

Infodemic: The New Informational Reality of the Present Times

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ABSTRACT

This text discusses elements and characteristics of contemporary informational reality, that is, the ways of producing, circulating, organizing, using, and appropriating information in the current context. Initially, seven terms and concepts used to describe this reality are discussed: fake news, false testimonials, hate speech, scientific negationism, disinformation, post-truth, and infodemic. Next, an attempt is made to present a framework for such phenomena as an object of study in information science. Therefore, this scenario is characterized based on the three main models of information science study: physical, cognitive, and social. The contribution of each of them to the study of contemporary informational reality is analyzed, identifying aspects such as the bubble effect, clickbaits, confirmation bias, cults of amateurism, and post-truth culture. Finally, it presents the discussion of a possible veritistic turn in the field, in order to think about elements not covered so far by information science in its task and challenge of producing adequate understanding and diagnoses of current phenomena. In conclusion, it is argued that only accurate and comprehensive diagnoses of such phenomena will allow information science to develop services and systems capable of combating their harmful effects.

Keywords: infodemic, disinformation, fake news, scientific negationism, post-truth

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1. INTRODUCTION

Information science was born in the 1960s, focused, as expressed in Borko's (1968) classic definition, on the study of the behavior of information and forces that govern its flow. The post-war context set the tone for what was required of the new area: guaranteeing scientific foundations for the construction of scientific and technological information systems, services, and structures to guarantee their transfer among scientists from those in the productive sectors to society, faster, more accurately, and with less cost (Saracevic, 1999). Six decades passed, several technologies were created, and new services and systems and ways of organizing and making information became available (Gleick, 2011). The issue of guaranteeing access to information is no longer central to the area. Today, there is a lot of access to information, instantly and ubiquitously – although part of humanity does not have yet the conditions for this access and some barriers remain, such as, for example, scientific journals that charge for access to information (Ibekwe-SanJuan & Dousa, 2014; Lafrance, 2010; Mattelart, 2002).

The wide access we currently have to information, in the second decade of the twenty-first century, contrary to the predictions of the 1960s and 1970s, has not resulted in wiser, more rational, and more tolerant societies. Different research has shown the growth of authoritarian regimes and governments, xenophobic and racist practices, greater individualism, and increases in religious fundamentalism, in addition to the proliferation of conspiracy theories and scientific and historical negationism (Shu et al., 2020). Along with all this, as a cause and also as a consequence, there has been an exponential increase in the circulation of false information, especially on social networks, in which there is also growing polarization and aggressiveness (Eatwell & Goodwin, 2018; Fukuyama, 2018; Solano, 2018; Williams, 2021). The most important effect of this dimension is related to the fact that people have made their decisions (about health actions, choice of governments, among others) based on such false information. Such issues have characterized a new dynamic of production, circulation, appropriation, and use of information, quite different from those that humanity was experiencing in the 1960s.

The purpose of this article is, precisely, to present and discuss these new informational issues, to highlight which elements, within the scope of information science, must or should be modified, added, or produced in order to have the possibility of studying and intervening in the new in-

formational dynamics. At first, the conceptual framework itself is discussed, as different terms have been used to talk about information in the contemporary moment – some of them synonymous, others complementary. In a second moment, we seek to draw such dynamics within the conceptual frameworks of information science, based on its three paradigms. Next, a new discussion is presented, brought in a complementary way to information science, in which a possible veritistic turn for the area is proposed. The working methods were the literature review and the epistemological analysis, through which a relationship was made between the studies that describe the contemporary moment (through seven concepts, among them the infodemic) and epistemological analyses on the concept of information in information science.

2. DIFFERENT CONCEPTS AND INTERRELATED PHENOMENA

The different terms that have been used to describe the contemporary informational scenario cover specific aspects of this scenario or refer to a dimension of the problem. Several researchers have shown that this scenario is actually made up of different aspects and dimensions, which sometimes overlap and/or complement each other (O'Connor & Weatherall, 2019; Peters et al., 2018). One of the challenges that arise at this time, for the various sciences that seek to study such phenomena (including information science), is precisely to identify each of these aspects, analyze the terms, concepts, and categories of analysis used to study them, and propose a general conceptual framework capable of interrelating them.

2.1. Fake News

The first concept to be highlighted is fake news. There is resistance to the use of this term by journalists and communication scholars, due to the fact that if content is false, then it is not news – news being understood as a journalistic category (Allcott & Gentzkow, 2017; Osho, 2020; Waisbord, 2018). The abundant use of the term, however, ended up making it fundamental for the understanding of our actual society. Literally, fake news means false news. The first element of its characterization is its falsehood: it is produced with the intention of lying, deceiving, distorting, or hiding the truth. The second element is that it seeks to be perceived as true journalistic news. That is, fake news is part of a strategy that recognizes the legitimacy of journalistic discourse and journalistic institutions and, instead of questioning this legitimacy, it actually take

advantage of these institutions to gain credibility. This not only occurs from journalism, but also from universities, institutes, and science – often fake news appeals to “experts,” scientists, professors, and politicians, some fake, others with distorted speech (d’Ancona, 2017).

