

Resilience and scientific production in emerging situations

La resiliencia y la producción científica ante situaciones emergentes

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Abstract

Three concepts are presented that support the possibilities of configuring institutional strategies in organizations during and after present and future emergencies of any kind. Our proposal focuses on the scientific study in the organizational field in Mexico and in the world, where it has not yet been valued as a form of well-being to strengthen people in the face of emerging phenomena, nor is the possibility found in the development of scientific studies. to integrate factors such as resilience into their programs or strategic plans, for schools, universities, media, governments, hospitals, and other domains. Literature is presented that provides arguments for an emerging and significant paradigm shift in human evolution and organizations in the face of future controlled or uncontrolled events. To describe this change in strategy, we return to Luhmann, Bauman, Beck, Ríos, Carrillo y Sabuco, Castello y Fernández, Palomar, Matus, Victorio among others. The reason why organizations are not listening more is argued, about the emerging sociocultural, economic, political, and even philosophical change that Covid-19 has caused, described by these authors for an apparent cause. The general idea of emerging paradigm shifts and the next step in the history of humanity is being woven.

Scientific production, resilience, organizations

Resumen

Se presentan tres conceptos que fundamentan las posibilidades de configurar estrategias institucionales en las organizaciones durante y después de emergencias de cualquier tipo presentes y futuras. Nuestra propuesta se enfoca en el estudio científico en el ámbito organizacional en México y en el mundo, donde aún no ha sido valorada como una forma de bienestar para fortalecer a las personas ante fenómenos emergentes ni en el desarrollo de los estudios científicos, se encuentra la posibilidad de integrar factores como la resiliencia en sus programas o planes estratégicos, para escuelas, universidades, medios de comunicación, gobiernos, hospitales y otros dominios. Se presenta literatura que, proporciona argumentos de un cambio de paradigma emergente y significativo en la evolución humana y de las organizaciones ante futuros eventos controlados o no. Para describir este cambio de estrategia, retomamos a Luhmann, Bauman, Beck, Ríos, Carrillo y Sabuco, Castello y Fernández, Palomar, Matus, Victorio entre otros. Se argumenta la razón por la que las organizaciones no están escuchando más, acerca del emergente cambio sociocultural, económico, político y hasta filosófico que ha ocasionado el Covid-19, descrito por estos autores por una causa aparente. La idea general de cambio de paradigma emergente y el siguiente paso en la historia de la humanidad se están tejiendo.

Producción científica, resiliencia, organizaciones

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Introduction

There is a conceptual overpopulation of the term resilience, only in the most popular search engines such as Google, just by typing in the concept, up to 42,300,000 with diverse conceptualizations are returned.

For the purposes of this proposal, we will use the concept of resilience according to Garmezi (1991), who states that it is "the capacity to recover and maintain adaptive behavior after initial abandonment or incapacity at the onset of a stressful event". Kotliarenco, Caceres and Fontecilla (1997), for their part, affirm that the resilience approach starts from the premise that being born into poverty, as well as living in a psychologically unhealthy environment, are high-risk conditions for people's physical and mental health. Rather than focusing on the circuits that maintain this situation, resilience is concerned with looking at those conditions that make it possible to open to a healthier and more positive development (1997, pp. 1-2).

In this sense, the perspective of organizational sociology such as the concepts of emergence and double contingency by Niklas Luhmann's (1996) theory of social systems, Bauman's (2006) liquid organizations, where the constant is change, which generates an existential anguish, where there seems to be no sense when it comes to building new things, since time and the current civilizational state itself. Ulrich Beck (1988) proposed a category of analysis called the risk society, a category named after all the systemic emergencies that favor the growing proliferation of pandemic, environmental, socio-political, technological, and economic dangers that impact societies and organizations on a global and local level. The loss of individuality and intimacy through global interconnection exposes us to the bridge built by IT.

