

# Review of Human, Social and intellectual capital in the Covid-19 era

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## Abstract

The health and economic crisis caused by the SARS CoV-2 coronavirus and the Covid-19 disease has accelerated the emergence of an informational economy focused on the use of electronic networks. The impact of this scenario on education led to the transition from the traditional classroom to the electronic whiteboard. The objective of the present work was to analyze the relationships between human, social and intellectual capital. A model was established in which the prevalence of human capital formation indicated by data processing in the virtual classroom and self-management of knowledge is appreciated.

## Introduction

At the time of writing this work, the policies to mitigate the pandemic caused by the SARS-CoV-2 and Covid-19 coronavirus have reported 17 million infected, 9 million sick and 700,000 deaths in the world [18]. In Mexico, 500 thousand were infected, 300 thousand fell ill and 50 thousand died. In this scenario of risk, uncertain situation and health contingency, the formation of human and intellectual capital is focused on the virtual classroom [13]. Unlike the traditional classroom where the stage is controlled by the teacher, in the electronic classroom technology defines the type of communication between the parties involved.

The differences between the figures for infections, sick and dead in countries with a similar level of development and population can be observed in risk communication and management [7]. In this sense, the establishment of the agenda allows us to observe the differences between the rulers and the ruled. In other words, while the State considers distancing and confinement a priority, citizens insist on working to compensate for unemployment or informality. In this way, the review of the literature will reveal the topics on the agenda of the State and the citizens with the purpose of establishing differences and anticipating risk scenarios for the public administration and for the citizens.

The objective of this study is to specify a model for the study of social entrepreneurship in heads of household. From a review of the literature, the variables that made it possible to systematize the determinants of the entrepreneurship trajectories were extracted.

How is the capital formation process reported in the literature from 2018 to 2020 in international repositories, considering the prestige of the source?

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The premises that guide this research suggest that significant differences prevail between the public health administration and users regarding the establishment of an agenda and the framing of the information disseminated in the media and networks, as well as its effects on decisions and actions of people [6]. More specifically, it is about the influence of images of infections, diseases and deaths from Covid-19 and its impact on academic, professional and work training, as well as the incidence of data and its consequences on the skills of comparing sources and content related to Covid-19.

The hypothesis that guides this study refers to the fact that the determinants of the formation of intellectual capital are different in the traditional classroom with respect to the virtual classroom, as well as among users, considering their acceptance, adoption and compatibility of the technology. In this way, the theoretical, conceptual and empirical frameworks related to the formation of intellectual capital in risk scenarios and uncertain contingencies are exposed [3]. The methodological decisions to address the phenomenon are described below and the corresponding diagnosis is presented [9]. Discussion of the findings with other works is included and the implications in the virtual classroom are reflected upon.

#### *Theory of the establishment of the agenda and human, social and intellectual capital*

The establishment of the public agenda is a phenomenon of risk communication that consists of the dissemination of issues such as the distancing and confinement of people, instruments of containment and mitigation of the pandemic [34]. In this sense, the conferences and statements of public health officials build a state agenda that is contrasted with the investigative agenda of the experts. In the case of the literature published during the pandemic, a scientific and investigative agenda is established that may coincide or contravene the provisions of the State. Thus, in terms of communicating the risks of Covid-19, the literature suggests that stigmas are established for doctors, nurses, social workers and police who work in health centers and hospitals. Meanwhile, citizens process this information in the media and electronic networks such as Facebook, Twitter, Youtube, WhatsApp, Instagram or TikTok. Although the state or scientific agenda is widely disseminated, the reception of its issues is processed according to the opinions of the people, who assume that the government is responsible for the management of the pandemic. In this way, the number of infections, diseases and deaths is attributed to the State rather than to the public. Even self-care and health promotion are attributed to health institutions.

