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ENTREPRENEURSHIP NETWORKS AGAINST COVID-19

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Abstract. *As of May 2022, the pandemic has limited opportunities for entrepreneurs. The objective of the study was to establish the networks of opportunities, motives, dispositions, ethics, pressures, challenges, reputation, images, identities and behaviors related to entrepreneurship in the face of the health and economic crisis. A documentary, cross-sectional and exploratory study was carried out with a selection of sources indexed to international repositories: Scopus, JCR, WoS, Latindex, Redalyc, Scielo and Frontiers. A search was made for the keywords of opportunism, optimization, innovation and entrepreneurship. The summaries corresponding to the pandemic period from November 2019 to May 2022 were considered. A structure of relationships between nodes and edges was found that suggests a neuronal learning that went from the dimension of pressure in the face of the pandemic to entrepreneurial identity. The centrality parameters that measure the distance between edges and nodes suggest that the dispositions are structured according to this principle of proximity. The grouping coefficients that indicate the structuring of the edges and nodes according to their dimensions suggest that the network is reconfigured from process innovation and resourcs optimization. The structure measure reflects the pressure concentration as the network input and the identity dimension as the network output. The centrality parameters that measure the distance between edges and nodes suggest that the dispositions are structured according to this principle of proximity. The grouping coefficients that indicate the structuring of the edges and nodes according to their dimensions suggest that the network is reconfigured from process innovation and recurss optimization. The structure measure reflects the pressure concentration as the network input and the identity dimension as the network output. In this way, the present study found a central and grouped structure in two dimensions of pressure and identity of entrepreneurship in the face of COVID-19 Delimitation to three dimensions of analysis corresponding to opportunities, optimizations and innovations is recommended.*

Keywords –*Internet, Trolling, Stalking, Stashing, Texting, Bullying*

Introduction

The period of the pandemic that runs from November 2019 to May 2022 has caused a health, economic and social crisis with effects on entrepreneurship (Barroso et al., 2020). The anti-COVID-19 policies, the mitigation and containment strategies, as well as the distancing and confinement programs were aimed at the financial rescue of working families rather than the financing of micro, small and medium-sized enterprises (Morched et al., 2021). Thus, the impact of the pandemic on entrepreneurship opportunities has been a central issue on the local agenda (Khan et al., 2022). The literature from 2019 to 2022 on entrepreneurship suggests a network structure between nodes and edges on the opportunities that the pandemic opened up for the discussion of entrepreneurship as a response to the health, economic and social crisis (Najeh & Morched, 2022).

The theoretical, conceptual and empirical frameworks that explain entrepreneurship suggest that in a crisis scenario it emerges as a common response in the affected localities (Aqmala & Putra, 2021). In the case of the theory of demands and resources, the pandemic meant a challenge that had to be counteracted with the optimization of resources (Miah, 2021). However, the theory of complex institutions ensures that entrepreneurship is the product of strategic alliances between political and social actors, as well as the public and private sectors (Setyanti, 2021). In this way, the demands and resources are combined with the autonomous institutions in the face of crises (Saha & Jannat, 2021).

As for the studies on entrepreneurship focused on emerging organizations, the opportunities determine the optimization of resources and process innovation (Tasnim & Wuryani, 2021). The literature from 2019 to 2022 suggests that stigma is the mediating factor of the variables related to entrepreneurship (Iman et al., 2021). Stigma regulates entrepreneurial decision-making (Maldonado et al., 2021). In high-risk scenarios, stigma inhibits resource management, but in scenarios of trust, it activates investment in companies that adjust their protocols to biosafety or accident and disease prevention (Perdana, 2021).

However, the models that have shown the relationships between the variables do not include the possible interactions that allow us to see a general panorama of entrepreneurship in a scenario and period of crisis (Reavis et al., 2021). The theoretical, conceptual and empirical models assume that the demands and resources, as well as the complexity of the organizations are instances where asymmetries are appreciated, but possible scenarios of improvement are not observed (Da Rosa et al., 2021).

The objective of the present study was to reveal the structure of entrepreneurship networks published in the international literature during 2019 to 2022.

Are there significant differences between the structure of opportunity networks with respect to the structure observed, analyzed and discussed in the present work related to entrepreneurship?

The premises that guide this work suggest that the pandemic limited entrepreneurial opportunities and opened up process innovations, as well as resource optimization (Sidrat & Boujelbene, 2022). Mitigation and containment strategies, as well as distancing and confinement programs, were intensified as financing for companies was reduced (Tandoh et al., 2022). Therefore, the differences between the theoretical structure and the observed

network will open the discussion about the pandemic and its effects on the reactivation of the economy (Wasim & Rehman, 2022)

Method

This work is documentary cut since studies from 2019 to 2022 search criteria keywords are reviewed; "Entrepreneurship", "innovation", "utility", "support", "ease" or "accessibility" in three search engines: Scopus, JCR, WoS, Latindex, Redalyc, Scielo and Frontiers (see Table 1).