Fake news reports are, therefore, lies disguised as journalism. They can originate from a website that copies, in appearance, the characteristics of a journalistic website; they may have as their name or web address the same name as an existing institution, with a different letter; they can be signed by people who introduce themselves as journalists without being one, or by people with names almost identical to those of recognized and respected journalists or columnists. The text uses the typical structures of journalism – language, interviews, support in expert assessments, and images, among others.

It should be noted here that, obviously, one does not want to imply that the media always tell the truth. Decades of scientific studies have demonstrated how journalistic vehicles are companies that serve or are susceptible to certain interests of economic, political, military, and religious groups, etc. (Pellicer Alapont, 2017). However, they have always been institutions with headquarters, registration, and hired employees, and to build their credibility, they were never able to invent completely false facts, under penalty of being held responsible and discredited – as evidenced by studies on the institutionalization of journalism in modern societies (Thompson, 1995) and, also, current research on the relationship between fake news and institutional journalistic activity (Braun & Eklund, 2019; Franklin & McNair, 2017). Distortion of facts, favorable framings to one group or unfavorable to another, silence about discrediting facts of its funders, listening to only one side of the issue, and mixing opinions in informative content are some of the various strategies to shape or distort reality according to certain interests. The novelty brought by fake news is the construction of a completely false report, news of a fact that never happened, and its presentation in the mold of journalistic discourse. The strength of fake news resides in the inability (or disinterest, as will be pointed out below) of people in differentiating one type from another, attributing the same degree of reliability to different content just by the appearance of the informational content.

2.2. False Testimonials

The second concept is that of false testimonials. In Spanish, the expression “cuñadismo” has been used (Argemí, 2019) and, with some differences, in English the

term “bullshit” (Frankfurt, 2005) is common. It is the old gossip, or rumor, but with a sophistication provided by technological devices (video and voice) which, unlike fake news, is built in opposition to institutions, in the belief that universities, schools, scientists, journalistic vehicles, and international organizations are all manipulators, indoctrinators, and conspiratorial agents, and therefore do not deserve credibility. Testimonials are produced by persons who present themselves as “ordinary” people, who use colloquial language, grammatical errors, amateur footage, and who defend these characteristics as a virtue – the fact that they are simple and everyday, “just like the person who watches,” becomes the criterion of legitimacy and credibility, in opposition to the manipulative forces of the institutions of the so-called “system.” The strength of the report, degree of emotion of the author or presenter, and importance of the facts presented (usually secret, because they are being hidden precisely by the institutions) add narrative strength to this informative modality. Some facts are directly related to the emergence of this modality, such as the so-called culture of amateurism (Keen, 2007), false equivalence (McIntyre, 2018), and disintermediation of information (Santaella, 2019).

2.3. Hate Speech

The third concept is hate speech. Unlike the first two, it does not seek to be factual, and it does not intend to present a fact of the world. Rather, it talks about the intentions, desires, needs, and fears of a certain individual or group of individuals – for example, that immigrants return to their countries, that feminism disappears, that everything goes back to the way it was before, or that a certain political group be exterminated (Fukuyama, 2018; Greifeneder et al., 2021). Its intention, and here it is complementary to the first two, is to mobilize people to act with emotion and not with reason. More specifically, certain emotions are stoked (fear, resentment, or hate) in order to provide aggressive reactions, especially in relation to disagreement. The other is no longer seen as an adversary, or a bearer of different ideas or points of view, but becomes an enemy to be eliminated, and the whole objective of informational spaces becomes to defeat the other. In this modality, the facts mentioned may be true or not; the intention is to put people in a state of war – but it is precisely this emotional condition that predisposes people to put aside the search for the truth in favor of the most urgent objective of winning the discussion at any price.

2.4. Scientific Negationism

The fourth concept is that of scientific negationism. Many studies show that questions of science have been around for a long time, coming both from common sense, from established authorities in traditional practices, as well as from religious leaders. But negationism as an articulated strategy has, according to historians, a very precise origin: the mid-twentieth century, when science discovered the links between smoking and cancer (McIntyre, 2018; Wilber, 2017). According to the classic study by Oreskes and Conway (2011), once scientific truth was established, the mighty tobacco industry needed to ensure the survival of its business. Tobacco industry groups created a foundation, began funding scientists to say it was not entirely certain that smoking caused cancer (because, of course, they could not prove otherwise), and disseminate the idea that any debate on the topic in universities, schools, or the media should present both “sides” of the issue, that is, those who are sure it causes cancer, and those who say it might. This led to the idea that there were two sides to the issue and, for the lay public, the idea was consolidated that there were scientists who said that it causes cancer and those who said that it does not. This was enough to sow doubt and ensure business continuity. In the following decades, similar strategies were created by business, industrial, and political groups to promote ideas such as, for example, that global warming does not exist, that vaccines cause disease, and even that the Earth is flat.

