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Research Article

Intellectual capital in the Covid-19 era

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Abstract: The pandemic, in the educational field, was attacked by anti-COVID-19 policies that focused their attention on the confinement of distancing people in order to move towards the virtual classroom. The impact of distance and asynchronous training strategies on the formation of intellectual capital is the objective of this work. A documentary, cross-sectional and exploratory study was carried out with a selection of sources indexed to international repositories, considering a search by keywords in the period from 2020 to 2025. A network structure was found that was configured based on their proximity between nodes and edges. The findings were discussed in relation to the literature consulted, recommending the extension of the data.

Keywords: Higher Education; Educational Innovation; Transformational Leadership Model; OECD Member Countries; TIC.

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1. Introduction

Until January 2025, the pandemic has claimed the lives of eight million, although governments agree that atypical pneumonia would increase the figure to 20 million [1]. Anti-COVID-19 policies are distinguished by following an epidemiological traffic light [2]. In red, confinement is recommended, as well as distancing and the use of preventive devices such as face masks or alcohol gel [3]. In green, deconfinement is recommended, but with

measures to prevent infections, diseases and deaths, among which immunization stands out [4]. In both scenarios, innovative entrepreneurship is a response by society to the health and economic crisis. Gross Domestic Product shrank by up to 8% and entrepreneurial opportunities in retail trade emerged.The educational system in Mexico, at the higher level, shows a greater presence of private Higher Education Institutions (HEIs) compared to public HEIs. Mexico City is the entity with the most private HEIs, followed by the State of Mexico and the State of Puebla. While it is the state of Veracruz, which registers the highest percentage of public HEIs, followed by Mexico City and the State of Mexico.On the other hand, to make a comparison of the distribution of both public and private HEIs, with other countries of the Organization for Economic Cooperation and Development (OECD) structured under a scheme that favors public financing of the educational sector, over others, such as the health sector; o balanced funding; It is observed that Mexico is among the countries that allocate the most public financing to the educational sector; However, at the same time, it is at the same level as the Czech Republic, a country that allocates more economic resources to the area of health. In addition, it is in a lower level than Canada, which has a balanced system of financing in education and health.

From the above it can be deduced that, although Mexico occupies intermediate places in the OECD lists, it is considered a type of financing in health and education. However, to include other indicators of educational quality, such as educational innovation, research, collaboration, and the availability of talent or competition, the country ranks lower than Brazil, Chile, Costa Rica, and Puerto Rich. Synthetically it is possible to say, considering the indicator of competitiveness and talent training, both public and private HEIs, located in Mexico in poor quality indexes compared to other member countries of the OECD, and even the Latin American region.

The hypotheses related to the theoretical, conceptual and empirical trajectories around innovative entrepreneurship are based on the premises: 1) The health and economic crisis generated retail trade opportunities that the literature recorded in developing countries; 2) In Mexico, the marketing opportunities for retail products were oriented towards innovation rather than optimization of resources; 3) The literature reported an increase in process innovation and resource optimization from 2010 to 2022; 4) Process innovation explains the type of entrepreneurship that retail trade developed to reduce the impact of the pandemic; 5) Process innovation focused on the diversification of retail trade in localities rather than in cities; 6) The municipalities and communities innovated in their confectionery production to attract regional tourism.

The modeling of innovative entrepreneurship follows the following hypotheses: a) There are significant differences between local retail trade opportunities with respect to regional or national trade opportunities; b) There are significant differences between retail trade opportunities at the local level; c) There are significant differences between the opportunities for process innovation with respect to the opportunities for resource optimization; d) There are significant differences between local process innovations with respect to regional or national ones.The rational choice paradigm that assumes the ability to collect and process enough information for decision making that reduces costs while increasing benefits, led to the human capital theory, which aims to explain the relationship between dependence between citizens considered and named as "talents" or "Human Capital" and the design and implementation of public policies, in which the educational and health fields are all crucial factors for the correct development of the so-called Human Capital [5]. For, Human Capital is the result of combining educational policies, educational systems and HEIs, seeking to promote people's capacities (in the form of emotions, discourses, skills and knowledge) oriented towards entrepreneurship, innovation, productivity and competitiveness.In other words, human capital is the result of an educational training process that is made up of two aspects: on the one hand, there are the academic training opportunities generated by the State, and on the other, there are individual capacities (cognitive and contextual). Consequently, those with more educational training and experience in the processes will be considered *talents* [6]. This is so because the knowledge and skills are perfected and accumulated to provide solutions in public management and administration. Finally, it is emphasized that in the case of educational quality indicators, such as research, collaboration and innovation, they not only determine human capital, but also the place that they play in key sectors of the economy, explain the development of a country, since it is these talents who will carry out the management and administration of public goods and resources [7].Within the framework of the information society and socio-digital networks, the management of the State and the self-management of the community have been differentiated in terms of objectives, tasks and goals. In this sense, the social sciences have built comprehensive models such as socio-state co-management consisting of; 1) the **diagnosis** of the social representations of the State and the citizenry indicated by the establishment of a