Table 1. Descriptive of sample
Source: Elaborated with data study

Repository	COVID-19	Entrepreneurship
Sopus	7	8
JCR	8	7
WoS	5	9
Latindex	6	6
Redalyc	7	7
Scielo	9	8
Frontiers	6	5

The Systematic Review Inventory was used, which includes questions related to the concepts of entrepreneurship and COVID-9, considering the criteria and evaluations of expert judges on both topics (see Table 2).

Table 2. Descriptive of the judges
Source: Elaborated with data study

Sex	Age	Income	Experience
Male	56	49’083.00	12
Female	64	36’904.00	11
Female	48	29’087.00	10
Male	50	30’789.00	13
Male	39	41’324.00	14
Male	52	46’906.00	15
Female	61	53’213.00	9

Delphi technique was used to establish relationships paths dependence between factors advanced in the theoretical, empirical and conceptual frameworks are the hypotheses for contrasting scenarios according to literature. Based on the criteria and qualifications of the judges, the selected articles were coded considering a Likert-type scale that goes from 0 = "not at all likely" to 5 = "quite likely". The data was captured in excel and processed in JASP version 15.0

Non-parametric statistical values were obtained in order to establish the centrality and grouping of the selected findings. Next, the relationships between the extracts were estimated in order to establish the revised knowledge network in the literature. The neural network

equation was followed because they explain the learning of a network of knowledge such as entrepreneurship before COVID-19 (see Figure 1).

$$+ \frac{1}{N_T}\sum_{i}^{N_T}(T(\boldsymbol{x}_i) - \hat{T}_i)^2$$

$$+$$

$$; \frac{1}{N_R}\sum_{i}^{N_R}(V(\boldsymbol{x}_i)\|\nabla T(\boldsymbol{x}_i)\| - 1)^2$$

Figure 1. Neuronal network
Source: Sahli et al., (2020)

Results

Figure 2 shows the parameters measured by centrality, a property of neural networks that allude to a risk threshold. Values outside the threshold are assumed to be part of another node. Values internal to the threshold demonstrate the convergence of the elements in a central node.

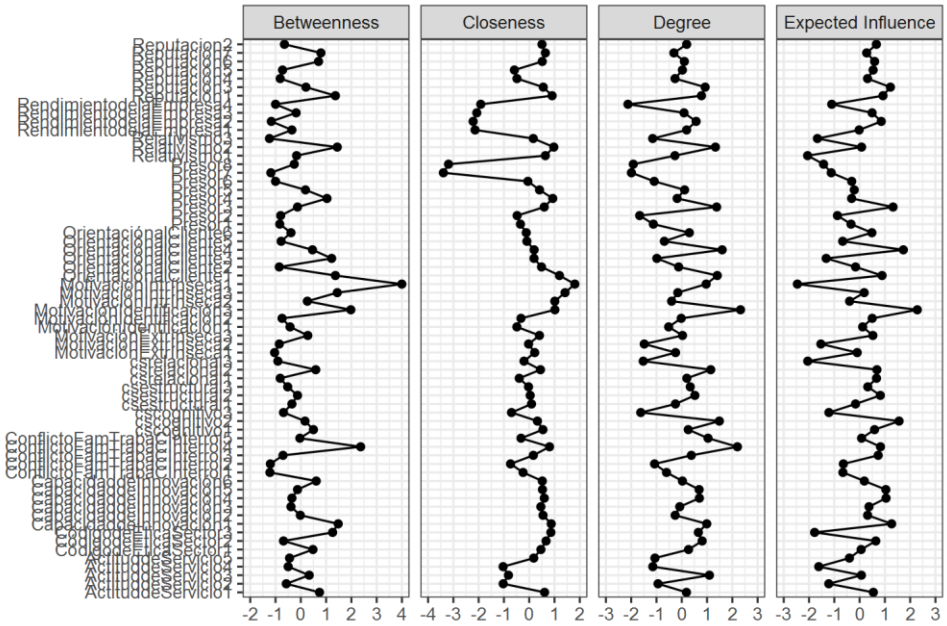

Figure 2. Centrality
Source: Elaborated with data study

Figure 3 shows the convergence of peripheral nodes into a central one. Clustering is a property of neural networks that allows it to be distinguished from other nodes. The parameters that measure the grouping suggest that the elements converge in a node that the literature identifies as entrepreneurship.

