradigms which have, in turn, led to paradigms of the paradigms, such that the processes of scientific methods obey a universal process governed by an interrelation of generative factors.

Thus, all epistemological changes and evolutions do not obey a linear sequence, but rather are factors of a generative process. Likewise, knowledge is related to discursive communities, with the different social groups that make up modern society. The digital network allows for the opening of more non-exclusive ways of identification, so that culture and access to it has been democratized. As a result, the re-expropriation of symbolic and socially relevant space becomes necessary. The process of social belonging will be further opened with the creation of new communities constituted digitally from different groups and associations of very diverse nature. For this reason, dynamic models of organization must be proposed, avoiding exclusion and invisibility, towards integration and transculturality.

It will be necessary to incorporate a new perspective to be able to appreciate the magnitude of this mutation towards a new electronic episteme, which also points to a post-memory condition where meaning will be linked to the assembly of discontinuous and mobile elements. Meaning will be found in the relationship to the new supporting foundation that transmutes everything.

Method

At the beginning of the 20th century, Western European culture and knowledge, with its scientific models and science-based truths, pointed to an epistemology based on objectivity, which became integrated into the new status quo. The transition to postmodernity occurred at the end of World War II, through the creation of the digital technological world, bringing about a shift in that objectivity, rationality and cognoscibility, where nothing is alien to its process or time and, therefore, nothing is totally objectifiable.

Likewise, technological postmodernism has emerged, based on a fundamental switch to the primacy of technology over science, and specifically of digital information technologies, with a new virtual world of electronic information, enabling the transmission of an overall vision of both cultural and historical experience. Thus, since the beginning of the 21st century, digital information technologies have become the driving force of the information and knowledge society, an agent of socio-economic change, a scientific discipline par excellence, which has led to the technological
determinism current in today’s world.

In addition, the digital interaction characterized by the development of technologies aimed at participation and collaboration between virtual communities, with social networks that make up communities wherein users interact, will, in turn, lead to the establishment of a digital identity space. In this way, a global interconnection of information and semantic information will be generated, which may also produce an exponential pattern of technological growth.

A participatory culture has emerged with blogs, wikis, and social networks, where individual creativity operates. There is already a new way of thinking in the digital era that encompasses hybridization of materials, formats and texts. Just as forms of primitive thought influenced knowledge organization, writing also changed it, in the same way that digital thought is now shaping our reality and its organizational form. The web demands new ways of learning and knowing, such that digital information, connectivity, virtuality and hypertextuality are already part of human thought.

We are in the preeminence of the visual, the digital and now the virtual, our most visual environment, which is becoming increasingly more widely implemented. Virtual visualization systems, which provide the illusion of immersion within an image, is a rapidly evolving field, which is modifying our whole reality, and creating new philosophical and ethical problems caused by the progress of virtual imagery, as it generates consequences for our new way of representing and interpreting the world.

The globalization of information, connectivity, virtuality and hypertextuality are already part of human thought. The natural memory considered as a process that requires the structure of natural language and human capacities, is interwoven in subject and consciousness. Memory saved through the medium of writing required the assistance of other tools, while today the multiple forms adopted by memory are invariably digital. The new tool used to recover digital memory is the semantic web, which points to the future of information on the Internet and seems to approach the utopia of organized global information, in the attempt to give more meaning to the web. Web 2 requires new ways of learning and participating. Web 3.0 incorporates the proliferation of languages, concepts and hard-to-manage tools created by users. The semantic web seems a natural evolution of the participatory web in which we find ourselves, and it will be revolutionary if an effective combination is achieved between the inclusion of semantic content in web pages and the use of artificial intelligence. Semantic codification will then become a fact when this is fully automated.

