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Intellectual Capital in the Covid-19 era: A Systematic Revision

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Abstarct

The objective of this work was to establish the meta-analytic validity of the Intellectual Capital Scale. A systematic, retrospective, documentary study was carried out with a selection of sources indexed to international repositories, considering the period from 2010 to 2020, as well as the search by keywords. The null hypothesis contrast was established, which warns the validity of the dimensions; trust, commitment, entrepreneurship and innovation, although the literature also reports factors such as cognitivism, satisfaction and competitiveness, suggesting the extension of work to the comparison of these dimensions. Results are discussed considering the covid-19 coronavirus pandemic.

Keywords: client omission; control strategy; logistics mistake; wrong deliver

Introduction

In the context of the pandemic caused by the spread of coronavirus and the disease called covid-19, health organizations are being exposed to saturation in their system as the health contingency approaches phase two of community transmission ⌈1⌋. In this sense, public health systems have been financed according to epidemiological predictions ⌈2⌋. They are the cases of investment according to the Gross Domestic Product of the nation's⌈3⌋.

The Organization for Economic Cooperation and Development in its report for 2020 warns that spending on health, including the consumption of goods and services in health care amounted to 10'856 million USD in the United States, followed by Germany with 5` 986 million USD and Sweden with USD 5,447 million ⌈4⌋.

In this scenario, human capital formation supposes a preventive response front in the face of pandemic propagation phases such as that observed in the covid-19 coronavirus ⌈5⌋. It is a transfer of academic, professional and labor habitus within the framework of strategic alliances between Higher Education Institutions and for-profit organizations ⌈6⌋.

Since health contingencies require a parallel response to the spread of a disease, the systematic review of its measurement will clarify the divergence or convergence of instruments around the explanation of the training phenomenon ⌈7⌋. The Intellectual Capital Scale has been used to measure academic, professional and labor training, considering the learning of provisions against or in favor of norms and values of a union such as that of professionals in the health sciences ⌈8⌋.

The considerable investment in public health systems implies an inter-institutional and inter-organizational coupling in terms of the formation of intellectual capital, although the dispositions of future health professionals is a complex process for their permanent learning ⌈9⌋. The studies that have used the scale can be reviewed in terms of the prevailing dimensions and be ruled out for their degree of homogeneity ⌈10⌋. Such an exercise will contribute to decision-making as regards formative communication in a scenario of risks, threats and contingencies ⌈11⌋.

Theory of health capital

The theoretical frameworks that explain the formation of intellectual capital in the health area pose risky events before which society organizes the learning of academic sectors in order to be able to face the problem [12]. In the case of the pandemic, health professionals are distinguished by a provision in favor of the management, production and transfer of knowledge in the area of prevention and attention to health risks [13].

The theory of human capital enhances this process of knowledge management in a permanent formation of knowledge and skills related to self-care and adherence to treatment, although it ignores the transfer in relation to the production of knowledge [14]. That is, market-based research in determining transfer limits the possible scenarios for containment, mitigation, or isolation of a pandemic [15].

Healthcare capital, derived from the process of human and intellectual capital formation, suggests training in risk and threat scenarios, as well as contingencies and uncertainty [16]. Thus, the formation of healthcare capital warns of the importance of generating favorable provisions for risk prevention; accidents and diseases in the occupational field [17].

In this sense, the quality of life and subjective well-being as factors adjacent to the formation of health capital, explain the emergence of government decisions and actions in the face of a pandemic [18].

Studies of health capital

The anthropocentric paradigm in which companies circumscribed their total quality control to the demands of the market and the specific demand of their clients, the function of the leader was that of an intermediary who managed and managed the risks without considering the environment or capital nor the possibilities of human or intellectual capital in face of the imbalance that the situation implied [19].

In the paradigm of sustainability, the total quality lies in the evaluation, certification and accreditation of processes based on the availability of resources, policies against climate change, the effects on environmental public health and the risks inherent in the Industrial production [20]. While in the old anthropocentric paradigm the responsibility was centered on the leader, the manager or administrator, in the new ecocentric paradigm the responsibility is shared [21]. This implies a unilateral communication versus a bilateral communication, a unidirectional motivation versus a bidirectional motivation [22]. It is about the confrontation of two cultures, one authoritarian and the other democratic [23].

Even the new environmental paradigm is distinguished from the previous dominant paradigm by the continuous improvement of processes [24]. This supposes the entrepreneurship and the innovation of the processes that in the previous paradigm was translated in a resistance to the change [25]. That the responsibility of participation and initiative now concerns all those who integrate the organization [26].