The core of the issue of scientific negationism, also called fake science, is that every time science discovers a truth that displeases a certain group (a country, business, religion, etc.), this group mobilizes efforts to discredit science and even strengthens itself with the confluence of other negationist movements.

Alongside scientific negationism, there is also historical negationism. Denial of the existence of the holocaust is certainly the best-known example, but there are others equally serious, such as the denial of torture in dictatorial regimes, or that there was no corruption in dictatorships, or that regimes that suppress individual freedoms and implement the policy of torture and killing of political opponents were not dictatorships, among many others. Both scientific negationism and historical negationism benefit from the phenomenon of clickbaits, the social media click hunters (Aparici & García-Marín, 2019). These are groups or people who perceive the potential for visibility of the production of negationist content and do it precisely to obtain views and, with that, economic resources. For many decades, studies on sensationalism have shown the

great popularity that misleading content can achieve, but nowadays this dimension is added to the high degree of sophistication in the use of this resource and its link with political, economic, or religious interests.

2.5. Misinformation

The fifth concept is misinformation, and in fact, it has been used contemporaneously with two meanings (Cosentino, 2020). One of them refers to the sophisticated techniques of production of lies, therefore the strategic and intentional dimension of production of falsehood. It is about identifying the groups that produce and disseminate fake news, testimonials, or hate speech, which select the best channels for each one of them, articulate the complementarity of speeches in each modality, and identify the opponents to be neutralized.

In this sense, one of the most successful strategies has been the hijacking of postmodern ideas about truth. The postmodernist movement developed throughout the twentieth century as an artistic, cultural, and also a philosophical movement (Harvey, 1992; Jameson, 1992; Lyotard, 1984). Among its characteristics is the questioning of the idea of the existence of an absolute, unique truth, that is, there cannot be an absolutely correct answer about what each element of reality means. The denunciation that any statement of truth would be an authoritarian act, because it is always ideological, ended up being a criticism hijacked by political movements to say that everything is ideological and, therefore, there can be no “truth,” only “alternative facts” – an expression used by United States President Donald Trump on several occasions when he lied and was confronted by journalists, scientists, or members of the judiciary with the evidence of the facts (Kakutani, 2018).

The other use of the expression “disinformation” concerns the effects of these actions, that is, the state of chaos, confusion, or doubt generated in large sections of the population that precisely need and/or seek information to define their opinions and make their decisions. In this second sense, misinformation is very close to the next concept to be presented, that of infodemic.

2.6. Post-Truth

Finally, the seventh concept is the concept of post-truth. Many people criticize its use, identifying that it is actually a fad or a mere synonym for a lie with a different package (Fuller, 2018; McIntyre, 2018; Santaella, 2019). But the researchers who propose it as a scientific concept warn that it does designate an unprecedented question

in history. Post-truth is a phenomenon that occurs at the confluence of three conditions. The first of these is the widespread dissemination of false information (completely false, and not just distortions as in the era of mass media) with technological support that allows unimaginable reach in the era of gossip and rumors. The second is the possibility of fact-checking these days, where many people can, in a few seconds and with everyday devices such as smartphones or notebooks, verify the information received by them in any medium. The third is the fact that people do not do so, that is, they do not check and do not verify if information is true or false, before passing it on and appropriating it. It is this disinterest, this disdain for the truth, that marks what has been identified as a “post-truth culture” (Wilber, 2017) or a “post-truth regime” (Broncano, 2019). The expression “culture” precisely designates a set of values, naturalizations, or stimuli to a certain behavior – in this case, contempt for the truth, valuing what confirms preconceived ideas, and selecting only what is comfortable. Post-truth characterizes a contemporary imagination in which the disregard for truth is naturalized, encouraged, and exalted as a value or a virtue.

2.7. Infodemic

“Infodemic,” of all concepts presented here, is the least developed (Naeem & Bhatti, 2020). The association of the terms “information” and “pandemic” thus characterizes a pathological characterization of the informational dimension: The gigantic scope and speed of dissemination of false information has produced a situation in which false information is more present in people’s lives than true and quality information and ends up having much more influence in decision-making and in defining courses of action (Zarocostas, 2020; Zielinski, 2021). This constitutes a “pandemic” nature of informational phenomena, taken from the perspective of its adverse effects or dysfunctions. The term was created in 2020 and promoted by the World Health Organization to designate precisely the role of information in the pandemic scenario caused by COVID-19 (Pan American Health Organization, 2020; World Health Organization, 2021), and the World Health Organization created an event to discuss the infodemic (World Health Organization, 2020). In this sense, the term “infodemic” designates the general conditions through which information is produced, circulated, disseminated, received, used, and appropriated by people at the contemporary moment. The exercise of identifying such conditions also implies considering the technological means of such production and circulation, the economic and legal forces that act on

these processes, and the ways people behave in relation to them.

