MEDIATING FACTORIAL MODEL OF ENTREPRENEURSHIP IN THE COVID-19 ERA

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ABSTRACT

The pandemic caused by SARS CoV-2 and the disease COVID-19 have linked tourism with local entrepreneurship. It is a phenomenon in which political, economic and social actors converge to reactivate the local economy. In this line, the objective of this work was to validate an entrepreneurship scale, considering four dimensions: trust, opportunity, optimization and innovation. An exploratory, cross-sectional and psychometric study was carried out with a sample of 100 coffee growers from central Mexico. Four factors were established that explained 32% of the variance, suggesting the contrast in another sample. In relation to the state of the art, the scope of the study is discussed.

Keywords: Covid-19, Entrepreneurship, Model, Specification, Utility.

INTRODUCTION

As of October 2022, three million had died from the pandemic caused by the SARS CoV-2 coronavirus and the COVID-19 disease in the world. In Mexico, around 500,000 victims are estimated if the cases of atypical pneumonia and the underreporting of deaths are counted and compared with the national annual average (WHO, 2021). In this scenario, mitigation policies have focused on social distancing and lockdowns, as well as restricting tests, treatments, and vaccines. Faced with such a situation, civil society has organized itself around self-financed or collaborative entrepreneurship with migrant capital. In this way, the pandemic reactivated relationships between family and friends to promote entrepreneurship and local economic reactivation.

However, COVID-19 also exacerbated commercial structures subject to economic globalization, as well as the monopoly of products that multinationals place in local stores through strategic alliances to penetrate the community market (Garcia, 2020). Microenterprise entrepreneurship has been oriented towards emerging products related to lockdown and social distancing, such as contagion prevention devices.

Globalization implies less social equality and greater freedom in the individual. This imbalance characterizes the most globalized and localized liberal democracies. These open societies that hold individuals responsible by disintegrating their groups, their communities, their societies and their present and future cultures (Martinez et al., 2019). The process of financial globalization and community localization is gestated through the use of technology. In the case of connecting to the Internet from root servers, the United States, Japan, the Netherlands and

Sweden are the main nodes. Japan is the country with the highest connection speed (61.0 mbps), Sweden is fourth (18.2 mbps), the Netherlands is sixth (8.8 mbps), and the United States is tenth (4.8 mbps). In economically emerging countries, the benefits of information and communication technologies (ICT) have only been exploited by organizations for insertion in the global market. In contrast, in the communities of these countries where deep-rooted localization processes are developed, ICTs have not been a factor for individual growth and much less for community development (Carreon et al., 2019).

In fact, economic and technological globalization has only benefited corporations by widening the economic and digital gap with communities (Carreon et al., 2019). This process of globalization, in its social dimension, implies the decision-making of groups, communities, trade unions, trade unions, organizations and corporations based on ICTs. These entities are transformed into networks and energy flows that first compete and then monopolize the market (see diagram). A model is a data management, production and transfer system organized in explanatory trends of past, present and future relationships. The emphasis on each suggests decision making and strategy execution.

This section reviews the theoretical and conceptual frameworks that explain the use of opportunities and the optimization of resources, as well as the innovation of processes based on the demands of distancing and social confinement (Garcia, 2019). These are theories that propose the balance between the demands of the environment and the internal resources of the inmates, as well as the contradiction between them to establish levels of exposure to risks of contagion, disease or death.

The economic, technological and social consequences of globalization are described to propose the Mobile Consumption Theory that explains the consumption of products and services through mobile telephony. A model is presented that includes and demonstrates that the perception of usefulness is the determinant of mobile Internet use (Villegas et al., 2019).

Based on the previous scenario, it is proposed that individuals, being immersed in information communication flows and networks, become potential consumers when purchasing a mobile phone. Precisely, the following section explains the Mobile Consumption Theory (TCM), which explains the determinants of consumption through a mobile phone (Villegas et al., 2019).

The Mobile Consumption Theory establishes that individuals make their purchases through a mobile phone based on their utilitarian perceptions and purchase decisions. TCM holds that people consume basic products and services through the consumption of secondary products. When individuals buy a mobile phone or any technological information communication product and service, they are exposed to the consumption of basic products and services that are advertised and marketed through technologies (Carreon et al., 2019). Therefore, the TCM maintains that it is the perceptions of usefulness, innovation and efficiency that determine the consumption of products and services that are advertised and sold through the mobile phone.