The achievement of a shared responsibility precedes a shared work commitment and a climate of emotional, affective and sentimental relationships regulated and oriented to coexistence, respect, solidarity and support among those who make up the organization [27].

Therefore, there to define quality standards and criteria for its continuous improvement, the organization involves leaders and managers, managers and employees in the objectives, tasks and goals according to the availability of resources, social responsibility and organizational capabilities [28]. The relationships between the variables specified in the theory of perceived quality will be adjusted to the data observed in an organization in central Mexico, since it is a universal asymmetric relationship between the demands of the environment and organizational capacities, which also mark differences between leaders and employees [29].

Although the theory of perceived quality anticipates scenarios of differentiation between the requirements of the environment and the capabilities of the organization, among leaders and employees, the perceptions around the total quality process, as well as control management are different in each organization reason why the relationships established in the theory will not conform to the observations of a case study [30].

Specification a model of health capital

From the theoretical, conceptual and empirical frameworks it is possible to delineate the axes, trajectories and relationships between the dimensions of intellectual capital; Academic training, professional practitioner and consolidated labor [31]. It is a structure of factors that reflects the conversion of intellectual capital into an organizational asset [32]. In this scenario, the coronavirus pandemic and covid-19 disease are a problem that faces humanity's intellectual capital with the aim of reducing its impact on infections and deaths [33].

Consequently, the formation of health capital reflects the expectations of pandemics that are the main subjects of humanity in its history [34]. In this perspective, academic training, medical professionalism and job consolidation are dimensions that are structured by a union in the face of the needs and demands of the population in uncertain, risky and contingent situations [35].

Academic training will become the emotional and identity pivot to explain provisions in favor of prevention and health promotion, medical care, public services and the saving of the sick [36]. For its part, union professionalization, as a bridge to consolidate intellectual capital in organizational assets, involves a normative and value transition [37]. The gestation of the future health professional is forged in academic training, but is regulated in the professionalization of their capacities, knowledge and competences [38].

In this way, it is how the training structure of healthcare capital culminates in the consolidation of a series of skills and knowledge resulting from academic management, research production and the transfer of experiences [39]. It is a consolidating dimension of principles that guide prospective decisions or, in other words, the management of high risks and low recognition [40]. Thus, the structure of healthcare capital is governed by three distinctive factors in terms of training, experience and knowledge [41].

Method

A systematic, retrospective, documentary study was carried out with a selection of information sources indexed to international repositories; Copernicus, Ebsco, Latindex Publindex, Scielo, Scopius, WoS and Zenodo, considering the edition period from 2010 to 2020 in studies that implemented the Intellectual Capital Scale, as well as the report of its dimensions; academic training, professional union and organizational work (see Table 1)

Index	*Year*	*Author*	*N*	*SD*	*F1*	*F2*	*F3*
Latindex	2014	Carreon	100	15,46	,490	,532	,516
Scielo	2017	Juarez	130	10,26	,521	,398	,561
Ebsco	2018	Morales	130	13,21	,631	,418	,630
Redalyc	2018	Quintero	125	12,12	,390	,612	,503
Scopus	2018	Elizarraraz	100	11,65	,610	,399	,603
Academia	2019	Espinoza	100	14,23	,483	,430	,501
Copernicus	2019	Llamas	120	14,36	,540	,421	,406
Dialnet	2019	Martinez	140	10,23	,532	,429	,612
Publindex	2019	Moreno	180	10,32	,389	,501	,582
WoS	2019	Aldana	102	10,43	,489	,389	,601
Zenodo	2020	Garcia	104	12,13	,495	,387	,582

Note: Elaborated with data study; N = Sample Size, SD = Standard Deviation, F1 = Academic Training, F2 = Professional Union, F3 = Organizational Work

Table 1: Descriptive of the study sample

The Delphi technique was used for the processing of information and the elaboration of the reagents, comparing and integrating informative information to the total quality, as well as to the opinions of different administrative and employees in an organization for profit in the center of Mexico Subsequently, the surveys were applied in the human resources department as part of the staff recruitment and selection protocol, as well as part of the induction, training and training courses. The confidentiality and anonymity of the respondents was guaranteed in writing, as well as the warning that the results of the study did not affect their economic or work status.

Results

Table 2 shows the meta-analytic values that suggest permissible thresholds of validity of the Intellectual Capital Scale, suggesting formative decision-making based on the component dimensions; academic, professional and labor.