In contrast, from the theory of human capital, health promotion may be attributable to the State, but self-care is an indicator of personal development, as well as a distinctive feature of academic, professional, and work training. If students, professionals and workers develop academic or work skills, they are obliged to prevent accidents and illnesses based on consumer decisions and in line with the internal strategies or programs of companies and institutions [5]. In that order of ideas, the theory of intellectual capital emphasizes the capacities, abilities and knowledge that not only allude to the risks of contagion, illness, or death, but that from processing allusive data can be anticipated. In addition, beyond risk prevention, there is health-oriented behavior that can be compatible with government strategies to reduce spending. Both categories, human capital as the development of academic and work capacities, as well as intellectual capital as the development of information skills and knowledge, contravene the state risk communication. This is so because the State legitimizes its intervention by considering citizens as recipients of its health policies. In contrast, the scientific community tries to reveal an agenda of differences between the actors, but oriented towards a common origin and purpose, such as health.

It is scientific studies that warn of the defenselessness of citizens as government strategies of confinement and social distancing intensify, as well as demonstrations of risk areas, exposure to

contagion and the probability of illness and death [2]. Far from considering data on risks, infections, diseases and deaths, citizens build their agenda from the type of state or scientific communication. The more the data on Covid-19 intensifies, the more hopelessness is generated in the audiences. In fact, speeches about the end of humanity and the need to compensate for that expectation with hedonistic actions are exacerbated. Consequently, the study of social capital acquires a health dimension linked to hopelessness rather than risk prevention. The learned hopelessness theory suggests that the bombardment of information fosters inaction as the risk event approaches the recipient's context. Audiences consider the legal event and the probability of acting unrelated to the phenomenon. In contrast, the proximity of the risk encourages immediate action whenever the event is unavoidable. If there is a possibility that the event is not significantly risky, it will lead to weak or absent action.

The principles that guide rational choice lie in tastes and preferences, crystallizing the objectives of the actors [30]. Therefore, before making any binding preferences strategy decisions, gather information that will determine the choice. If individuals prefer to have an indeterminate number of tastes, objectives and goals, then their preference will no longer depend on their capacity for choice and action [7]. Therefore, they act in a non – rational way. Rational choice theory also warns that a decision is the result of an estimate of the costs and benefits of trying regardless of its degree of significance [28]. This is a utilitarian dimension in which controlling a situation to establish a favorable balance of benefits versus costs will determine the choice. More specifically, benefits and costs translate into a ratio of risk, effort, and reward [3]. This means that a choice must be rational when risks and efforts are minimal if the rewards are greater.

On the other hand, when the recognition of an effort and risk does not live up to expectations, then the choice has not been completely rational and rather approaches an irrational dimension if the risks and efforts are increasing and intense with respect to the absence of rewards [21]. This is because the individual attempting it is committed to the risks that will be triggered by profit expectations [27]. The integration of each of the variables represents a series of paths in which the correlations explain each choice [11]. The rational choice explained in general terms the process by which preferences are the determining factor for other factors that generate information or perceive a climate of certainty when deciding and acting accordingly [13]. To the extent that such information is available, accessible and actionable, then the rational choice will emerge as an option, but ambiguity proliferates, then a non – rational decision will be generated with irrational consequences.

However, when the information is not available or is very abstract, the rational choice is replaced by a more strict option to the culture, values and norms of the people with respect to a contingency for which some precedents are not known, but the people they always react in the same way [29].

#### *Studies on the establishment of the agenda and human, social and intellectual capital*

Studies on the establishment of the agenda and social, human and intellectual capital emphasize the relationship between the rulers and the ruled with respect to risk events [33]. In this way, it is known that the communication of the mitigation or containment of the pandemic favors academic, professional and labor training, but not in the effective way that a public and common agency could mean between the parties involved, the political and social actors, as well as the public and private sectors.

Studies of risk communication and academic, professional and labor training have demonstrated the emergence of social hopelessness in the face of the intensive dissemination of infections, diseases and deaths, but very little is known about the impact that scientific literature has on public policies and the

self-care of people [25]. These investigations have shown a consonance between the diffusion of the distancing and confinement of people with respect to contagions, diseases and deaths, but not with regard to the inclusion of risk communication in the decisions of formation of social, human and intellectual capital. In other words, defenselessness is a response to risks, but it does not imply a common agenda between the parties involved.