Beck sets out the 8 characteristics of societies at risk:

1. The distribution and increase of risks follow a process of social inequality.
2. Risk, a business with a double cause, risk, and market opportunities.
3. What humanity suffers in the context of risk.
4. There is lack of political and institutional ethics.
5. The sources that gave collective meaning to citizens are in the process of disenchantment.
6. In the new societies, a process of "individualization" is taking place in the individual through a disengagement from the traditional forms of industrial society, and a re-engagement with another kind of modernization.
7. The collective sources that give meaning to society are exhausted and the individual independently seeks an identity in the new society. "In class situations, the being determines consciousness; whereas in situations of risk it is the other way round, consciousness determines the being".
8. Return of uncertainty: risk as recognition of the unpredictability and threats of industrial society.

This approach reveals the complexity of relationships, the prevalence of corporate power and decision-making over economic power, a source of uncertainty, insecurity, and risk. And the important question to be asked is: how can we cope with a society in constant and permanent risk, how can we get ahead?

The concept of resilience according to different perspectives has shown some plausibility, for example, Garmezi (1991, p. 459), states that it is "the ability to recover and maintain adaptive behavior after initial abandonment or incapacity at the onset of a stressful event". For their part, Kotliarenco, Caceres and Fontecilla (1997), state that:

the resilience approach starts from the premise that being born into poverty, as well as living in a psychologically unhealthy environment, are high-risk conditions for people's physical and mental health. Rather than focusing on the circuits that maintain this situation, resilience is concerned with looking at those conditions that make it possible to open to a healthier and more positive development (1997, pp. 1-2).

The aftermath of the Covid-19 pandemic has challenged and threatened the process of human resilience in every sense: physical, mental, and cultural. It is a threat to eight dimensions: coping, autonomy, self-esteem, conscience, responsibility, hope, sociability, and frustration tolerance. But have governments measured the consequences of the strategies implemented on human resources? Have organizations studied these consequences of covid-19 on their human resources? Are public and private organizations taking these dimensions into account? Do the generation of knowledge, the organizations that manage scientific production in the world help in this?

Content

In Mexico, there is a total population of 126.2 million inhabitants (World Bank, 2018). According to the data provided, 100% of the Mexican population had never experienced a pandemic like the one we are still going through in October 2020, we had never been exposed to family (home) and work (in companies) contexts where contextual and individual problems are always present (Maslach et al., 2001) together with the health emergency, Covid-19.

Current information up to 13 March 2023, the National Council of Science and Technology (CONACYT) reports that the number of deaths is 333,235 due to Covid-19, and in the world, there are 6,812,101 (SOURCES: Own elaboration, WHO, JHU CSSE). The lack of research in Mexico is still precarious and information on the little or much that is being done did not flow during the most prominent years of the pandemic and is not flowing now.

Faced with this COVID-19 pandemic in many countries, such as ours, the response was to send the population to quarantine and the strategy of the so-called "healthy distance" as the best tools to combat it. But this was not new, as quarantine has long been used as a tool to prevent the possible spread of communicable diseases among the population (Barbisch et al., 2015). The repercussions of this strategy that would result from mandatory quarantine were not studied in terms of the possible psychological costs during this period (Rubin & Wessely, 2020). Throughout the pandemic process, there is no mention of resilience-building strategies for people in any country in the world, least of all in Mexico.

During the period when people are quarantined at home, two forms of reactions can be seen: on the one hand, some may bring out the best in themselves, and on the other hand, they may experience stress, overwhelm and other psychological disorders (Rubin & Wessely, 2020).

Already in pre-pandemic studies, it was found that traumatic stress in children and parents in pandemic disaster situations, and even more so with such strategies as quarantine and isolation, can be traumatic, fulfilling the criteria for post-traumatic stress disorder (PTSD) (Sprang & Silman, 2013).

It was inevitable not to say that the economic went down during quarantine, because most people were unable to work and had to interrupt their professional activities without proper planning, and its effects can last for a long time. In studies, economic loss due to quarantine has created severe feelings of distress, frustration and violence against people living around them (children, wives, mothers, and fathers (Pellecchia et al., 2015) and was reported as a risk factor for symptoms of psychological distress, anger, and anxiety, even several months after the end of quarantine (Mihashi et al., 2009).

