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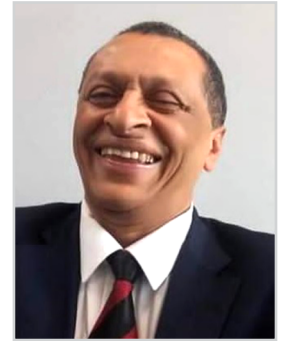
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Celia Yaneth Quiroz Campas

PhD (Economics), Research Professor,
Department of Economy,
Technological Institute of Sonora
Navojoa, 85000, México (Corresponding author)
celia.quiroz@itson.edu.mx
ORCID ID: <https://orcid.org/0000-0002-6068-1552>



Victor Hugo Meriño Cordoba

PhD (Economics), Research Professor,
Department of Economy,
Catholic University Luis Amigó (Universidad Católica Luis Amigo)
67B 90 Medellín, Colombia
victor.merinoco@amigo.edu.co
ORCID ID: <https://orcid.org/0000-0001-8911-7202>



Gilberto Bermudez Ruiz

PhD (Economics), Research Professor,
Department of Economy,
Anahuac University (Universidad Anahuac del Sur)
865 de los Tanques Ave., Col. Torres de Potrero, Álvaro Obregón, Mexico City, 01840, México
gibe_gil@hotmail.com
ORCID ID: <https://orcid.org/0000-0002-8656-6974>



José Marcos Bustos-Aguayo

PhD (Psychology), Research Professor, Department of Psychology,
The National Autonomous University of Mexico
(Universidad Nacional Autónoma de México, UNAM)
UNAM Faculty of Higher Studies (FES) Zaragoza Campus II, Calz. I. Zaragoza,
corner J.C. Bonilla, Colonia Álvaro Obregón, Mexico City, 09230, México
marcos.bustos@unam.mx
ORCID ID: <https://orcid.org/0000-0003-3423-596X>



Arturo Sánchez Sánchez

PhD (Economics), Research Professor,
Department of Economy,
The Autonomous University of Tlaxcala (Universidad Autónoma de Tlaxcala)
1 Universidad, La Loma Xicohtencatl, Centro, Tlaxcala de Xicohtencatl, Tlax., 90000 México
arturo.sanchez.s@uatx.mx
ORCID ID: <https://orcid.org/0000-0002-4946-1559>



Cruz García Lirios

PhD (Psychology), Research Professor,
Department of Psychology,
Autonomous University of Mexico State (Universidad Autónoma del Estado de México)
Calle Nuestra Señora de los Angeles Manzana 93 S/N,
La Canada, Huehuetoca, 54680, Mexico
cgarciali@uaemex.mx
ORCID ID: <https://orcid.org/0000-0002-9364-6796>

Training network preparation and practical solutions for economic improvement at universities of Mexico in the literature from 2020 to 2023

Abstract. In administrative-economic sciences, factor analysis models are essential for their explanatory capacity of institutional responses to a risk event. The objective of this document was to contrast a model that explains the emergence of corporate governance dimensions in the face of the pandemic. An exploratory study was carried out based on a systematic review of the literature from 2020 to 2023, considering the search by keywords in Google Scholar and Microsoft academic, as well as the experts from a public university in the center of Mexico. The results show that corporate identity explains the university's response to the pandemic. In relation to the theory of corporate governance which explains the emergence of identity, reputation, and image in the face of a risky event, we have established the relationship between the three factors. The established three-dimensional model suggests the prevalence of identity as a central factor of corporate governance in the face of COVID-19.

Keywords: COVID-19; Intellectual; Administrative-Economic Formation; Diffuse Model

JEL Classification: A12; M10; F14

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1. Introduction

Until March 2023, after two years, the pandemic has killed over 6 million people. The public health system implemented distancing and confinement policies that affected educational systems (Garcia, 2021). The transition from the traditional classroom to the virtual classroom supposes the emergence of an innovative link system between the academy and the labor market. The formation of intellectual capital in the virtual classroom supposes permissible risk gradients, although the relationships with the determinants anticipate risk scenarios. The analysis of the fuzzy logic of random events has revealed emerging entities such as university governance, corporate reputation, or professional training.