3. CONSTRUCTION OF THE INFORMATIONAL PHENOMENON

There is a reasonable consensus in the area of information science that, throughout its history, the area has presented three major models for the study of information or, as some call it, three paradigms (Bawden & Robinson, 2012; Capurro, 1992, 2003; Linares Columbié, 2005; Salaün & Arsenault, 2009; Saracevic, 1999): a physical model, a cognitive model, and a sociocultural model. The object of study of information science would involve, among other possibilities, the exercise of identifying its technical or physical dimensions, its semantic or cognitive dimensions, and its sociocultural or pragmatic dimensions.

3.1. Three Models of Information Study

The first of these models is linked to the very birth of information science, in England and the United States, during the period immediately after World War II, linked to the importance that information had, in this context, for scientific and technological development during the cold war period (Shera & Cleveland, 1977). In this sense, “information” was understood in a very specific sense, as scientific and technological information, and its study took place within an essentially governmental and military logic, that is, the objectives with the study of information, even before they were properly scientific, were pragmatic, related to a context of competition between countries for hegemony in the international scenario. Studying information was to understand and map the production, circulation, and use of scientific and technological information (and only this) in order to think about instruments for its processing to ensure greater speed, lower cost, and greater accuracy in its transfer within the scientific community, and from this to strategic sectors of government and military environments (Coll-Vinent, 1984; Debons et al., 1988). It was a very specific way of knowing (based on a set of interests) and required the delimitation of something very specific to be known – what was considered an object of study in information science.

A science of information control was developed there, of the development of techniques for its optimal processing in a context of competitiveness among countries through the development of their scientific information systems (Davis & Shaw, 2011). The theoretical model of

this approach, known as the “systems paradigm” or physical paradigm (Capurro, 2003) or positivist model (Budd, 1995), which presupposes the study of information systems isolated from social life and users, basically comes from quantitative measures of information retrieval performance (Bawden & Robinson, 2012).

In the following decades, a second way of studying information developed in information science, the so-called cognitive perspective, centered on users (Belkin, 1980). This movement represented a shift in the same research logic from the governmental and military environments to the scope of the industrial and business sector, with demands for efficient management, operation, and control (Debons et al., 1988). The novelty, from a conceptual point of view, was the introduction of a perspective that was no longer oriented towards systems, but towards users or customers (Hjørland, 2018a). Thus, the study of human cognitive processes and their modeling took place, with the aim of developing information systems that could replicate such processes, so that the focus of the studies was on individuals relating to information and the manifestation of their needs and procedures for solving those needs (Bawden & Robinson, 2012; Brookes, 1980; Gilchrist, 2009).

At the end of the twentieth century, the construction of the third major perspective of information studies began. Linares Columbié (2005) highlights the novelty of this movement as being another epistemology of information science from the study of society and culture. Cronin (2008) speaks of a sociological turn in information science, following the cognitive turn of the 1980s. Budd (1995) speaks of a hermeneutical phenomenology that takes into account the intentional stances of the human actors. Brier (2014) defends a cyber-semiotic perspective, going beyond just a syntactic or just a semantic perspective in the study of information. Hjørland (2018b) mentions recent views oriented from a social and cultural perspective. Bawden and Robinson (2012) indicate a socio-cognitive paradigm, inspired by Shera’s social epistemology and Hjørland’s domain analysis, which seeks to examine a level of analysis broader than the individual (social groups, communities, or countries) as well as other issues beyond cognition (only the mentalist level of information phenomena), in a tendency to articulate individual and collective levels of information. This third approach has expressions in theories such as information regimes, domain analysis, informational practices, folksonomies, and altimetry, among others, focused on the socially constructed character of information and its imbrications

with political, economic, cultural, legal, and technological dimensions, and other aspects of societies in which information phenomena exist and are constituted.

3.2. Current Phenomena According to the Three Models

Analyzing the contemporary informational scenario with such references, it is possible to identify, initially, a specifically physical, technical dynamic of the problem. This dynamic concerns technologies and logic of “personalized” information delivery promoted by the algorithms that structure search engines and social networks – these, which ended up becoming the privileged environment from which people receive news and information of the world. And they are built from algorithms that select what people are likely to want or what agrees with their point of view, in a phenomenon known as the “bubble effect” (Magallón Rosa, 2019). On social networks such as WhatsApp, messages are sent en masse directly to people’s devices, without anyone being able to monitor or oppose them, in an “underground” logic of information dissemination. With the formation of “bubbles” or “echo chambers,” in which users are isolated, closed to new ideas, issues, and important information, especially in politics, people end up exposing themselves “almost exclusively to unilateral views within the broader political spectrum” (Santaella, 2019, p. 15).

