



META-ANALYSIS OF THE FORMATIVE STRUCTURE OF HUMAN CAPITAL IN THE LITERATURE FROM 2020 TO 2023

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Received: 20.05.2023

Accepted: 05.06.2023

Published: 15.06.2023

Abstract

The pandemic, being contained and mitigated by distancing and confinement policies, limited the formation of human capital in the face-to-face classroom. Based on this assumption, the objective of this study was to observe the models of human capital formation in different scenarios in the COVID-19 era. A reflective effects meta-analysis was performed with a sample of abstracts published in the literature from 2020 to 2023, considering international databases and repositories. The heterogeneity hypothesis was contrasted, which is not rejected, but the extension of the study to other samples and risk propensity scenarios is recommended.

Key words: COVID-19, Formative Model, Human Capital, Meta-analysis, Reflexive Model

I. Introduction

Until January 2023, the pandemic has impacted the formation of human capital through biosafety policies (García et al., 2023). Based on risk prevention, human capital is immersed in academic, professional and labor training from the virtual classroom with transition to the face-to-face classroom. In this way, the teaching and learning of skills, abilities and knowledge has been reported in the literature from 2020 to 2023 as a preventive measure against accidents and diseases related to the new coronavirus SARS CoV-2 and variants of the disease COVID-19.

Therefore, the systematic review and meta-analysis of human capital formation during the pandemic is essential to open the discussion on the impact of anti-COVID-19 policies (Nájera et al., 2020). Specifically, the relationship between biosafety strategies and the formation of intellectual capital in an immersive, hybrid or face-to-face environment is relevant. Being human capital the

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guiding axis of the value of an organization or institution, intellectual capital is important for the management, production and transfer of knowledge in a risk scenario.

However, systematic reviews address the performance of human capital and the factors that inhibit its productivity, such as the stigma of those who are exposed to risks of contagion, illness, or death from COVID-19 (Sánchez et al., 2022). In addition, the literature does not establish a distinction between academic, professional and labor training when establishing the random effects of the factors that inhibit or enhance the formation of human capital.

Another important aspect is the distinction between building human capital, which consists of teaching and learning values, norms, and capacities in the face of stable scenarios, but not in the face of risks, contingencies, or threats, as is the case with intellectual capital. (Lirios et al., 2021). In this way, the literature highlights biosafety as the guiding principle of organizations and institutions that manage, produce or transfer talent.

However, the literature considers that the formation of human capital in stable situations is equivalent to the formation of intellectual capital in risk scenarios (Carreón et al., 2020). For their part, specialized studies on the formation of intangible assets highlight talent management in risk scenarios, but the production and transfer of knowledge arise in stable contexts. Only the works related to the formation of intellectual capital highlight the imponderables of management, production and transfer in the appropriation of talents.

The literature that explains the formation of human capital is structured in sociocultural, socioeconomic, socio-educational and socio-digital paradigms (Guillén et al., 2014).

The sociocultural perspective warns about the emergence of norms, values and beliefs related to anti-COVID-19 policies focused on the biosecurity of confinement and distancing (Guillén et al., 2021). In this model, training is gestated from premises and heuristics for risk prevention. This is the case of phrases like: “When it touches you, even if you take it off. When it doesn't touch you, even if you put it on”. The explanation of why students, professionals, and workers were exposed to the pandemic lies in the fact that they assumed the premise or heuristic as valid.

From a socioeconomic perspective, the impact of the health crisis on talent training involves selection filters by competencies, abilities, dispositions or knowledge based on investment in the training process (Carreón et al., 2020). Thus, performance data mining reflects significant differences between developed and emerging countries. Even in the same country, the literature distinguishes between social strata to demonstrate the asymmetric impact of the pandemic on institutions.

However, sociocultural and socioeconomic perspectives seem to ignore the link between academic, professional and labor training (Martínez et al., 2021). It is the socio-educational approach that tries to assume that the pandemic affected educational systems, institutions, the classroom, and learning styles. From the sociocultural approach, the interrelation between teachers and students is established as a means for the dissemination of heuristics. From the socioeconomic point of view, the teacher-student relationship is a consequence of access to a quality educational system. It is from the socio-educational offer where the differences between systems, platforms and classrooms are analyzed based on risk exposure.

Precisely, exposure to risks is the factor that seems to establish sociocultural, socioeconomic, and socio-educational differences, although such a situation can be avoided if there is access to updated and specialized information on infections, illnesses, and deaths from COVID-19 (Molina et al., 2020). Unlike the socio-educational perspective, which only notices differences based on risks, the socio-digital perspective indicates that open science on the subject of COVID-19 allowed for qualified training.

Although open science on the subject of the pandemic opened the discussion on biosafety, the open access policy seems to derive from a sociocultural premise: "exceptional measures for risk situations" (García et al., 2021). Even the value of knowledge related to COVID-19 was disseminated from contributions rather than editorial interests.

The objective of the study lies in the meta-analysis of the findings on the formation of human capital in exceptional situations, considering a review of the literature published from 2020 to 2023.

Are there significant differences between the theoretical structures of the impact of biosafety policies on the formation of human capital with respect to the meta-analysis of homogeneous random effects?

The explanatory paradigms of the impact of biosafety policies on the formation of human capital indicate: 1) the heuristics determined the exposure to risks of infections, diseases and deaths that inhibited the formation of human capital; 2) the economic strata revealed asymmetric effects between the confinement and distancing policies in terms of their school, professional and work performance; 3) the risks defined in the teaching and learning of human capital in the virtual classroom; 4) Information about the environment in the media and socio-digital networks affected the formation of human capital mediated by risk exposure.