It was found that those with lower incomes are more likely to be affected by temporary loss of income than those with higher incomes. Employers should also consider proactive approaches to enable employees to work from home, both to avoid financial loss and to maintain proactivity and benefit from the remote working of their workers (Manuell & Cukor, 2011).

Another study examined the psychological effects of quarantine on people in Toronto, Canada, and found a high prevalence of psychological distress. Symptoms of PTSD and depression were observed in 28.9% and 31.2% of respondents, respectively. Longer quarantine durations were associated with a higher prevalence of PTSD symptoms. Similarly, knowledge of or direct exposure to someone with a SARS diagnosis was also associated with PTSD and depressive symptoms (Hawryluck et al., 2004).

Also, one study reports negative psychological effects, including symptoms of post-traumatic stress disorder, confusion, and anger.

Stressors included longer quarantine duration, fears of infection, frustration, boredom, inadequate supplies, inadequate information, financial losses (Bedford et al., 2020).

On the other hand, in previous research, respondents report that they perceive poor and sometimes misleading information from public health authorities as a stress factor, believing that information is insufficient and unclear to take appropriate action, and that some residents still do not understand the purpose of quarantine (Braunack-Mayer et al., 2013; Reynolds et al., 2008).

Finalmente, las personas también informaron una percepción de falta de transparencia de los funcionarios de salud y del gobierno sobre la gravedad de la pandemia (Braunack-Mayer et al., 2013). Quizás debido a la falta de pautas claras o justificación para cumplir con los protocolos de cuarentena relacionándolos a síntomas de estrés postraumático (Reynolds et al., 2008).

The negative psychological effects on both the general population and health care workers, who are on the front line of caring for people infected with the virus, include symptoms of post-traumatic stress disorder, confusion, and anger. Stressors include prolonged quarantine, fears of infection, frustration, moodiness, aggression, exhaustion, boredom, inadequate supplies, inadequate information, and financial loss.

Scientific production

Looking at this problem from a scientific point of view, one has the perspective of Vincent Larivière, Fei Shu and Cassidy Sugimoto (2020), who mention that major crises often reveal the hidden norms of the scientific system, making public well-known practices within science. The coronavirus outbreak (COVID-19) in Mexico and globally exposes an uncomfortable truth about science: the current system of scholarly communication does not meet the needs of science and society. More specifically, the crisis highlights two inefficiencies in the research system: the default value of closed science and the overemphasis on elite, English-only publications, regardless of the context and consequences of research.

In the case of Mexico, this is not unrelated, as the political system collapsed, medical staff without the knowledge and experience in treating this disease meant that 17% of those infected were from the sector, including managers, nurses, doctors, and even administrative staff, and they snowballed into friends and family members.

On 31 January 2020, the Wellcome Trust called the coronavirus a "major and urgent threat to global health" and called on both researchers and journals and their funders "to ensure that research results and data relevant to this outbreak are shared promptly and openly to inform the public health response and help save lives". Signatories to this statement included mainstream publishers such as Elsevier, Springer Nature, and Taylor & Francis, as well as several funders and academic societies. The joint signatories to this statement pledged to make all research and data on the outbreak open immediately: on pre-print repositories for those articles that have not been peer-reviewed and on journal platforms for those articles that have already been reviewed (Carr, 2020).

This is a positive step, but it does not go far enough to satisfy the needs of the public, because all they did, at least for Mexico, is to release and make open access to collections that are not related to the problem; and to be able to inform and raise awareness at least for people in academia and to function as exhibitors with collaborative tools to reach more citizens of the countries and the world.

It is true that the papers and book chapters, which have been released by this measure, represent only a small proportion of the available literature on coronaviruses. According to the Web of Science (WOS), 13,818 articles have been published about coronaviruses since the late 1960s. More than half (51.5%) of these articles remain closed for access. Coronaviruses are certainly a large family of viruses, and one might question the relevance of older papers to the current outbreak. However, as an example, the three papers on COVID-19 published in the 15 February issue of *The Lancet* were based on 69 separate papers indexed in WOS, of which 73.2% are in the 13,818 coronavirus papers set. The oldest reference in these papers is to 1988, underscoring the fact that while coronavirus may be novel, coronavirus research is based on a long tail of often closed research literature.