Along with this phenomenon, there is also the existence of platforms, applications, and services that enable the mass dissemination of false news. Although this is not exactly a new phenomenon, there is a new dynamic, through transfers made by common people, verifying the absence of regulations such as those that affect journalistic or educational institutions, in a logic in which all information has the same weight or value, regardless of its quality, verification, and institutional commitment behind its production. Such phenomenon is further strengthened by the action of clickbaits, that is, the dissemination of false content or the insertion of sensational titles so that users will access the content, with the aim of generating traffic and benefiting from advertising (Aparici & García-Marin, 2019). In this dynamic of a gigantic volume of false information dissemination, lies can shape people’s decision-making in different spheres (in politics, economics, health education, and religion), in a speed and quantity never seen before.

Such dynamics are complemented with the pervasive information scenario, that is, information as an entity and/or process present in all our activities, whether pro-

fessional, business, cultural, educational, sports, medical, romantic, etc., in a way or on a scale never seen before, related to apparatuses or devices as different as computers, cell phones, houses, cars, or objects, also related to the emergence of the so-called Internet of Things. Linked to this is also the phenomenon known as big data, which is related not only to the production, on an increasingly gigantic scale, of information, and the impact of this information on our lives, but also to the very way information is produced. This phenomenon is related to the fact that, increasingly, there are datasets generated unintentionally, not programmed, by people. Now there are systems that are capturing steps, paths, and biometric indicators, and they are transforming all of this into data sets that are appropriated and used for different purposes, from security and convenience to surveillance and political control, also representing a challenge to the privacy of people's data.

The very speed of information and the need for updating are also noteworthy, when measuring in minutes or seconds the gap in people's knowledge about a given fact or subject that may be occurring in a local context or even in distant countries. This involves the large volume of information that instantly arrives to individuals, in very different formats, languages, and supports, such as texts, images, sounds, moving images, and other derivatives thereof.

The aspects raised above are thus related to the physical or technical dimension of the information identified and studied in the first major model for the study of information science. But, as pointed out above, a cognitive perspective developed in the area, after a few decades, centered on the tripod of data, information, and knowledge.

This second dimension of information phenomena is related to the human level or, more properly, to the human cognitive dimensions often identified in studies on fake news, misinformation, and post-truth: the existence of the so-called cognitive bias, or confirmation bias, or even cognitive dissonance. It is a human tendency to form beliefs and worldviews without being based on reason and evidence, that is, on facts, in an effort to avoid psychic discontent.

McIntyre (2018), discussing the current post-truth scenario, points to three classic studies in social psychology conducted in the United States, in the 1950s and 1960s, that demonstrated this issue. The first of those is Festinger's theory of cognitive dissonance, according to which we seek harmony between our beliefs and actions. The second is Asch's theory of social conformity, which

postulates that we tend to give in to social pressure out of our desire to be in harmony with others. The third is the confirmation bias study conducted by Watson, which identified our tendency to give more weight to information that confirms our pre-existing beliefs. McIntyre also presents recent studies on the issue, expressed in two concepts. The first is the counterproductive effect, a phenomenon in which the presentation of true information to a person that conflicts with their beliefs in false facts makes the person believe those false facts even more strongly. The second is the Dunning-Kruger effect, a phenomenon in which our lack of ability to do something causes us to overestimate our real abilities. The consequence of this phenomenon is that, often, people who have little knowledge about a subject believe they are more knowledgeable about it than others who are better prepared (and precisely because of this, the latter consider themselves and declare themselves less able to talk about the subject) and this causes people to make wrong decisions motivated by that kind of ignorance or unrecognized incompetence, which diminishes their ability to recognize their own mistakes. Such elements of cognitive bias make people prone to form their beliefs without regard to reason and evidence. That is, people's relationship with information is not just one of data appropriation, as formulated in the cognitive approach of information science in the 1980s, but also of refusal of data that confront one's worldview, and acceptance only of data and evidence that confirm prejudices and guarantee psychic comfort. This phenomenon has increased importance in the context of formation of the bubble effect mentioned above, as it isolates people from the contradictory, of different views, in a dynamic of reinforcement of worldviews and prejudices.

And there is also a third dimension of the current informational outlook, which is cultural (and, therefore, related to the third great model for the study of information science). Its importance is such that there are authors, as pointed out in the previous topic, who refer to a "post-truth culture" (Wilber, 2017) or to a "post-truth regime" (Broncano, 2019).

Currently, people in general (except, of course, a portion of the world population without the economic conditions for this, as mentioned above) have easy and instant access to technologies and possibilities to verify the veracity of information, through smartphones, notebooks, desktop computers, or other devices. Unlike other periods in history, when it would be difficult or impossible to check whether information, for example, about the way of life in a distant country was true or false, currently, at home and

in a few seconds, it can be checked. But people do not do this. They accept it as real, pass it on, share, and appropriate information without bothering to verify it. It is this disdain, this disinterest in the truth, in a context with so much access to information, which is the new fact that the idea of “post-truth” as a culture seeks to encompass.