The studies of the establishment of the agenda and the social, human and intellectual capital have advanced in three phases: The agenda as distinctive themes of the political and social actors, the framing of the media and the impact of information on audience consumption. . This is the case of the conferences on Covid-19 produced by the Mexican State. The agenda focused on the asymmetries between detection tests and confirmed cases of infection by coronavirus SARS CoV-2 and / or patients by Covid-19. Event of national coverage with effects on audiences instructed in distancing and social confinement.

If the first studies allude to the frequency of data issued by health institutions on compliance with the norms of confinement and social distancing, the studies on framing advanced towards the dissemination of information on two types of audiences: audiences oriented by plausibility. and driven by informative verifiability [10]. It is about the plausibility strategy that consists of the prevalence of images and that are directed towards audiences that look for sources in accordance with their normative principles. Faced with informative credibility, a media verifiability is built that lies in comparing data from different sources to investigate differences and establish a specialized and updated agenda of cases of infections, diseases and deaths from Covid-19.

However, the agenda and the framing are instances that paved the way for investigating the impact of the media and networks on human behavior [19]. If the establishment of issues such as distancing and confinement were oriented towards audiences that preferred these strategies because they consider that the State should guarantee the health of citizens, then the effect of communication styles would warn of risk amplification scenarios. This is the case of political actors who dismissed the pandemic and fostered in the hearings a sense of normalcy without restrictions, but with incalculable effects of contagion, diseases and deaths. In opposition to this communication of plausibility and catastrophic effects on audiences, communication for the verifiability of data generates risk prevention, but based on the hopelessness of the audiences. This is so because the comparison of data from different sources supposes a comprehensive panorama that guides decisions and actions towards prevention whenever the audiences consider that they are in control of a risk situation.

If the rational choice is being developed based on preferences based on available information to determine tastes and objectives, the forward-looking attitude suggests that the absence of information generates uncertainty that determines the aversion to risk or the renunciation of certain gains and appetite for risk when losses are imminent [2]. Thus, utility, profit or happiness crystallize in profit or loss, bypassing the rational choice process and legitimizing an irrational choice [20]. Therefore, a prospective is more than a decision, it lies in the attitude and expectation of risk or certainty of gains and losses in the immediate future. In that sense, a retrospective is an attitude that has the same relationships but compared to the previous one [8]. The prospective attitude is a hinge between rational choice and reasoned action [1]. The surrounding information in the media would lead to rational choices if the audiences could access all the content. In contrast, the reasoned action warns that motivation, attitudes and intentions are enough to prevent a behavior promoted in the media. Each of these theoretical and

conceptual frameworks bases its scope and limits on the availability of information, if the individual is capable of assuming an attitude, making a decision or taking an action that corresponds to the available information and the representation that it has.

#### *Modeling the Establishment of the Agenda and Human, Social and Intellectual Capital*

From the theoretical and empirical frameworks on the agenda, the setting, the plausibility and the verifiability of the pandemic, confinement and distancing, it is possible to model the formation of social, human and intellectual capital in a risk situation such as contagions, diseases and deaths that the literature has reported from December 2019 to August 2021.

In this way, the study of the agenda, framing, plausibility and verifiability in the literature published during the pandemic supposes a formation of the social, human and intellectual capital from images and data [8]. This is so because the media and networks disseminate the topics of the political and scientific agenda in an intensive way that promote hopelessness in the citizenry, causing risky behaviors such as exposure to Covid-19 in closed places. Or, they promote risk prevention compatible with confinement and distancing, but close to hopelessness rather than deliberation and planning of detection tests, vaccination, use of masks, alcohol gel or oximeter.

Unlike rational choice theory that focuses on the usefulness of available information and forward-looking attitude theory that focuses on the certainty of information, reasoned action theory assumes that information, whatever In other words, it is a general environment that will influence behavior to the extent that the information is transformed into rules [23]. This is because the theory of reasoned action considers that all information is a cognitive process [16]. Therefore, an overview of the environment, its demands and favorable opportunities Categories of accessible and abundant information availability that will influence wasteful behavior, such as believing that jobs, salaries and financial credits increase significantly [26]. On the contrary, if the context is rather recessive and one of economic crisis, then austere, cooperative and innovative lifestyles will be adopted.