A collective digital intelligence is being constituted, and we are now faced with the prospect of multitudes of people with intelligences linked into the digital environment, interacting and having access to enormous amounts of information. The smart crowd emerges when communication technologies expand human cooperation talents. The technologies that are beginning to make the smart crowd possible are added to mobile
phones, social networks and all the mass of information that is transmitted through everyday devices. It is a global connection, linking individual intelligences. This astounding global connectivity could result in a budding future network of globally linked individual intelligences. As a hypothesis, we may contemplate the possibility that at present we are experiencing one of the greatest leaps in the evolution of our species. The connection of intelligences could well be the next step in the evolution of human intelligence, which seems like a process, because humanity has always had a great fascination with technological change. The new denominations of homo digitalis, homo connectatus or homo cyber already suggest a new conceptual stage in the era of humanity.

Accordingly, a global interconnection of information and semantic information is being generated, which may also produce an exponential pattern of technological growth, as Raymond Kurzweil explained. In the same way, technological advances in the digital world will give rise to machines that are increasingly powerful, numerous and cheap. Raymond Kurzweil elaborates further on this law in his book *The Singularity Is Near*, anticipating that the complexity of integrated circuits in computers will double every year, and suggesting that an exponential pattern of technological progress persists throughout human history.

Technological uniqueness is a future event predicting that technological progress and social change will accelerate. This event has been named by analogy with the gravitational singularity observed in black holes, where there is a point at which the rules of physics cease to be valid, and where the convergence towards infinite values makes it impossible to define a function. This pattern culminates in an unimaginable technological progress in the 21st century, which leads to the Singularity. Once having arrived at the point in which an intelligence superior to that of humans is created, we would enter a post-human stage. Kurzweil predicts that the first artificial intelligence will be built around a computer simulation of a human brain.

Forecasts like this point towards a total model of interaction with technology, which undoubtedly determines proposals for epistemologies. At present, a totalizing technological model of interaction has been reached that determines and floods the theoretical substrate of epistemologies, where at the same time our brain adapts to the digital. The structure of information, which has been mediated by orality and by writing, will now be by achieved by digital information and semantic interconnection. The medium has shaped the message, but now it seems to adjust not only the structure, but even to shape reality and, indeed, our own brain, as a digital technological paradigm emerges. In the 21st century, the agent of socio-economic change, scientific discipline par excellence, will be technology and digital information, which implies a certain technological determinism as a universal law.

Our postmodernity, with the digital network, has triggered revolutions in different
contexts, whether mediatic, scientific, epistemic, symbolic and organizational. Thus, the transition of modern epistemology to the postmodern and digital has been facilitated by the emergence of the technological paradigm of information. This new technological paradigm is a new way of thinking, doing and living in the digital environment. Consequently, the current epistemological configuration must address the treatment of a vastly-multiplied volume of multidisciplinary information from a heterogeneous digital environment.

Conclusions

The new digital materiality is transforming the material context, science itself, together with its organizational forms. Therefore, the new epistemological framework must be addressed, and knowledge organization must be shaped by an open, critical and transdisciplinary analysis.

At present, a totalizing technological model of interaction has been reached that determines and floods the substratum of epistemologies. The structure of information which has until recently been mediated by orality and writing, will now be conveyed by digital information, and semantic interconnection, with adaptation of our brain to the digital reality. The digital medium has shaped the message, but now it seems also to be shaping the structure, and what is more, it is already altering reality itself.

The WWW emerged as a technological aid for communication, as well as for commercial, business, economic, educational and military ends, among many others. Moreover, it became a space for discourse, and later imagination, as a space of identity, now constituting a fundamental part of our lives. For under every concept or construct a metaphor beats, and with its repeated use we forget that it is a metaphor. The metaphors that we habitually use shape our perception, to the moment when we no longer perceive them to be metaphors. It is not we who say them, it is they who tell us and conceptualize the world. In digital reality there beats a metaphor that has forgotten what it is, and that forgetfulness is what paradoxically gives it consistency. And it is precisely this occupation of the digital environment, where the digital metaphor thinks us, constitutes us, conforms and shapes us, that we cannot perceive. Consequently, there are innumerable and profound epistemological challenges to be addressed when it comes to organizing the knowledge of the digital age.

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