TCM provides the indirect effect of the perception of a technological innovation in the consumption of products and services through said mobile technology (Hernandez et al., 2019). It explains the relationship between ICTs and people who are saturated with multiple activities, people who buy and people who work as supervisors or sellers. The TCM predicts the use of mobile Internet from a cognitive process that begins perceptually and ends behaviorally. From the TCM, the study detailed below was carried out.

In summary, the theoretical and conceptual frameworks warn that it is possible to observe the implementation of preventive devices for COVID-19 if they are registered or offered on electronic networks (Bermudez et al., 2019). The anticipation of the consumption of these

products and services related to the removal and confinement of people will allow anticipating biosafety scenarios for the reactivation of the local economy and tourism.

This section reviews the studies related to the entrepreneurship underlying the pandemic, including the relationships with the local reactivation of tourism as a collateral objective in the face of the pandemic. The axes and topics of discussion are established on the local agenda to anticipate risk thresholds. These are decision-making criteria for possible entrepreneurial scenarios according to the colors of the epidemiological traffic light and the exposure to contagion caused by the purchase and sale of protection devices (Carreon et al., 2020). In this scenario, the reactivation of the local economy will be foreseeable from tourism that is aware of its protection.

In the process of converting human capital into intangible assets for organizations, the perception of usefulness explains the intensive use of information and communication technologies if organizations adopt knowledge management, production and transfer systems (Carreon et al., 2019). It is a process in which the formation of intellectual capital assimilates knowledge, insights, experiences and skills to achieve objectives and goals through specific protocols for information processing (Carreon et al., 2019).

The perception of usefulness is the central axis of the knowledge management agenda because it translates statistical data into meanings of commitment, entrepreneurship and innovation, as well as generating new protocols for information processing as long as the objectives and goals are subject to the climate of tasks, support and relationships between interest groups (Garcia et al., 2019). The perceived academic usefulness factor is the main determinant of the level of Internet use factor for academic purposes. That is, a person looking to buy, for example, a book could get it if there was a virtual library connected to the mobile phone (Bustos et al., 2020). A similar reasoning would imply the factor of perception of self-efficiency as a determinant of the academic use of the mobile. A person looking for academic information can find it through their mobile phone.

However, the causal relationship that lacks the required significance suggests the exclusion of the variable. The strength of the association between independent variables indicates their spurious involvement. Finally, the level of mobile Internet use for academic purposes is explained by the two independent variables in 22 percent of its variability (Quiroz et al., 2020). The perception of usefulness has been the fundamental construct in the models developed to predict the behavior of a consumer on the Internet. This research has shown that the academic factor of said perception determines another factor referring to the use of mobile phones for academic purposes. The validity of the instrument found a one-dimensional variable that explains 3 2% of the variance was established.

However, the relationship between the perceptions of utility with other variables such as the perception of self-efficiency has been spurious. This means that the variables could belong to different cognitive processes. The perception of utility could belong to a set of affective variables while the perception of self-efficiency could belong to a group of rational variables (Garcia, 2021). This would explain why in the use of mobile Internet for academic purposes, the perception of usefulness is the variable that predicts it. However, it will be necessary to demonstrate the relationship between the perception of usefulness and the affective variables. Values, norms and identity could be those variables that, associated with the perception of usefulness, could configure a measurement model with the necessary probability to explain the use of mobile Internet.

In summary, the investigations alluding to the undertaking of contagion preventive devices suggest that electronic networks instruct the usefulness of tourism through self-care. This is so because the parties involved develop trust mechanisms in products, technology and science (Carreon et al., 2019). In this framework of empathy, the reactivation of tourism and with it of local development will additionally allow the social responsibility that the observance of preventive measures entails.

In this instance, the relationships between variables that explain and anticipate local entrepreneurship can be established from the sale of preventive devices for tourism, following two principles. One that reflects the phenomenon involved in the investigation of the indicators of trust, opportunism, optimization and innovation (Carreon et al., 2021). Another related to the relationships between these factors in order to anticipate the decisions and possible actions to be compared based on a hypothetical green traffic light. The TCM proposes three explanations about the consumption of products and services through the mobile phone.

The first trajectory includes: perception of innovation è propensity to consume è use of mobile Internet. Such is the case of people who acquire a sophisticated and multifunctional mobile phone that exposes them and leads them to accept and consume seasonal promotions. However, this type of consumer can purchase a phone only for some function (Villegas, 2019). It may happen that the consumer buys a phone for its functions of playing digitized mp3 files and is not interested in seasonal promotions. It can be inferred that technological innovation translated into multiple functions is an added value for users that can lead to secondary consumption.