public agenda on security-sustainability, 2) the **dissemination of** information on trust, commitment, entrepreneurship, innovation and satisfaction as determining factors of the social representations of the State and of the citizens; 3) the **evaluation** of the diffusion of the determining factors of the representation of the State and the citizenship. Innovative entrepreneurship studies warn; 1) the administration of a traditional culture and leadership as the guiding axis of the academic programs; 2) the establishment of an agenda focused on knowledge management, entrepreneurship and innovation; 3) strategic alliances between universities and companies as the central axis of professional training; 4) multidisciplinary collaboration networks. Studies related to entrepreneurship establish: 1) The synergy between Higher Education Institutions and micro, small and medium enterprises (MSMEs); 2) The establishment of knowledge networks between universities, technological institutes, research centers and industries; 3) The formation of scientific, technological and industrial agendas prior to multidisciplinary academic exchange; 4) The framing of topics such as technoscience, nanotechnology and digital entrepreneurship; 5) The formation of talents and leadership. Innovative entrepreneurship refers to civil initiatives and citizen proposals on security and sustainability in order to integrate such amendments into the political agenda, government policies, crime prevention programs and delivery strategies. of justice and sustainability [8]. However, the construction of a civil agenda or social self-management supposes the informative diffusion of the demands and resources, opportunities and capacities, since it is the digital networks that question the public agenda -Trolling-, or, better said, strengthen it - Stalking, Trending. Therefore, cyberpolitical entrepreneurship refers to the intensive use of Information and Communication Technologies, as well as electronic devices for the establishment of an agenda regarding trolling, stalking or the tendency towards a political figure or process. . This is the case of voting intentions or elections. The relationship between State and citizenship, mediated by an agenda in which education, science and technology are central issues of human development, supposes; 1) the influence of contexts, sources, audiences and devices on public opinion; 2) the establishment of symbols from which the impact of citizens on public policies is interpreted; 3) the representation of progress indicated by strategies, discourses and styles of knowledge; 4) the intensive use of electronic devices for the diffusion of innovations; 5) the barriers to digital entrepreneurship identified in audience styles such as *stalker* , *troller* or *bully* [9] . The specified model included hypotheses related to opportunities in crisis, resource optimization and process innovation, constructs and indicators for each of these, all related to the trajectories of the correlations between the variables (Velazquez et al., 2016). Study in relation to other models of leadership and use of electronic devices, identified the scope and limits of the specified model, as well as the possible integration in future research. A comprehensive model for the study of digital entrepreneurship would include leadership and psychological variables around the acceptance, adoption and intensive use of Information and Communication Technologies (ICT). From the theoretical, conceptual and empirical review, it was possible to establish a model for the study of cyberpolitical entrepreneurship [9]. The proposal includes four explanatory hypotheses of the trajectories of the dependency relationships between the factors established as determinants in the literature consulted. The model includes hypotheses of correlation trajectories between the variables used by the state of knowledge to explain 1) the establishment of an educational, scientific and technological agenda; 2) professional training of human capital, talents and leadership; 3) knowledge networks around strategic alliances between universities and for-profit organizations; 4) the quality of educational processes and products in terms of evaluation, accreditation and certification; 5) barriers that inhibit and/or stimulate entrepreneurship and digital innovation. The model assumes that there is a close relationship between values and motives since then [10]. If entrepreneurship is driven by cooperative values and is intrinsically motivated, then it is an altruistic style that does not seek to maximize benefits over costs. Although entrepreneurship is the result of the expected benefits but interrelated with the belief that opportunities are increasingly scarce, it is determined by deeply rooted traditions, uses and customs in productive and innovative sectors. This is how values, beliefs, perceptions, motives and knowledge anticipate the appearance of dispositions in favor of innovation given the scarcity of opportunities. If such provisions are in favor of an innovative culture that coexists with the authoritarianism of traditional leadership, consequently, decision-making will favor innovative entrepreneurship. Precisely, the balance in favor of benefits over costs, not only reflects the rational choice of human capital or the perspective of talents and leadership, but also predicts the emergence of a lifestyle with provisions inherited from the academic or work culture. and dispositions learned from tests of more successes than failures.