However, the theory of reasoned action, like the theory of rational choice and the theory of prospective attitude, pose a predictive scenario of a specific behavior without considering the current situation and without specifying who makes the decision [4]. The rational choice assumes that the context can be reducible to information disenable in the media without assuming the segmentation of audiences. The reasoned action warns that the available information is enough reason for decision making. The forward-looking attitude assumes that risks coexist with earnings expectations, reaching an informative balance for exposure to threats.

#### **Method**

A documentary work was done with a selection of sources and you international repositories such as Scopus and WoS, considering the keywords “specification” and “intellectual capital” in the period 2019 to 2021 (see Table 1).

A search for abstracts was carried out to subtract the intellectual capital indicators [15]. Then, once the indicators of empathy, trust, commitment, entrepreneurship, productivity, competitiveness, innovation, satisfaction and happiness had been selected, the experts in the field rated these indicators in order of importance, with 10 being the most important and 0 being zero or not [17]. Important s data and processed in the statistical analysis package for Social Sciences version 20.0 [32]. Percentages, contingencies and proportions were estimated to establish risk thresholds in decision making on intellec-

Table 1. Descriptive sample

	C1			C2			C3		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
Academia	1	3	3	1	3	2	3	5	4
Conacyt	3	2	2	3	2	1	2	4	3
Copernicus	4	1	1	2	1	3	1	3	5
Dialnet	5	4	4	1	3	4	3	4	4
Dimensions	2	3	2	4	2	5	2	5	5
Ebsco	4	2	1	3	4	4	4	4	4
Frontier	3	4	1	5	5	3	5	3	3
Google	5	3	1	4	4	2	4	4	4
Latindex	4	5	1	2	5	4	3	4	2
Microsoft	3	4	2	5	4	5	2	2	3
Redalyc	3	3	3	4	5	4	4	3	2
Scielo	2	2	2	3	4	3	3	1	1
Scopus	3	4	4	4	3	2	1	2	2
Zenodo	4	3	2	3	2	1	2	1	1
Zotero	2	2	1	2	1	1	1	1	1

Note: Elaborated with data study. C1 = Human Capital, C2 = Social Capital, C3 = Intellectual Capital.

tual capital indicators.

## Results

The confidence indicator obtained the highest percentage (25%) followed by commitment (22%), empathy (17%), entrepreneurship (13%), satisfaction (9%), innovation (6%), productivity (4%), competitiveness (3%), happiness (1%). This means that decision making is a function of the level of trust, although the instrument does not specify the type of trust that can be organizational, interpersonal, intrapersonal or technological.

In order to be able to estimate the axes, trajectories and relationships between the three search categories with respect to the selected summaries, we proceeded to establish their normality, linearity, adequacy, sphericity and homoscedasticity, considering the distribution parameters, as well as the coefficients of multivariate analysis (see Table 2).

Regarding the relationships between the categories, the correlation and covariance matrix was estimated, considering that human, social and intellectual capital are related to being included in knowledge management. This is so because in the face of the confinement and distancing of people, the virtual classroom works as an informative self-management instrument, as well as data processing based on academic, professional and labor training criteria. This social capital is linked to human capital for its academic biosafety as prevention of accidents, infections, diseases and deaths. In this process, human capital is specialized and updated according to the communication of risks regarding Covid-19 (see Table 2).

The probability proportions suggest that the intellectual capital formation process, centered on intrapersonal confidence in abilities [OR = 17.21 (13.24 to 19.20)], abilities [OR = 18.21 (14.35 to 20, 21)], knowledge [OR = 15.43 (13.24 to 21.23)], experiences [OR = 18.20 (14.32 to 23.45)] and emotions [15.46 ( 10, 21 at 22.31)], is at an admissible risk threshold. It means then that the intervention of social work can be based on the formation of intellectual capital and its indicators of intrapersonal trust. Having established the relationships between the categories, we proceeded to estimate the structure of axes, paths and relationships between human, social and intellectual capital, considering that these categories