University governance, indicated by corporate identity, reputation, and image, predicts academic training (Garcia et al., 2012). Defined as a system of negotiation, consensus, and responsibility, university governance includes managers, producers, and disseminators of knowledge as stakeholders (Garcia et al., 2019). Corporate identity or sense of belonging is seen in the rational choice of belonging to a group. Corporate reputation refers to a community's self-concept in the face of a risky event and the availability of resources. The corporate image defined as the future choice based on expectations of the abundance of resources and minimization of costs reflects university governance.

In the corporate governance structure, training, image, reputation, and identity are predominant factors in the management, production, and transfer of knowledge. Studies on corporate governance have shown that it is an emerging phenomenon (Garcia et al., 2020). The description of this process can be done from fuzzy logic. Knowledge managed, produced, and transferred reaches its goal when it is the product of academic, professional, and work training.

So far, it is known that the corporate reputation of Higher Education Institutions (HES) consists of the formation of human capital committed to the sociopolitical context of Mexico (Garcia et al., 2016). Corporate governance in its identity modality underlines the uses and customs that distinguish one university from others, considering the insertion into the local market. Fuzzy logic is a theoretical and empirical framework that allows for explaining the bifurcations of risk events such as the pandemic on corporate governance indicators.

Corporate identity, being related to the conflict between the parties due to emotions of belonging, undermines the external image (Garcia et al., 2021). An increase in agreements fosters inbred expectations. The curricula are oriented towards internal capacities and nullify academic competitiveness. The reputation associated with identity consists of the self-concept of the institution. If policies that favor university members increase, the self-concept of this academic community reduces its comparison with other institutions. Global or national indicators of institutional performance lose meaning when corporate reputation increases.

However, the external image of the university measured through the Program for International Student Assessment (PISA) contravenes corporate reputation and identity (Carreón et al., 2019). An increase in the results of the PISA test suggests a reduction in corporate reputation if its community is inbred. Conflicts between the inbred criteria of the university and the PISA test enhance reputation and identity but reduce corporate governance to an internal affair.

Instead, corporate governments that have a high identity, reputation, and identity management of strategic alliances with other institutions (Molina et al., 2019). The multidisciplinary training derived from strategic alliances between universities and companies suggests an open corporate governance. This is the case of the University of Nuevo León which established agreements with companies for professional training without patent exclusivity. The absence of international alliances and tests and unknown ranking of the university, reflects an inbred corporate government.

The purpose of our research is to answer the research question: are there significant differences between the structure of university governance and the dimensions of identity, training, reputation and image reported in the literature from 2020 to 2023 with respect to observations and analysis of the present study?

The hypotheses of our research under testing are as following:

Null hypothesis H0: The structure of university governance reported in the literature from 2020 to 2023 is different from the structure observed in this work.

Hypothesis one H1: The university identity structure reported in the literature from 2020 to 2023 is different from the structure observed in this work.

Hypothesis two H2: The structure of university image reported in the literature from 2020 to 2023 is different from the structure observed in this work.

Hypothesis three H3: The structure of university reputation reported in the literature from 2020 to 2023 is different from the structure observed in this work.

The theoretical presuppositions that guide our research are as follows. The pandemic and the containment and mitigation policies, which focused on the distancing and confinement of people, affected the corporate governance of universities (Martinez et al., 2019). Universities and companies formed strategic alliances around the management, production, and transfer of knowledge., resulting in identity, reputation, and corporate image increase which influences positively on academic, professional, and work training. The policies of immunization, de-confinement, and return to classrooms affect the corporate governance of universities, too (Garcia, 2021; Sánchez et al., 2019). The identity and reputation also increase as a reaction to face-to-face classroom educational policies, but the corporate image was reduced due to the conflict between political and social actors the studies in Mexico show.

2. Brief Literature Review

Currently, several researches have been conducted on the impact of technology on COVID-19 (Jain et al., 2021; Abdel-Basset et al., 2021). One of the preliminary studies is presented on the behavioral outlook of social network users (especially Twitter) regarding the COVID-19 pandemic. Poongodi et al. (2021) reported research on the effects of information and communication technologies (ICT) on the management and control of the COVID-19 pandemic, for example contract tracking using growth theory and secondary data without using social network analyses. Their research has been done using the analysis of social networks such as emotions and thematic analysis. Best practices are being developed in the use of ICT to manage and control virus outbreaks. The first and most important factor that has caused changes in the work of organizations is information technology and the Internet. Information technology and computer science have made tremendous progress in the past few years and have created the phenomenon of information explosion, which will definitely have a significant impact on the selection of societies and the information they need (Intawong et al., 2021; Manny, 2023).