In this way, the establishment of an agenda in higher education, science and technology, at the local level, consists of the orientation of cooperation, the beliefs of scarcity of opportunities, the perceptions of areas of opportunity that will determine intrinsic reasons such as the the need to be informed about the alternatives for prosperity in knowledge networks, as well as the dispositions to know and acquire skills that define entrepreneurial decisions and generate proposals, agreements and co-responsibilities within academic groups [11] .

Values, beliefs and perceptions related to needs, expectations, demands, opportunities and available resources for security and sustainability as determinants of entrepreneurial attitudes, motives and knowledge indicated by Trolling (aggression), Stalking (espionage) and Trending (promotion) . Values, beliefs and perceptions that determine attitudes, motives and knowledge that influence the intention to undertake [12]. Indirect determination of values, beliefs and perceptions of entrepreneurship through attitudes, motives and knowledge that determine intentions.

2. Method

A non-experimental, cross-sectional and exploratory study was carried out with a non-probabilistic selection of sources indexed in international repositories such as Academia, Copernicus , Dimensions , Dialnet, Ebsco , Latindex , Frontiers , Google Scholar , Microsof Academic , Redalyc, Publindex , Scopus , Zenodo and Zotero, considering the period from 2020 to 2025 and the search by keywords: "Human Capital", "entrepreneurship" and "COVID-19". The systematic review inventory was used, which includes the evaluation of expert judges (45% women and 55% men; M = 43.2 years and SD = 6.45 years; M = 4'987.00 USD monthly income and SD = 234.00 USD); on the theme. The confidentiality and anonymity of the respondents was guaranteed by contract based on the Helsinki protocol for pre-experimental studies. The data was captured in Excel and processed in JASP version 15. Nonparametric statistics were used to estimate the centrality, agglomeration, and the network of relationships between the findings reported by the consulted repositories. The parameters were estimated according to the neural network formulas in order to explain the information input, processing and learning of the agents. In the case of the network of intellectual capital formation and innovative entrepreneurship, the model allows us to notice the hegemony of the nodes. Such demonstration is relevant in the scenario of the pandemic and anti-COVID-19 policies focused on confinement and social distancing, as well as the impact of surrounding information on indexed journals.

3. Results

The centrality parameters that explain the relationship between the findings reported in the literature related to innovative retail entrepreneurship. It is inferred that the results found in the literature review are limited to innovative entrepreneurship as a response to the health crisis in localities during the period from 2020 to 2025. However, the centrality parameters are complementary to the clustering statistics. The grouping of the findings related to innovative entrepreneurship in retail trade as a strategy in the face of the pandemic. It is appreciated that the literature records findings grouped in a threshold that considers them to belong to process innovation rather than resource optimization. The parameters of centrality and grouping allowed to establish the network of relations between the findings, among which those reported by journals indexed to Scopus stand out. In other words, innovative entrepreneurship around retail marketing was a central theme on the research agenda. Therefore, innovative entrepreneurship is relevant for the reactivation of the local economies under study, even when an axis or topic of discussion does not predominate. In summary, the network of relationships of findings reported in the literature during COVID-19 reflects: i) The diversity of studies concerning the innovative entrepreneurship of retail trade during the pandemic; 2) The tendency to publish the results in journals indexed to Scopus; 3) The positive and significant relationships between the findings reported in Scopus journals with respect to other journals indexed in other repositories.