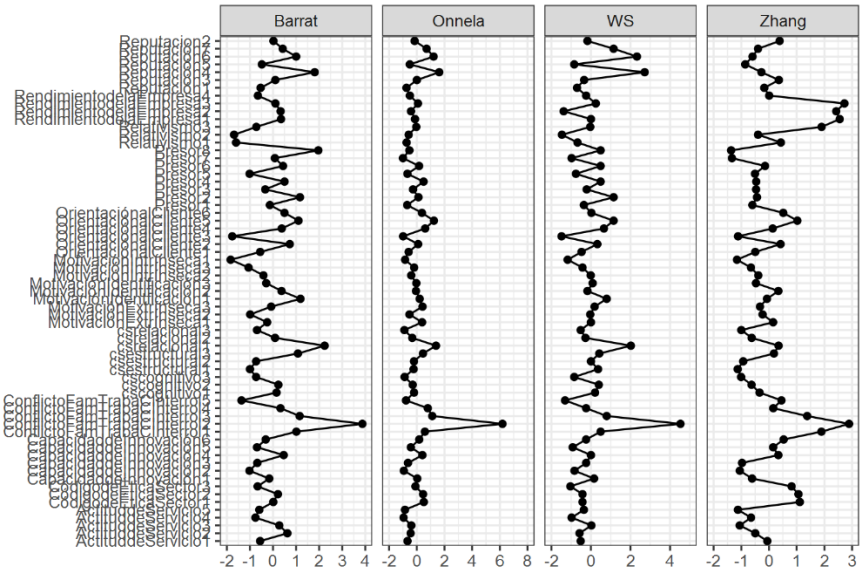

Figure 3. Clustering
Source: Elaborated with data study

Figure 4 shows the relationships between the elements. It is possible to appreciate that positive relationships prevail, although asymmetric relationships prevail in the associations between intrinsic motivation and ethics. In other words, entrepreneurship is configured for intrinsic reasons such as inheritance and the legacy of the project to future generations, but it is opposed to ethics with care for the environment.

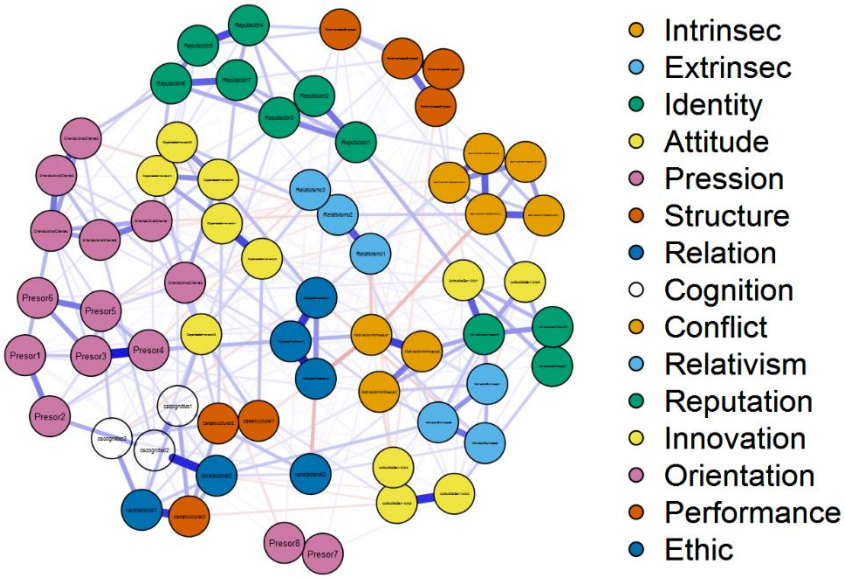

Figure 4. Neural network
Source: Elaborated with data study

The results show that entrepreneurship in the COVID-19 era is distinguished by being multidimensional, although the asymmetry between ethics and intrinsic motivation opens the discussion about the relevance of carrying out a project for moral reasons versus local or regional conventions in around that project.

Discussion

The contribution of this work to the state of the art consists in the establishment of a model of entrepreneurship networks based on the findings of the literature from 2019 to 2022. A network was found that indicates the inclusion of multiple dimensions which, when interacting, are structured. in an entry of dispositions to the demands and an exit of entrepreneurial identities such as optimism (Silva et al., 2021). In relation to entrepreneurship studies where resource optimization and process innovation stand out as central axes of local entrepreneurship, this study warns that these two dimensions are diversified. The optimization of resources is related to the image, identity and reputation of the organization. Innovation is more closely linked to entrepreneurial dispositions motivated by the crisis. In this way, the structure of the analyzed findings seems to indicate that the relations between the rulers and the ruled are guided by the demands of the environment and the identity of the alliances.

Conclusion

Entrepreneurship in the COVID-19 era is distinguished by reorienting the optimization of resources and process and product innovations based on the distancing and confinement of people. Entrepreneurship as a response to the health and economic crisis is distinguished more by coexisting with risk scenarios than by avoiding them. Entrepreneurship in the COVID-19 era distinguishes innovative proposals from non-innovative responses. The pandemic forced innovative entrepreneurship to emerge. The pandemic reduced non-innovative responses to simple reactions. The distancing and confinement of people increased innovative responses. Anti-COVID-19 policies reduced resource optimization initiatives. Innovative entrepreneurship, unlike optimization entrepreneurship, is a sequence of coexisting responses to crises and risks. Optimizing entrepreneurship are only reactions to crises and risks. Rising risks drive significant optimization and systematic innovation.

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