Index	*Year*	*Author*	*N*	*dw*	*SDd*	*SDpre*	*SDres*	*δ*	*SDδ*	*%Var*	*CId*	*CIδ*
Academia	2014	Carreon	100	,12	,30	,03	,18	,40	,21	15,48	12,08 to 24,38	5,89 to 18,74
Copernicus	2017	Juarez	120	,17	,38	,05	,19	,50	,20	13,20	10,48 to 28,34	6,52 to 19.70
Dialnet	2018	Morales	140	,18	,38	,09	,13	,51	,16	12,32	11,89 to 26,34	6,46 to 17,90
Ebsco	2018	Quintero	130	,19	,40	,02	,10	,51	,22	11,54	10,26 to 25,46	6,72 to 19,67
Latindex	2018	Elizarraraz	100	,03	,35	,09	,11	,46	,23	10,21	18,21 to 28,45	1,90 to 18,42
Publindex	2019	Espinoza	180	,28	,49	,05	,12	,50	,20	10,34	9,82 to 18,34	3,56 to 17,56
Redalyc	2019	Llamas	125	,21	,32	,07	,14	,55	,16	16,50	9,58 to 16,58	4,62 to 18.79
Scielo	2019	Martinez	130	,05	,30	,03	,16	,48	,11	16,78	10,32 to 29,43	4,65 to 16,57
Scopus	2019	Moreno	100	,27	,44	,05	,18	,42	,16	15,21	8,43 to 24,35	5,42 to 19,78
WoS	2019	Aldana	102	,10	,48	,04	,14	,51	,12	10,45	9,71 to 15,46	3,54 to 17,68
Zenodo	2020	Garcia	104	,07	,36	,01	,12	,40	,11	11,39	8,75 to 21,34	8,32 to 19,45

Note: Elaborated with data study. N = Sample size, dw = effect size weighted for sample size, SDd = Standard deviation of d, SDpre: standard deviation of observed correlations predicted from all artifacts; SDres: standard deviation of d, after removal of variance due to artifactual errors; δ: effect size corrected for criterion unreliability; SDδ: standard deviation of δ; %Var: variance accounted by artifactual errors; 95% CId: 95% confidence interval for d; 80% CIδ: 80% credibility interval for δ.

Table 2: Meta-analysis of the validity of the Intellectual Capital Scale

In order to be able to observe the risk thresholds in decision-making regarding the use of the Intellectual Capital Scale, the thresholds of three dimensions related to academic, professional and labor training were established, which were systematically reviewed and meta-analyzed considering; size of the weighted effect, standard deviation of this weighted effect, deviation of the relationships between the components, deviation eliminating the variance of errors and the size of the effect corrected by the confidence interval. The values show permissible thresholds of risk and confidence with which the Intellectual Capital Scale, in the revised sample, has the systematic validity of the findings.

Discussion

The present work has established the thresholds that demonstrate the validity of the Intellectual Capital Scale, although these risk and confidence thresholds are only applicable to the selected sample. The extension of the work to other studies related to innovative dimensions is suggested to explain the impact of academic training on job performance. In the case of health capital formation, the three dimensions would explain the process of knowledge management, production and transfer to anticipate, confront and prevent a pandemic.

In relation to the theory of intellectual capital, which highlights academic, professional, and labor training as procedural dimensions that explain the impact of a management, production, and knowledge transfer system in the face of a problem, this work has observed tolerable risk thresholds and indispensable of confidence in the validity of the Intellectual Capital Scale. Research lines concerning the observation of these dimensions will allow us to see the importance of strategic alliances between Higher Education Institutions with respect to health organizations.

Regarding the studies of intellectual capital that highlight the conversion towards organizational assets, which supposes a management, production and transfer of knowledge, experiences and skills, this work has established tolerable risk thresholds and confidence intervals that reveal the validity of this structure. Studies related to the validity of the instrument and its factorial structure will allow to test the hypothesis of homogeneous dimensions throughout the investigations in a longer time interval. Regarding the specification of the model for the study of healthcare capital, which considers the observation of the academic, professional and labor dimensions aimed at managing risks, contingencies and crises such as the coronavirus pandemic and covid-19 disease, the This study highlights the meta-analytic validity of its procedural and three-factor structure. In this sense, the investigations that confirm the factorial structure in situations of risks, contingencies and crises will allow observing the conversion of intellectual capital into a health asset.

Conclusion

The objective of the present work was to establish the meta-analytic validity in a selected review of studies that used the Intellectual Capital Scale, observing permissible risk and confidence thresholds. The validity of this factor structure is limited to the sample studied, although the extension of work to other repositories, periods and dimensions such as aversion to training and propensity for job placement is suggested.

Suggested lines of research regarding the homogeneity of the academic, professional and labor training dimensions, as well as the optimization aversive or innovation-prone dimensions will allow observing systematic findings of validity of the Intellectual Capital Scale.

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