In this sense, post-truth designates a condition, a context, in which attitudes of disinterest and even contempt for the truth become natural and disseminated, and become everyday, normal, and even stimulated. There is a process of acceptance and replication of concepts that normalize disdain for the truth: Post-truth “is an idea, an imagination, a set of social representations or meanings already incorporated by audiences and from which the existence of fake news that refers to this idea is possible, affirming or expanding it” (Murolo, 2019, p. 68, our translation). This dynamic ends up giving force to clickbaits and other mechanisms for disseminating false information.

Wilber (2017) analyzes this phenomenon within a wide-ranging change in the framework of values of contemporary societies. It starts from the election of Donald Trump as president of the United States and the exit of Great Britain from the European Union, two phenomena directly associated with the triumph of false information produced, disseminated, and consumed en masse, and which guided people’s decisions in a given voting time, and associates them with others, such as the decrease in the value of democracy, or the increase in hatred, racism, xenophobia, or bad taste, among others. And with that, Wilber frames post-truth within a broad process of changing cultural values in the world – and especially in Western societies.

Wilber analyzes the values and ideas in a situation of leadership or acceptance in the world at a moment (what he calls “vanguards”). He identifies that, in the first half of the twentieth century, the world was driven, in various political, cultural, and intellectual movements, by values associated with the rational, operational, and conscious, the ideas of merit, profit, and progress – that is, directly related to the ideal of modernity. In his analysis, he considers that, after the 1960s, ideas associated with post-modern values such as the defense of plurality, relativism, self-fulfillment, inclusion, multiculturalism, civil rights, sustainability, and defense of minorities, among others, would be in force. And, following the analysis, Wilber points out that, in the second decade of the twenty-first century, a crisis of this project is taking place, a failure of the progressive vanguards.

Wilber points out several factors that might have

caused this failure. Among them is the relativization of the idea of truth, the idea that there are local, particular truths, which led to a form of generalized narcissism: the inability to assume the other’s perspective, the loss of the feeling of empathy, and the hatred against minority points of view, leading to essentialist views, with tendencies towards racism, patriarchy, and misogyny; and a crisis in the legitimacy of modern institutions, human rights, reason, science, and democracy.

Along the same lines, but in a more specific focus, Keen (2007) identifies what he calls the “cult of amateurism,” a certain celebration of amateur content that ends up nullifying the distinction between the professional and the amateur, which leads to the weakening of newspapers, magazines, music, film, and journalistic industries, with the consequent disappearance of professional standards and editorial filters and the exaltation of plagiarism and piracy.

The frameworks presented so far allow the identification of several dimensions of contemporary informational dynamics. The centrality of the question of “truth,” however, remains a problem. How is it possible to have services and systems capable of identifying and selecting false and true information? Who would have the power to determine the degree of veracity of the information? How can creators and disseminators of false information be blamed? How can one act in the face of a culture of disdain for the truth?

In the next topic, a discussion arising in the field of information science is presented, which seeks to show new theoretical elements to adapt the area to the effective study of contemporary dynamics.

4. A VERITISTIC PROPOSAL IN INFORMATION SCIENCE

The first proposal of a possible veritistic turn in information science – that is, to place the question of truth at the center of scientific and professional activity – was made by Fallis (2000) from the proposal of a veritistic social epistemology made by Alvin Goldman. Fallis reports that this proposal sought to study the social practices that contributed to the production of errors and lies in the social creation of knowledge. The fields of action initially thought of by Goldman were science, law, and education. Fallis proposed to bring this theory closer to information science through the incorporation of libraries and other information services and systems in the scope of the studies. In a later work, Fallis (2002) seeks to bring this idea of

proposal closer to the social epistemology made by Jesse Shera and Margaret Egan in 1952, thus seeking a foundation for information science by bringing together the two discussions: that of social epistemology and that of the vertical turn.

The defense of Shera and Egan's social epistemology as a general foundation of information science is also carried out by other authors. Among them, Budd (2002) stands out, who proposes that this theory can be useful to conceive information science as an area dedicated to the study of all the ways in which a society deals with the knowledge that it produces and consumes. In a previous work, Budd (2001) had already analyzed the issue of error and false information in the scope of the construction of scientific knowledge and its impacts on information science.

Taking up points made by these authors, Jonathan Furner elaborated a new proposal. Furner is a researcher who has been questioning the epistemological bases of information science for some years, from an approximation with the Shera's social epistemology (Furner, 2002), going through some more general philosophical questions (Furner, 2010, 2015) and reaching a problematization of the concept of information in the five sub-areas (information behavior, information retrieval, information metric studies, information organization, and information ethics) of information science (Furner, 2014).