II. Method

A documentary work was carried out with a selection of sources indexed to international repositories such as Scopus and WoS , considering the keywords "specification" and "intellectual capital" in the period from 2000 to 2023.

A search for abstracts was carried out to subtract the intellectual capital indicators, considering equations (Lirios, Guillén & Valdés, 2014). Then, once the indicators of empathy, trust, commitment, entrepreneurship, productivity, competitiveness, innovation, satisfaction, and happiness were selected, experts on the subject rated these indicators in order of importance, with 10 being most important and 0 being zero or none importance. The data were processed in the statistical analysis package for social sciences version 20.0.

Percentages, contingencies, and proportions were estimated to establish risk thresholds in decision-making on intellectual capital indicators (Lirios et al., 2013).

III. Results

The values that explain the impact of pandemic containment and mitigation policies on the formation of human capital in the virtual classroom. Random effects consistent with the sociocultural version of risk exposure are observed. That is, the level of human capital formation was established based on models that reflect the contingent situation, as well as the diversification of intellectual capital formation. In some studies, training is related to entrepreneurship and in others to expectations in the face of the health crisis (see Table 1).

Table 1. Classic meta-analysis: fixed or random effects (Test, Fit and Residuals)

Test of model coefficients	Q	df	z	p	Low	High	Kendall	REML
General	1,791	1		0.19				
residual heterogeneity	0.34	4		0.99				
Coefficient (intercept)			1,304		-0.11	0.53		
Range				0.45			0.316	
Egger 's			0.54	0.59				
fit measure								

Test of model coefficients	Q	df	z	p	Low	High	Kendall	REML
AIC								6,836
BIC								5,609
Residual heterogeneity estimates								
T2 -					0,000	0,000		
you					0,000	0,000		
I ²					0,000	0,000		
what					1,000	1,000		

Note: Prepared with data study; SE = Effect Size, CI = Confidence Interval, df 0 Degrees of Freedom, p = significance level; Parameters: Q = squares the differences between individual effect sizes with respect to block size effects; I² = Percent degree of heterogeneity attributed to random effects; T = Degree of standard deviation of the effects observed in the analyzed literature, T² = Degree of variance of the effects observed in the analyzed literature.

Significant differences are observed between the findings reported in the literature from 2019 to 2023 with respect to the random effects meta-analysis (see Figure 1). In other words, the literature seems to show that the formation of human capital was generated from expectations and dispositions oriented towards entrepreneurship as a central response to the confinement and distancing of people.

However, the meta-analysis of the findings reported in the literature from 2020 to 2023 warns that the random effects are asymmetric in terms of the impact of anti-pandemic policies on the formation of human capital in the virtual classroom.

IV. Discussion

The contribution of this work to the state of the art lies in the establishment of the homogeneous random effects of anti-COVID-19 policies (confinement and distancing) on the formation of human capital in the virtual classroom (Rincón et al., 2022). The significant differences found between the findings reported in the selected literature indicate that the policies had an asymmetric impact on the institutions or organizations that form human capital. It is recommended to extend the study to the face-to-face classroom in order to anticipate the impact of anti-health crisis policies on talent training.

In relation to other meta-analyses related to the formation of human capital where the learning of skills, competencies, knowledge and dispositions prevail as reflexive factors, the present work suggests that the health crisis reoriented these factors towards risk expectations and entrepreneurial strategies (Bustos et al. al. al., 2021). Therefore, a study on the dependency relationships between expectations and exposure to risk will open the discussion on the relevance of confinement and distancing of people in their civic, academic, and professional or work training.

Regarding the sociocultural approach that proposes heuristics as determinants of the formation of intellectual capital, the present study indicates that it is rather public policies that are built from these sociocultural premises (Guillén, 2021). In this sense, the impact of political strategies on academic, civic, professional or labor training is measured by socioeconomic, socio-educational and socio-digital factors. This is the case of Mexico where a flexible confinement and distancing policy prevailed, justifying the volume of infected, sick and dead from COVID-19 circumscribed to a training process. Lines of study on the construction of public policies in risk scenarios and their impact on the formation of human capital will open the discussion on an agenda of strategies to reduce the incidence of politics in academic, professional or labor training.

Regarding the socioeconomic version that highlights the same income asymmetries in terms of exposure to risks derived from training, the present study considers that this assumption is correct if it is assumed as an expectation that will affect risk behavior. Future research on the transition from expectation to risk behavior will test the socioeconomic hypothesis (Liros et al., 2020).

Risk exposure is contemplated by the socio-educational approach, but the present work indicates that more than mere exposure, it is the intention of exposure that would be determined by risk expectations (Lirios et al., 2022). In this sense, the socio-educational hypothesis can be demonstrated as long as the formation of human capital occurs in an observable scenario of differentiation between levels of risk exposure expectations.

Regarding the sociodigital premise of access to information for risk exposure or behavioral decisions, this meta-analysis suggests that sociodigital media and networks mediate the impact of risk communication policies more than confinement and distancing strategies (Hernandez et al., 2022). Therefore, it is necessary to differentiate the levels of propaganda, counter-propaganda and anti-propaganda to be able to differentiate the random effects on audiences, militants, adherents or sympathizers of a regime, its opposition or civil society.

V. Conclusion

The objective of this study was to establish the homogeneous random effects in the literature related to the models of human capital formation in the face of the health crisis. A structure was found where the work of Carreón Guillén (2022) influenced more than the other studies in the decision not to reject the hypothesis of heterogeneity and asymmetry between the findings analyzed. In relation to the paradigms, the extension of the study is recommended to contrast the corresponding hypotheses.

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