The global crisis of the corona virus has caused very heavy and unpredictable consequences for many institutions and business enterprises, so that they are exposed to all kinds of risks and dangers such as the risks caused by the activities of online networks, cyber security and changes in relations with customers and suppliers, which cause new pressures on the implementation of operations and the provision of services by companies. In research, it has been determined that strategies using potential technologies will bring better benefits, and these IT strategies can be adjusted either to control the epidemic or to support community containment during the epidemic, which in turn can control the spread of infection.

3. Method

Exploratory and descriptive work was carried out with a selection of sources indexed to international repositories, considering the search by keywords, namely: corporate governance, identity, reputation, image, and academic training in Google Scholar and Microsoft Academic, considering the period that the pandemic takes from December 2019 to December 2022 (see Table 1).

A total of 56 abstracts were selected with regard to Mexico to establish the relationships between the categories. Based on a Delphi Inventory, 7 experts from a public university Oklahoma

Table 1:
Sample description, a number of sources found in relation to Mexico from December 2019 to December 2022

	Corporate Governance	Identity	Reputation	Image	Training
Google Scholar	6	5	6	5	4
Microsoft Academic	4	7	5	7	7

Source: Prepared with study data by the authors

State University in Mexico were interviewed on the topics rated the relationships between the variables, considering 1 - for training, 2 - for identity, 3 - for reputation, 4 - for image, and 5 - for corporate governance (see Table 2).

Table 2:
Description of the experts

Sex	Age	Doctorate	Work Experience	Monthly income (in Mexican Nuevo Peso)*
Male	46	Psychology	20	30,892.00
Female	58	Anthropology	22	40,123.00
Female	49	Pedagogy	19	39,092.00
Male	62	Sociology	21	28,914.00
Male	50	Management	24	32,432.00
Male	55	Economy	18	29,645.00
Female	48	Pedagogy	17	31,784.00

Note: *- 1 peso = 0.05 euro (an average exchange rate as of 2022).

Source: Prepared with study data

In three rounds (qualifying; feedback; reconsidering or reiterative), the experts evaluated and compared their assessments regarding the relationships between the categories under study. Six articles were selected by the experts in which university corporate governance stands out as a configuration of identity, reputation, and image, but with an emphasis on academic training (Table 3).

Table 3:
Corporate governance studies: identity, reputation, and image of HEI selected and categorized by the experts

Year	Authors	Literature	Phase	Division	Participants
2019	Hernandez et al.	A	D	CBI	260
2021	Morales et al.	A	G	CBS	230
2021	Ferr et al.	D	D	CAD	220
2021	Garcia et al.	A	D	CSH	200
2020	Sandoval et al.	B	P	CBI	220
2022	Carreon et al.	A	G	CBS	240

Source: Prepared with study data

The articles were further separated by the following categories, phases and divisions.

- A: Literature that reported total positive and significant effects of management on the production and transfer of knowledge;
- B: Literature that reported total positive and spurious effects of management in the production and transfer of knowledge;
- C: Literature that reported total zero effects of management on the production and transfer of knowledge;
- D: Literature that reported total negative effects of management on the production and transfer of knowledge.

Phase M = Management Phase, Phase P = Production Phase. Phase D = Diffusion phase.

Division CBI = Basic Sciences and Engineering, CBS = Biological and Health Sciences, CSH = Social Sciences and Humanities, CAD = Sciences, and Arts for Design, CNI = Natural Sciences and Engineering, CCD = Communication Sciences and Design.

Once the categories were established, the Corporate Governance Scale (emerging growth companies (EGC)) was elaborated, considering the validity by experts and preliminary piloting with more than 200 students (the graph «Participants» in Table 3), following the protocol of confidentiality and anonymity. The instrument was sent to the institutional mail of the students. An informed consent form was attached, following the anonymity and confidentiality protocol. The data was captured in Excel and processed in JASP version 15 considering the distribution values and contrast of hypotheses of contingent relationships, as well as structural modelling, adjustment, and residual.

4. Results

Figure 1 shows the values related to the non-parametric distribution, and contingency relationships between the categories evaluated by the judges in three rounds: qualifying, feedback, and reconsideration or reiteration. Distributions that allowed analysis of relationships between the variables due to the internal consistency of the scale are appreciated.