The second path includes: perception of innovation è perception of usefulness è propensity to consume è use of mobile Internet. In addition to analyzing the impact of technological innovations on human behavior, the second path explains the association between an innovation and its usefulness as determinants of mobile decision and consumption. The perception of utility, being a variable that indicates the selection and categorization of objects, influences consumption decisions and the subsequent purchase of a product or service (Garcia et al., 2018). A person who buys a mobile phone with the latest technology differs from the consumer who seeks secondary benefits derived from the use of technologies. It is a potential consumer who acquires some technology to consume exclusive products and services of the network or elite flow of communication information. A person looking for mp3 files only available in online stores will buy a mobile phone connected to the online store.

The third way includes: perception of innovation è perception of efficiency è propensity to consume use of mobile Internet. Consumer behavior, explained by this third way, denotes a person dedicated to the purchase and sale of products and services (Quiroz, 2020). Precisely, the perception of efficiency suggests the use of a technology for its competitive advantages rather than for its comparative advantages. A sales supervisor will purchase a feature-rich phone if he perceives that these features will allow him to supervise his salespeople.

In short, trajectories and relationships are outlined that explain and anticipate the reactivation of the economy based on responsible and preventive tourism. These are possible decision paths built from possible biosafety thresholds. In other words, the prevention of contagion would be an additional value to tourist services.

Thus, the objective of this work was to specify a model for the study of the perception of utility, considering the dimensions provided by the literature with respect to the acceptance of technology, the propensity to information and the motivation to achieve.

Are there significant differences between the dimensions of entrepreneurship reported in the literature with respect to the factors to be established in this work?

The premise that guides this study indicates that the pandemic is a scenario of risk of contagion, disease and death. In this sense, entrepreneurship opts for the optimization of resources that are discreetly assigned by the State, forcing the use of migrant family contacts to inject capital into new entrepreneurial projects that emanate from the business opportunities that the pandemic and the estrangement as the social lockdown required. (Bustos et al., 2021). These are products and services aimed at protecting people, as well as entertainment and recreation in confined, crowded and poorly ventilated places (Velazquez et al., 2020). This is the case of the contagion prevention devices suggested by the government, such as the mask or alcohol gel, but also those that emanate from innovations such as masks. Or those that measure pressure, oxygenation or CO_2 emission.

METHOD

Since the study of tourism as a determinant of the undertaking of preventive devices is recent, an exploratory and cross-sectional investigation was outlined, considering the possible reactivation scenarios, but assuming that the pandemic is a risk event that could be contingent and volatile. In this sense, a psychometric study was proposed since the perception of entrepreneurship, trust and tourism diffusion are phenomena that can be measured based on expectations.

There were 100 coffee farmers (M=35.4 SD=2.13 years; M=9'832 SD=342.1 dollars).

Confidence perception scale: 4 item ("*COVID-19 brought me closer to clients who care about their respiratory health for tourists*") with response options from "*it doesn't look anything like my situation*" to "*it totally looks like my situation*".

Scale of perception of opportunism. 4 item ("*COVID -19 opened my eyes to the health prevention business for tourists*") with response options from "*not at all likely*" to "*quite likely*".

Perceptual optimization scale: 4 item ("*COVID -19 forced me to offer the sanitary devices that tourists need*") with response options from "*not at all*" to "*quite in agreement*".

Innovation perception scale: 4 items ("*COVID -19 forced me to offer products that tourists do not find elsewhere*") with response options from "*not at all likely*" to "*quite likely*".

The reliability and validity of the instruments that measure the variables were constructed and the probabilities of indirect and direct, negative and positive adjustment and the significant causal relationships between the study variables were established. Indicators were established that configured four dimensions for the variables of the measurement model that were subjected to an exploratory factorial analysis of main axes with promax rotation. The results reject the hypothesis of factorial unidimensionality for the variables of the measurement model. The psychometric properties of the instruments that measure the study variables are detailed in the table where they meet the requirements for multivariate analysis.

RESULTS

The values reached minimum essential levels to carry out more in-depth analyzes such as the establishment of factors from the normal distribution of responses to the instrument Table 1.