4. Discussion

The contribution of this work to the state of knowledge lies in the specification of a model for the study of entrepreneurship considering:

I. The context of few opportunities and abundance of initiatives that, however, are disconnected from the agreements and co-responsibilities between citizens and the State;
II. Business development policies limited to MSMEs that force them to merge or ally with multinationals;
III. The absence of a culture of social and organizational entrepreneurship ignored by an ideology of corporatism where profits do not exceed costs;
IV. Knowledge networks established in professional practices or social service, but without follow-up by the university or the company; e) the dissociation between theoretical subjects with respect to professional practices;
V. The confinement of disciplines and the lack of multidisciplinary systems.

However, educational institutions have been the predominant barrier that not only inhibits, but also minimizes any initiative or proposal that contradicts its principles of reproducing the differences between talents and leadership based on:

- Unilateral or majority decisions against dissident groups
- Prevalence of the climate relationship over the task climate
- Management and control from traditional leadership
- Preservation of processes that have not always been efficient, efficient or effective.

The institutional framework determines entrepreneurship directly through financing and resource distribution policies, but indirectly the institutional framework has a greater dissipating effect because it determines the priorities of an institution among which entrepreneurship and innovation are not central issues on the institutional agenda because they allude to change and the quality of processes and products.
Once the institutionality has penetrated the academic spheres, its reproduction is imminent. Through the teaching-learning process, as well as the extracurricular process, the agenda is established as a legacy of the public agenda. In other words, if public opinion is immersed in issues established by the traditional media, then student, teacher or administrative opinion will also be influenced by those same issues.Institutionality generates academic exclusion when those who do not follow the guidelines of educational policies and, as a result, their voice and vote will be considered peripheral in the discussion of the central issues established by the media and disseminated in the classroom and others. university spaces.Therefore, in the face of what can be called institutionalism, dissident groups organize themselves in collaborative spheres and knowledge networks in order to counteract the effects of the agenda on professional training, professional practices and social service, although a disconnection prevails between academic objectives and business purposes and two types of entrepreneurship emerge; one mediated by cultures and traditional leadership styles that limit innovations, but reinvent the institutional framework, and the other mediated by information technologies that promote proposals, agreements and co-responsibilities.
However, only a few enterprising Internet users can build a personal agenda and contrary to the institutionalist agenda. Since Internet use is limited, only those who have the resources and funding are eligible to set a personal agenda in the classroom and elsewhere.Consequently, digital entrepreneurship is subject to a context that limits its emergence as an alternative to set the agenda and build collaborative networks.Culture had no direct or indirect influence on innovation strategies, but instead developed a model in which decisions and behaviors were closely related to capabilities. Skills and knowledge as determinants of innovative Internet entrepreneurship are based on transformational and leadership cultures where there are no differences between talents and leaders. In other words, if knowledge management has an impact on talent proposals, then the institutional administration is out of the process of creation and innovation.The institutionalist administration, being replaced by technological risks and threats from Internet communities, guides an undertaking related to the legitimation of the State as a knowledge manager. In this sense, the effects of risks and threats on innovative entrepreneurship are reflected in the privacy and identity of talents. As *stalkers, trollers* and *bullies intensify* , institutionalism is minimized to such a degree

that smear propaganda, identity theft, or surfer stalkers are the issues that govern the university, its strategic alliance, and prospective of entrepreneurship and innovation.

5. Conclusion

The contribution of this work to the state of knowledge lies in the specification of a model that includes three explanatory hypotheses of the trajectories of relationships between the determining factors of entrepreneurship in its modality of Trolling, Stalking or Trending , but unlike social entrepreneurship that implies the construction of a public agenda based on empathy, commitment, innovation and cooperation, cyberpolitical entrepreneurship assumes that civil initiatives and proposals are generated from mistrust and aggression towards their authorities, in the same way as through monitoring or support to political figures or processes. However, mass communication studies show two logics that consist of the credibility of state propaganda and the verifiability of its achievements disseminated in the media, aspects that the model does not include, but that must be considered in the face of scenarios of government or government reports. election contest. Since the specified model aims to anticipate entrepreneurship as a result of institutional administration and knowledge management, entrepreneurship and innovation, its empirical contrast is recommended. The specification of the model establishes the differences between teachers, students and administrators with respect to the evaluation, accreditation and certification of the quality of academic processes and products, as well as anticipates knowledge management, entrepreneurship and innovation scenarios.

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