Table 2. Descriptive instrument

A	C1			C2			C3		
	M	SD	K	M	SD	K	M	SD	K
a1	2.5	.45	1.4	2.4	.54	1.3	2.5	.45	1.4
a2	2.6	.54	1.9	2.3	.68	1.0	2.4	.43	1.6
a3	2.9	.65	1.0	2.4	.64	1.1	2.6	.53	1.4
a4	2.3	.46	1.7	2.8	.53	1.3	2.5	.63	1.0
a5	2.1	.53	1.3	2.4	.42	1.8	2.0	.47	1.3
a6	2.5	.47	1.4	2.0	.43	1.7	2.5	.58	1.2
a7	2.4	4.8	1.6	2.3	.57	1.3	2.4	.59	1.4
a8	2.0	.54	1.3	2.1	.69	1.4	2.2	.60	1.7
a9	2.4	.53	1.2	2.2	.51	1.5	2.0	.65	1.9
a10	2.6	.52	1.4	2.3	.65	1.3	2.9	.67	1.3
a11	2.7	.55	1.9	2.4	.62	1.2	2.7	.66	1.2
a12	2.3	.56	1.3	2.4	.59	1.4	2.8	.45	1.1
a13	2.4	.50	1.0	2.8	.35	1.3	2.4	.48	1.5
a14	2.7	.59	1.3	2.3	.46	1.6	2.5	.43	1.4
a15	2.9	.46	1.2	2.9	.41	1.3	2.3	.41	1.7
a16	2.4	.41	1.1	2.3	.51	1.3	2.4	.43	1.5
a17	2.1	.48	1.3	2.1	.61	1.2	2.4	.50	1.8
a18	2.9	.43	1.7	2.9	.60	1.1	2.1	.52	1.3

Note: Elaborated with data study. C1 = Human Capital, C2 = Social Capital, C3 = Intellectual Capital, A = Abstract, M = Mean, SD = Standard Deviation, K = Kurtosis

Table 3. Correlation and covariance matrix

	M	SD	K	C1	C2	C3	C1	C2	C3
C1	24.32	14.35	1.452	1.000			1.657	.543	.632
C2	21.35	10.54	1.098	.672*	1.000			1.834	.476
C3	26.54	16.56	1.564	.436**	.562*	1.000			1.982

Note: Elaborated with data study. C1 = Human Capital, C2 = Social Capital, C3 = Intellectual Capital, M = Mean, SD = Standard Deviation, K = Kurtosis. \* p < .01; \*\* p < .001; \*\*\* p < .0001

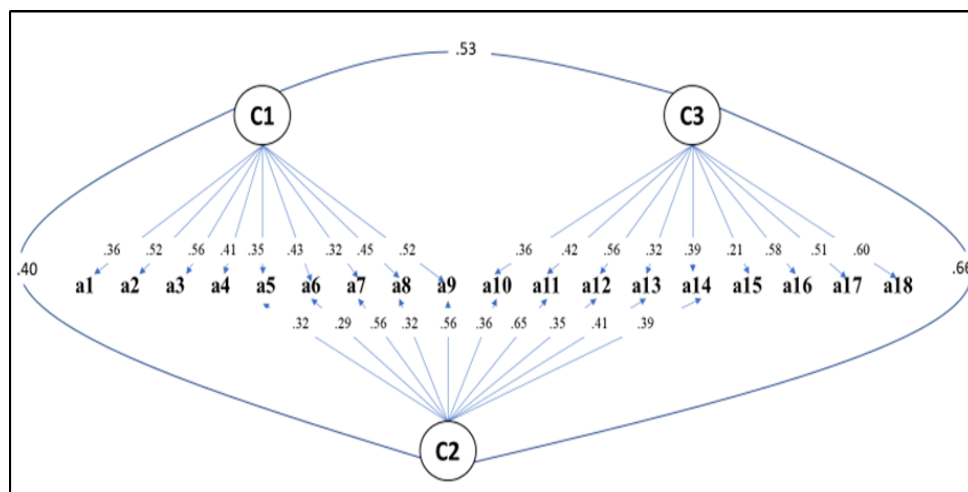


Figure 1. Structural equation modelling  
 Note: Elaborated with data study. C1 = Human Capital, C2 = Social Capital, C3 = Intellectual Capital, A = Abstracts

were reflected in summaries published in the repositories consulted, as well as their configuration in a research agenda which is distinguished by alluding to the three types of capital before the Coovid-19 (see Figure 1).