Table 1

INSTRUMENT DESCRIPTIVE							
R	M	SD	A	F1	F2	F3	F4
r1	4.32	1.43	0,762	0, 632			
r2	4.35	1.54	0,783	0, 512			
r3	4.81	1.89	0,751	0, 430			
r4	4.53	1.54	0, 704	0, 623			
r5	4.29	1.21	0, 735	0, 603			
r6	4.38	1.34	0, 792		0, 439		
r7	4.56	1.70	0, 743		0, 325		
r8	4.68	1.54	0, 703		0, 476		
r9	4.12	1.45	0, 793		0, 405		
r10	4.30	1.65	0, 752		0, 549		
r11	4.89	1.24	0, 722			0, 623	
r12	4.65	1.90	0, 703			0, 571	
r13	4.23	1.78	0, 793			0, 539	
r14	4.13	1.54	0, 789			0, 623	
r15	4.39	1.35	0, 783			0, 605	
r16	4.54	1.82	0, 793				0, 573
r17	4.32	1.43	0, 752				0, 632
r18	4.41	1.24	0, 761				0, 548
r19	4.58	1.41	0, 704				0, 521
r20	4.56	1.50	0, 742				0, 519

Note: Prepared with data study: R=Reactive, M=Mean, ED=Standard deviation, A=Alpha value excluded from the element. Method: Main axes, Rotation: Promax. Adequacy (KMO=0, 765), Sphericity [$\chi2$=13.21 (16 df) p<, 05]. F1=Trust (14% of total variance explained and alpha with, 782), F2=Opportunism (10% of total variance explained and alpha with, 724), F3=Optimization (7% of total variance explained and alpha with, 770), F4=Innovation (1% of total explained variance and alpha with, 725).

Once the four factors that explained 32% of the total variance had been established, the structure of their relationships was estimated, considering the associations and covariances between the four dimensions Table 2.

Table 2 RELATIONS BETWEEN FACTORS										
	M	SD	F1	F2	F3	F4	F1	F2	F3	F4
F1	25.32	13.24	1,000				1,783	0, 436	0, 532	0, 346
F2	22.31	15.46	0, 543 *	1,000				1,802	0, 657	0, 438
F3	24.36	17.68	0, 325 **	0, 680 *	1,000				1,532	0, 650
F4	20.43	14.69	0, 578 ***	0, 543 *	0, 412 *	1,000				1,141

Note: Prepared with data study; M=Mean, SD=Standard deviation, F1=Confidence, F2=Opportunism, F3=Optimization, F4=Innovation; * $p < .01$; ** $p < .001$; *** $p < .0001$.

The validity of the instrument indicates four predominant and convergent dimensions with the general scale. These are trust, opportunism, optimization and innovation, although the latter explains the lower percentage of variance, it is possible that they correlate with a common factor that is considered the entrepreneurship observed in the Covid-19 era.

Table 3 shows non-significant values of the direct effects. That is, the dimensions of entrepreneurship are configured more as a reflection than as determining variables.

			Table 3 **DIRECT EFFECTS**					
							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Trust	→	Optimization	-0.045	0.042	-1.072	0.284	-0.126	0.037
Trust	→	Innovation	0.024	0.042	0.570	0.569	-0.058	0.106
Note: Delta method standard errors, normal theory confidence intervals, ML estimator.								

Table 4 shows non-significant values between the determining variable and the mediating factor. In other words, innovation is explained from optimization without a prior relationship of trust or opportunism.

					Table 4 **INDIRECT EFFECTS**					
									95% Confidence Interval	
					Estimate	Std. Error	z-value	p	Lower	Upper
Trust	→	Opportunism	→	Optimization	0.001	0.006	0.207	0.836	-0.011	0.014
Trust	→	Opportunism	→	Innovation	0.001	0.006	0.213	0.832	-0.011	0.014
Note: Delta method standard errors, normal theory confidence intervals, ML estimator.										

Table 5 show regarding the sum of the total effects from trust or from opportunism, the model does not present significant relationships between the factors. In this way, it is possible to notice that the innovation is explained from the optimization.

|			**Table 5** **TOTAL EFFECTS**					
							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Trust	→	Optimization	-0.043	0.041	-1.053	0.293	-0.124	0.037
Trust	→	Innovation	0.025	0.041	0.609	0.543	-0.056	0.106
Note: Delta method standard errors, normal theory confidence intervals, ML estimator.								

Table 6 shows that the relationship between optimization and innovation suggests a structure of determining factors between these two. Consequently, the explanation for innovation is generated from optimization as a response to the pandemic.

			Table 6 **RESIDUAL COVARIANCES**					
							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Optimization	↔	Innovation	-0.209	0.101	-2.072	0.038	-0.407	-0.011
Note: Delta method standard errors, normal theory confidence intervals, ML estimator.								