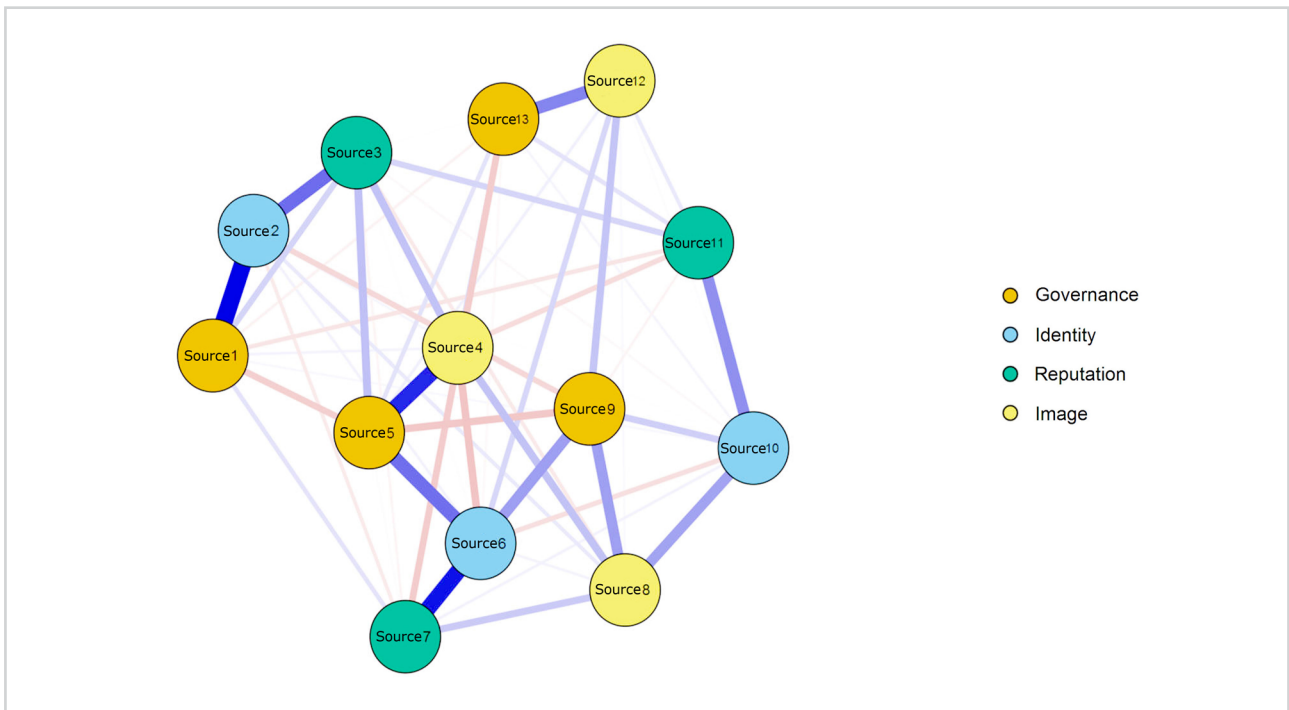


Figure 1:
Network
 Source: Elaborated with study data

Figure 2 shows the structure of relationships between the categories: identity, reputation, and corporate image, explaining the configuration of corporate governance in the study literature. Corporate identity (RC1) was more identified by the experts' evaluation regarding reputation and image. The finding is limited to the theory of corporate governance where identity is revealed as an underlying process of risk events that enhance the institution but reduce its image with respect to its training capabilities.

Figure 3 shows corporate reputation (RC2), which was configured from evaluations in which the experts determined the self-concept of the institution through the articles analyzed. A minor structure is appreciated with respect to identity, but more with respect to the image. The finding corroborates the theory of corporate governance. In a risk scenario such as the pandemic, institutions take care of their concept of themselves by synchronizing objectives, tasks, and goals. The corporate identity and reputation increase, but the image of the institutions decrease due to its agenda of internal priorities.

The adjustment and residual parameters suggest the non-rejection of the null hypothesis H0 regarding the significant differences between the categories subtracted from the literature with respect to the evaluations of expert judges in the themes.