In a more recent work (2018), Furner seeks an epistemological foundation for the knowledge organization (KO) based on contributions from epistemology and ethics – and, more specifically, from social epistemology and epistemic justice. Based on the articulation between three concepts (truth, relevance, and justice), he proposes a veritistic turn for the area, so that it can be a critical knowledge organization (CKO). The proposal of a veritistic turn means placing at the center of research in information science the notion of truth, instead of the notion of relevance, traditionally consolidated as central in the field.

Furner (2018) starts from philosophy, more specifically from a branch of it, ontology, which studies the philosophy of being, of things that exist, of what types of things exist, of how they can be classified. He proposes to think of the KO as an ontology, substituting “things” for “data” – the KO would be, thus, a “philosophy of data.” It would be composed of elements from three traditional branches of philosophy: the philosophy of mind, philosophy of language, and philosophy of belief. The latter is taken by Furner as synonymous with epistemology or philosophy of knowledge. Furner identifies, in it, the existence of two types of theories: truth-oriented theories, which can be

defined as belief theories that distinguish between true and false beliefs; and relevance-oriented theories, which can be defined as belief theories that distinguish between relevant and non-relevant beliefs. Based on this, he detects the existence of a historical disconnection between epistemology as a subfield of philosophy and library and information science (LIS): in the first, theorizing about belief is truth-oriented; in the second, it is relevance-oriented – relevance has become the main criterion for determining information retrieval.

Still in the field of epistemology, Furner proposes that epistemology can be divided into types, according to three criteria. The first criterion is that it distinguishes pure epistemology (composed of descriptive theories of the nature of epistemic concepts and practices) and applied epistemology (composed of normative theories, which seek to guide the most favorable practices to obtain true or relevant propositions). The second criterion has to do with methodology, and a rationalist or naturalist epistemology can be identified, depending on the subject's readiness to admit different types of evidence in support of the conclusions. Finally, according to the main factor in the formation of beliefs, epistemology can be individualistic (when considering the subject's interests) or social (when choosing to focus on social interaction). Combining these criteria, Furner proposes applied social epistemology (the study of normative questions about social practices that are most likely to generate true or relevant beliefs) as an adequate theoretical framework for his proposition of a CKO.

Next, Furner addresses the issue of justice. He presents justice as a value (such as truth, relevance, beauty, and freedom) related to a characteristic that is desirable in the results of people's decisions and actions. Justice is achieved when people are treated according to their merits or needs, without prejudice or discrimination, without violation of their human rights, without limitation of their freedoms, and without the exercise of any form of oppression arising from asymmetrical power relations. Furner identifies different types of rights (natural, human, civil, group, or individual) related to equitable access to certain goods or opportunities. In relation to the field of information, he lists six types of rights: the right to think (to conceptualize, categorize and classify, believe, and have opinions); the right to express oneself (to give voice to one's thoughts in speech, writing, and in other ways); the right of access (the possibility to seek, investigate, find, hear, and know the thoughts and expression of others); the right to be heard (to publish and broadcast, to reach an audience without

being censored, silenced, hidden, or ignored); the right to be “left alone” (to maintain privacy); and rights to have credibility (to be treated as someone who has credibility).

When dealing with theories of justice, Furner first identifies what he calls social or distributive justice theories, those focused on the results of actions taken to distribute, according to fair criteria, amounts of resources among members of certain populations. Such theories aim to guarantee: the reduction of divisions, disparities, and inequalities between rich and poor, or between the powerful and the powerless; fairer distributions of social, cultural, economic, and political opportunities; and building and maintaining prosperous communities in which human rights and freedoms are respected. At the same time, the author raises the need to contemplate theories of injustice or oppression, which seek to denounce processes such as exploitation, marginalization, promotion of impotence, cultural imperialism, and violence. Furner concludes that working towards social justice involves the basic reform of oppressive and discriminatory social practices and institutions, as well as the redistribution of resources. Among such practices and institutions, he points out those involved with the production and consumption of knowledge – among which are libraries, information services, and knowledge organization systems, as well as bibliographic classification systems, lists of subject headings, and thesauruses.

Continuing his argument, Furner introduces the theory of epistemic justice, developed by Fricker (2017) and focusing on the fairness of how people are treated in their ability to know and have beliefs. Furner mentions Fricker’s distinction between types of epistemic injustice: distributive (which occurs whenever epistemic resources, such as education or information, are unfairly distributed); discriminatory (which occurs whenever failures are attributed to an individual or group); testimonial (when prejudice or a deficit of authority is attributed to an individual producing a discourse); and hermeneutical (when individuals are hermeneutically marginalized, that is, they belong to groups without access to equal participation in the generation of social meanings). In Furner’s assessment, social justice has become an objective of professionals working in libraries and information services. However, these professionals did not appropriate the theory of epistemic justice – although there has been applied social epistemology.