Embedding this scientific literature in much larger research streams also highlights the limitations of this approach. The 13,818 coronavirus articles cite more than 200,000 articles, from virology to cancer and from public health to genetics and heredity (Figure 1). Less than a third of the cited articles from which "coronavirus articles" drew information and inspiration were other "coronavirus articles". Even if all articles about coronaviruses were available, this would be insufficient to address the crisis, given the inherently interdisciplinary nature of biomedical research. The knowledge base of science is simply much broader than a single topic. Viewing the literature through the narrow lens of coronavirus articles directly related to COVID-19 only blinds the research effort to other work that could prove crucial.

But it doesn't stop there - cures for diseases often come from new combinations and insights from various areas of research. If the aim of opening research is to advance science and serve society, all research must be open, not just a part of it. There are no elements that allow human resources to heal the wound of losing loved ones, in addition to the conditions of total confinement that have led to levels of violence within the family or against women and children around the world. Resilience is totally absent in all these articles.

Publication incentives are the other controversial element revealed by the current outbreak. Over the past decade, Chinese authorities, and institutions, like those in many other countries, have offered direct financial rewards based on the journal in which researchers publish, with the implicit aim of improving their institutions' position in international rankings. Invariably, publishing in these journals involves conforming to the lingua franca (English) and publishing on topics of importance to the gatekeepers of these journals, who are disproportionately from Western countries. While dissemination to the wider scientific community is an important goal, it should not be at the expense of dissemination to local communities, particularly those with a direct connection to the topic of study. Due to payment barriers and the use of English, international journals are often inaccessible to those on the world's frontline of health care delivery and health policy making, especially in times of crisis.

The only researchers who have the possibility of financial support to pay for articles are those in the hard sciences and only a small group of them.

The coronavirus outbreak exemplifies this deficiency. In late 2019, the Chinese Centre for Disease Control and Prevention (CCDCP) sent a group of experts to Wuhan to retrieve data on the virus. This was almost three weeks after the first patient showed symptoms and immediately after news of human-to-human transmission on social media by eight Wuhan doctors (who were subsequently charged by the police). The researchers analyzed the data and submitted the results, including a verification of human-to-human transmission of the virus, to the top-ranked Western journals, *The Lancet*, and the *New England Journal of Medicine* (NEJM), published on 24 and 29 January, respectively. A public statement was issued on 20 January, acknowledging person-to-person transmission of the virus.

In response, the Chinese government stipulated that funded projects on coronaviruses, including those in the National Science Foundation of China's (NSFC) new 1.5M initiative, should be published in local Chinese journals rather than international journals, and that the emphasis should be on controlling the virus and saving lives.

This suggests a recognition by the Chinese government that the focus on publishing in elite journals did not provide the most convenient way to disseminate the results. In addition, the Ministry of Education (MoE) and the Ministry of Science and Technology (MoST) issued a joint statement requiring universities and research institutions to limit the use of SCI papers as well as related indicators (e.g. JIF, ESI, etc.) in research evaluation. MoST has also stipulated that the number of papers cannot be used as a key criterion for assessing research performance and has prohibited the use of cash-per-publication policies.

All these initiatives point to an underlying truth: prioritizing indicators over the timely delivery of research results to relevant communities is not in the best interests of society.

The signatures to the Welcome Trust statement agree to follow these principles not only for the current outbreak, but also for all situations in the future "where there is a significant public health benefit in ensuring that data is shared widely and rapidly" (Carr, 2020). This statement establishes a direct link between public health and the sharing of research results: implicitly arguing that journal walls and embargoes hinder the advancement of science and as a result are a threat to public health.