The contribution of this work lies in the establishment of three dimensions: Identity, reputation, and image related to the corporate governance of a university in central Mexico. The identity dimension, alluding to the soft resources of the institution, was configured from eight reagents referring to trust, empathy, values, motives, and dispositions as it is structured by Garcia et al. (2018). The reputation dimension, related to cognitive resources such as skills, intentions, and strategies, explains the internal capacities of the university in the face of the pandemic. The image dimension, relative to external concepts, suggests strategic alliances between the university and companies. The contrast of the model established in other samples will allow delineating future studies to corroborate the theory of corporate governance.

In relation to the theory of corporate governance which explains the emergence of identity, reputation, and image in the face of a risky event, we have established the relationship between the three factors. The established three-dimensional model suggests the prevalence of identity as a central factor of corporate governance in the face of COVID-19. This is also in line with the findings by Garcia (2021). It means, hence, that the capacities bands of affections, emotions, and feelings explain the greater variance of corporate governance. That is, the university in the face of the pandemic closed interaction with other institutions and strengthened human relations.

The procurement of emotions led to a distance from other institutions resulting in a closed image of corporate governance. In addition, the absence of hard skills such as competencies, skills, and strategies reduced adaptation to change at university. Testing the hypothesis regarding soft capacities as preponderant in institutions in risk scenarios should anticipate the emergence of hard capacities in post-contingency situations.