Based on the categories and concepts presented throughout his argumentation, Furner then proposes four foundations for the construction of a CKO: to be

informed by applied social epistemology (identification of the conditions under which testimonies must be evaluated as true or relevant); be inspired by values of epistemic justice (not only social justice as the primary end of libraries and information services, but also justice in the dissemination and acquisition of true beliefs); to respect human rights (the right to witness justice, to have credibility); and, finally, to privilege truth over relevance. It is in this last aspect that Furner proclaims a veritistic turn for information professionals. A relevance-oriented KO is one that seeks to assess practices, institutions, and information products based on the satisfaction of users’ desires and needs; a truth-oriented KO is evaluated based on the verification that the beliefs acquired by the users are true.

In another paper presented as a lecture (Hartel, 2018), Furner once again starts from the intersection between epistemology and ethics to propose a critical library and information science (BCI). For this, he first starts from social epistemology as a possibility for BCI to apply the values of truth and relevance in the construction of information access systems. Next, he defends the idea that BCI’s mission goes beyond social justice, reaching epistemic justice, that is, equal access for all people to recorded human knowledge from around the world. As a third point, he defends the opportunity for a “veritistic turn” in information science, whereby truth would supplant relevance as the main requirement of providing information to users. In his final proposition, he challenges the field’s attachment to the concept of relevance and problematizes the field’s adoption of codes of ethics with neutrality claims. In conclusion, he defends the need for a veritistic turn in the face of the “Trump era,” marked by the circulation of false news and “alternative facts” (Hartel, 2018). This “hint” given by the author to contemporary issues related to Donald Trump, president of the United States elected in 2016, and the intense dissemination of false information, was what motivated the problematization of his proposal based on the aspects, characteristics, and dimensions of the phenomenon of post-truth, as it has been studied by different authors from various areas of knowledge – as seen, for example, in Wilber’s starting point to develop the idea of a post-truth culture.

5. FINAL CONSIDERATIONS

Throughout its evolution and the development of its three paradigms, information science has been dedicated to the study of different dimensions of information phenomena. At first, information science was a way of

studying information as something physical, that is, as an objective phenomenon, as a sign in which it was understood as something existing in itself, independent of subjects and contexts, as a data, endowed with properties and characteristics that can be measured and explained from the formulation of laws. In such studies, information is linked to notions such as signal, sender, receiver, transport, transference, system, recovery, probability, precision, revocation, and message. In a second instance, it sought to study information as something cognitive, semantic, of a subjective nature, in which the articulation between data, present elements of reality independent from the subject, and knowledge, what individuals know or understand, was considered, with information being the measure of alteration of this state of knowledge, or, in other terms, the product of interaction between data and knowledge, in the scope of the individual. In such studies, information was linked to the concepts of data, knowledge, processing, individual, person, gap, filling, modification, alteration, and meaning. And, finally, a third mode of study centered on pragmatic, intersubjective, and sociocultural dimensions is used to describe it, pointing out that information is something not only of the objective or subjective order, but also of the collective, of a social construction. In these studies, information appears linked to terms such as document, knowledge, action, context, culture, memory, collective, society, and history.

Although all these perspectives provide valuable elements for the study of the various dimensions of information, in none of them, effectively, does the question of truth occupy the center. Perhaps pointing out the need for a veritistic “turn” is exaggerated, in the sense of a possible fourth paradigm for information science. But, with certainty, the elements brought by Turner, as well as by the different authors mentioned in the first part of this text (about the contemporary conceptual framework), point to the limits of the information science produced so far.

It is no coincidence that, among the various expressions that have been used to characterize the contemporary moment, such as the society of ignorance (Serrano Oceja, 2019), the era of resentment (Fukuyama, 2018), the Orwell world (Gómez de Ágreda, 2019), the post-democratic era (Casara, 2019), the national-populism era (Eatwell & Goodwin, 2018), or the great setback (Geiselberger, 2017), there is strong emphasis on the importance of false information. All these theories, among others, point, to some extent, to the aforementioned failure of the promises of wisdom and peace made in the 1960s and 1970s around the idea of an “information society” (Blatt, 2018).

Information science was born, as Borko rightly put it in 1968, to study the properties and behavior of information and the forces that govern its flow. In this sense, the various concepts presented in this article, which seek to analyze the forms of presentation and dissemination of information at the present time (fake news, false testimonials, hate speech, scientific negationism, disinformation, and post-truth) can be understood from the concept of infodemic overview. Infodemic means a mode of production, circulation, dissemination, receipt, and use of information in which the presence of totally or partially false information acquires a fundamental centrality and importance, to the point of making it difficult or impossible for people to distinguish true from false information. The term also includes, as seen, all the negative consequences of such a situation, from sanitary actions to the fight against diseases, such as the survival of democracy and the construction of peace.

If, as diagnosed by different authors mentioned in this text, we live in an infodemic period, one of disease caused by information and by the circulation of false information, it is urgent that information science develops the proper tools to understand this period – to then be able to propose the appropriate interventions to combat its harmful effects, and librarians and information literacy agents should play a leading role in such actions (Agosto, 2018; Revez & Corujo, 2021; Schlesselman-Tarango, 2017).

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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