However, it also begs the question: where does one draw the line on what constitutes a "public health benefit"? In the last five months, the US Center for Disease Control estimated that there were between 18,000 and 46,000 flu-related deaths. Is there not a public health benefit to doing public research on this and all research that can accelerate discovery in biomedicine and save lives? In Mexico it has been the opposite, only funding is given to pay for articles in international journals that belong to Scopus Sources and Master Journal List - WoS.

That is why we call on the scientific community - publishers, funders, and societies - to keep their word. The Welcome Trust's statement is unequivocal: research needs to be shared quickly to inform the public and save lives. While we applaud the work being done during this crisis, we hope this moment serves as a catalyst for change.

The Trump administration in the US, for example, is considering an executive order that would make all federally funded studies free to read for publication. Similarly, the Plan S coalition of funders requires all funded research to be published in open access journals. If funding agencies have adopted open access policies, compliance is variable, and embargoes currently limit immediate access to biomedical research. Both the potential executive order and Plan S have been opposed by many of the signatories to the Welcome Trust statement. This is a glaring contradiction.

Signatories to the Welcome Trust statement should extend the principles to encompass all their practices: making research immediately available and encouraging scientific communication to all stakeholders.

The scientific response to COVID-19 has demonstrated some of the benefits of opening the scientific system, including the torrent of papers being shared immediately on pre-print servers, the open collaboration and discussion of scientists using social networking platforms, and the accelerated modelling of viral genomes. However, this will have been in vain if the scientific system does not change. It is essential to recognize what is clear in this moment of crisis: a robust science system and an informed citizenship require immediate and public access to research.

This review allows us to define an Organization and Resilience agenda for 2021.

Why resilience is a key factor for the future of human resources in the face of future pandemics

According to the national and international research reviewed, resilience has been addressed, but focused on children, young people, and women in situations of vulnerability, poverty, violence and educational contexts, but not for phenomena such as pandemics, Covid-19. The most recent studies focused on resilience have been carried out at the international level with a quantitative approach and correlational scope.

Meneghel, Salanova and Martínez (2013), launch new challenges for the study of resilience in the work context, among which is the need for studies with a focus on resilience at the organizational, societal, group and individual levels. It is for this reason that this research seeks to contribute new findings that enrich the work previously carried out by other studies focused on organizational resilience by strengthening the resilience of individuals in institutions in the face of future pandemics.

Resilience studies appeared in the 1970s, and their study is not easy, due to the diversity of concepts, approaches, methodologies, and variety of studies; but it is important to broaden knowledge about this phenomenon, given that it is currently essential for human beings to strengthen their capacity, resources and individual competencies to face future global pandemics.

The conceptual study of resilience has generated attention and has been studied by a variety of disciplines in recent years and decades, such as the human and social sciences. The disciplines that have become interested and integrated in resilience studies are "sociology, management, social psychology, neuroscience, anthropology and genetics". However, "additionally, there are already international organizations involved in the research and promotion of resilience, such as: UNICEF, ECLAC, World Bank, LAC and others in England and the United States" (Flores Olvera, 2013).

Final reflections

When people have positive and negative aspects that have direct effects on themselves, in one way or another, this phenomenon is called the Shakespeare principle and refers to both positive and negative actions that increase or decrease the resilience levels of individuals (Flores Olvera, 2013) this effect is known as filling or emptying the internal tank of people. Depending on the age of the person is how Shakespeare's tank can be filled or emptied, and that is why it is important to know which activities help to feed back the levels of resilience in people to strengthen them in the environments in which they develop. We recommend a couple of actions that the government and leaderships could take in an articulated way:

- Create a program to release databases or pay repositories where the most current research on pandemics is housed so that all academics can be disseminators in all parts of the countries to educate on pandemics.
- Integrate a subject or seminar in the curricula of primary schools, secondary schools, high schools, and universities that is cross-cutting to build a model of a culture of resilience specifically for future pandemics in organizations.
- Make it mandatory for public and private organizations to include the issue of resilience programs in their Strategic Plan.
- Create permanent and lifelong research programs that study the impact of pandemics on organizations not only from a medical perspective, but also from an organizational and administrative perspective.

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