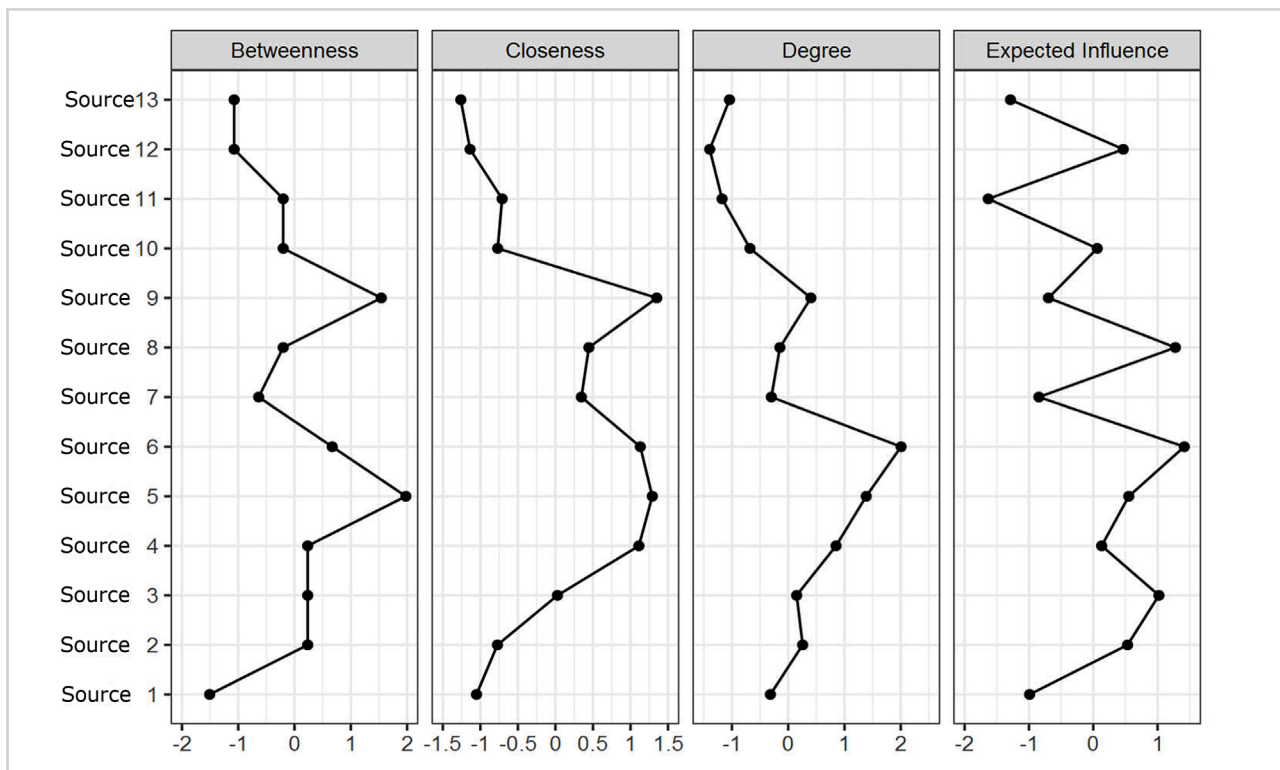


Figure 2:
Centrality
 Source: Elaborated with study data

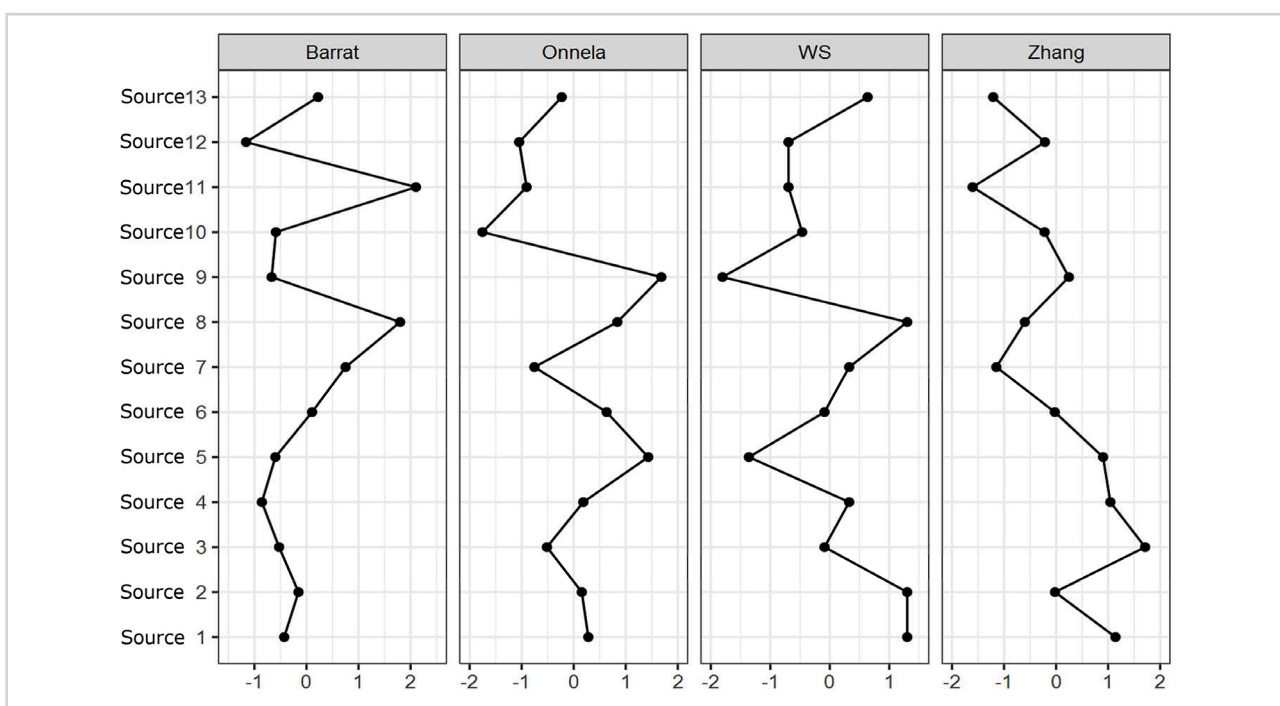


Figure 3:
Clustering
 Source: Elaborated with study data

Regarding the instrument to measure Corporate Governance, which reached values above the minimum indispensable consistency, this paper suggests the use of the Corporate Governance Scale (CSG) in order to explain the responses of institutions to the pandemic. The EGC will make it possible to compare the corporate governance of universities and the dimensions that comprise it. In the case of identity as a preponderant factor in corporate governance, the EGC will make it possible to compare the levels of reputation and image of universities against COVID-19.

5. Conclusion

Corporate governance was explained from three dimensions reported in the literature and formed in the observations made in this work. Corporate identity is the preponderant factor that the literature identifies as an emerging factor in risk events. The corporate governance made up of all three dimensions suggests that the pandemic activated an inbred response from the university, closing collaborations with other universities, but strengthening internal relations. Corporate identity is the result of contingent situations. Social distancing and confinement increased the soft capacities of the university. Emotions, affections, and feelings increased trust and empathy among university members but reduced their comparison with other universities in terms of entrepreneurship, innovation, productivity, and competitiveness. The corporate identity meant a high degree of satisfaction and a sense of belonging to the institution, but without sufficient collaboration to face the challenges of the local labour market. Policies of confinement and social distancing, when replaced by policies of return to the face-to-face classroom, will lead to an increase in reputation and/or corporate image.

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