The contingency parameters suggest significant differences between the decisions made based on intrapersonal versus interpersonal trust [ $\chi^2 = 16.27$  (16 df )  $p > .05$ ; GFI = .997; CFI = .990; RMR = .006]. In other words, as an educational process, intellectual capital focuses on internal capacities, experiences, skills, knowledge and emotions rather than outsourcing it when it comes to socializing knowledge. In a formative sense, intellectual capital is limited to internal and external academic relationships without diminishing educational institutions.

**Discussion**

The establishment of the agenda, the framing of the repositories and their verisimilitude and verifiability effects reported in the literature up to August 2021 suggest a formation of human and intellectual capital based on issues related to distancing and confinement as preventive strategies and attributable to the State [7]. This is so because the investigative agenda complements the political agenda in terms of the containment and mitigation strategies of the pandemic, being distant from the self-care of students, professionals and workers who see their contribution to the pandemic as distant and government interference close.

The public agenda disseminated on issues related to risk communication is made up of plausibility frames [31]. These are strategies that the State adopts and implements based on images, even when they are statistical projections, general data prevail and are even comparable with other data from different or similar countries. This plausibility trick legitimizes the strategies of distancing and confinement, but inhibits the discussion of underreported infections, diseases and deaths that would question risk communication.

Research lines around discussion, consensus and co-responsibility between political and social actors, as well as public and private actors, will allow progress towards the construction of a public and common



agenda among the parties involved [24]. Even examining the data rather than its illustrations would allow us to move towards an agenda of central issues around the pandemic. This is the case of the implementation of confinement or social distancing strategies in areas that have been identified as less prone to the concentration of particles. Or, the use of mouth covers in areas identified with high concentrations of particles. Therefore, it is necessary to inquire about the effects of the data illustrated in graphs versus the data that shows the effectiveness of risk communication. Or sources that do not come from the State and have sufficient prestige to evaluate the mitigation and containment policies of the pandemic. The repositories that index journals for the quality of their products and processes would be valid, self-correcting and reliable sources.

In both scenarios, framing of plausibility and verifiability, the literature published during the pandemic opens the discussion about the influence of risk communication on decisions and actions of distancing and confinement [22]. An increase in studies on the plausibility of the pandemic and containment mitigation policies will contribute to the discussion, agreements and joint responsibilities between the parties and not only to the legitimacy of the State.

The contribution of this work to the state of the question lies in the concretion of a model for the study of intellectual capital, considering the dimensions of intrapersonal trust in which there are skills, emotions, experiences, skills and knowledge, in the qualification of experts, were located at tolerable risk thresholds.

In relation to the literature where intellectual capital is approached from non-training organizational dimensions such as cooperation, tasks, goals, objectives or innovations, this work suggests complementing these dimensions with intrapersonal factors to establish differences between professional training and job training. Future lines of research on the structural models of intellectual capital, human capital and social capital will make it possible to establish a predictive explanation of academic, professional and labor training. The importance of consolidating a comprehensive pedagogical model lies in the innovation of teaching-learning.

Since the information is not available or is actionable actors that require immediate planning of their actions, the determinants of planned behavior are those in which the information can be delimited and specified based on a particular situation or for an event which is the subjective control of the decision-making and the information available and actionable. The theory of planned behavior finds that perceived control is a significant determinant of behavior in direct and indirect ways. Interacting with subjective norms and attitudes generates an intention that is also assumed as a determinant of behavior.

However, it is perceived control, as the norm and attitude depend on a set of beliefs about the availability of information. In this sense, the specification of a model could include variables that anticipate behavior, but not of the beliefs of the availability of information, but of dispositions to cooperate on the part of actors that form a business project to develop their skills, not only of choice, deliberation or planning, but innovation.

### **Conclusion**

The formation of human, social and intellectual capital supposes a process of social distancing and confinement in which content oriented towards the self-management of knowledge prevails. The published literature is distinguished by including structured summaries with information that allows the follow-up of the findings, as well as their comparison and processing. In other words, the virtual classroom is distinguished from the traditional classroom by the degree of self-management that Internet users dedicate

to learning structured content for the processing of results.

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