Figure 1 shows the values that explain the determining relationships between the factors. It is appreciated that optimization exploits optimization to a greater extent. The covariances between both factors anticipate the dependency relationship, although they also suggest the inclusion of other factors that the literature identifies as solidarity and support.
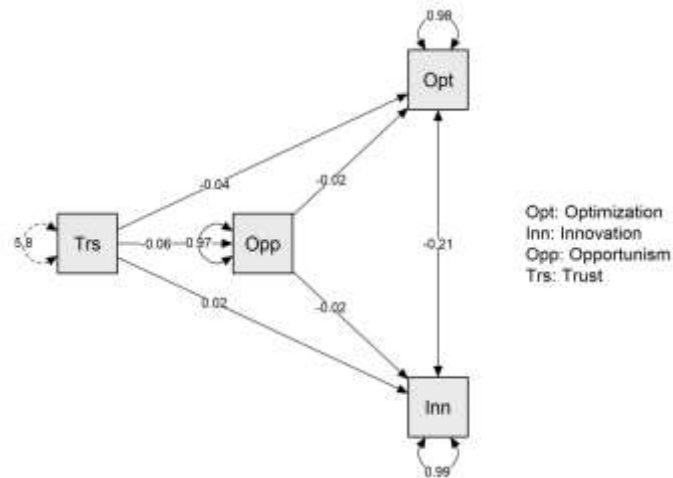
FIGURE 1
FACTORIAL MEDIATOR MODEL
Source: Elaborated with data study

DISCUSSION

The contribution of this work to the state of the art lies in establishing the validity of an instrument that measured four dimensions related to trust, opportunity, optimization and innovation. These are explanatory factors of entrepreneurship because they reflect it in four aspects that link the purchase and sale of contagion prevention devices with the reactivation of tourism. The four axes explained 32% of the variance, which indicates the inclusion of another factor that the literature identifies as coupling to account for the convergence of the first factors in a common second-order factor. The empirical test of a model with the exposed dimensions will allow increasing the construct validity of the instrument in question.

Ratten (2020) Identify the key to entrepreneurship in the culture of success. He warns that the responses to the pandemic are already latent due to their materialization in opportunism. In this way, the differences between cultures explain the levels or degrees of entrepreneurship according to attachment to place, identity or social pressure. In the present work it is observed that innovation explains the lowest percentage of the total variance. This is so because the culture of optimization is related to the effort and resilience that distinguishes Mexico from other cultures. Therefore, innovation is an area of opportunity that could arise in the absence of public microfinance.

Ratten (2021) suggests that entrepreneurship is the result of the inclusion of social actors and financial agents that converge in the pandemic. It is a strategy of opportunity, competitiveness and double growth between government, society and market. Private sector competition in public spheres and state investment in business consortiums will increase the supply of products and services, generating employment and competitiveness, as well as innovation by consolidating itself as a local development strategy. In this study, opportunity is

distinguished with innovation based on trust. In other words, empathy between actors can generate competition without innovation. This is so for more cultural reasons.

Ratten & Jones (2021) state that entrepreneurship is a process of permanent formation in interaction with the levels of academic learning that take place in the classroom, but its implementation in professional practice implies going beyond the consensus of trust and opportunity. In the present work, optimization has been considered as a factor of academic specialization that reflects entrepreneurship from a risk perspective. It is a skill that can be computational in the dissemination of products and services, as well as in the establishment of networks for the permanent formation of opportunity, purchase and sale criteria.

In relation to the state of the art, the lines of research can be carried out with the inclusion of competitiveness in the reflexive model, transforming it into a hybrid proposal. Entrepreneurship reflected as opportunity and innovation would be determined by the trust between the parties involved and this would indirectly affect competitiveness as an objective variable for the prediction of cultural, social, organizational and cognitive factors.

CONCLUSION

The objective of the present work was to specify a model for the study of the perception of utility, considering the dimensions reported in the literature, as well as those established in the present work, but its design limited the contributions to the analyzed sample, suggesting the extension of the work towards other scenarios and other samples of study. Unlike the literature, this work assumes that entrepreneurship has not been developed in the sample surveyed and therefore it is necessary to observe it with respect to a new modeling of its factors and trajectories. The measurement of entrepreneurship would include two dimensions related to opportunity and optimization as determinants of competitiveness. In turn, trust would affect these three variables directly and innovation indirectly. That is, the proposed model would anticipate innovation and competitiveness scenarios based on work culture and entrepreneurial skills. In relation to public microfinance policies, the model to be contrasted will allow evaluating the effect of austerity or public investment in micro, small and medium-sized enterprises in the Covid-19 era.

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