SPECIFICATION OF A BUSINESS TRAINING MODEL USING THE VIRTUAL CLASSROOM BEFORE COVID-19*

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Abstract: *The purpose of this paper is to examine business training mediated by the electronic classroom. A cross-sectional, exploratory and psychometric study was carried out with 340 students selected from a public university in central Mexico. The search and selection of information were established as model factors. In both dimensions, the content is proposed for the virtual classroom, discussing its implications for technology and education studies.*

Keywords: *Governance. Internet. Networks. Technologies. Devices.*

As of this writing, the SARS-COV-2 coronavirus and COVID-19 disease have infected more than 8 million, sickened 4 and a half million, as well as the lives of half a million people worldwide. Given this, pandemic mitigation policies have focused their hopes on the confinement of people, making the economic and educational system depend on technology to train students, professionals and workers.

In such a scenario, business training has been weighted as essential because during confinement it can be carried out using electronic technologies, devices and networks. Furthermore, after quarantine, this training is expected to reactivate the economy through entrepreneurship.

Consequently, the so-called digital transition in Latin America from the traditional classroom to the electronic classroom has been enunciated as a process of utmost importance for the economic recovery of the region in the case of academic, professional, labor and business training.

Precisely, the objective of the present work was to specify a model for the study of this phenomenon, considering: 1) theoretical, conceptual and empirical review from 1996 to 2020; 2) methodological approach for the study and analysis of the phenomenon; 3) diagnosis of business training; 4) discussion of the results applied to the virtual classroom.

THEORY OF BUSINESS TRAINING

Within the confinement framework, various theories explain the relationship between this condition and the intensive use of technologies (BALLESTEROS *et al.*, 2010). This is the case of the Theory of Acceptance of Technology which predicts the use based on the perceived utility and ease of use of digital devices or networks (HEE; MCDANIEL, 2011). It argues that an increase in this confidence in technology will lead to a substantial increase in daily tasks, although it does not explain why this use is carried out with greater interest and intention in certain activities related to lifestyles, such as the use of applications (SHRROF; DENENN; NG, 2011). Medical by health professionals, sick or relatives of accident victims. Rather, the theory reveals that both factors, utility and ease would be seminal content in the virtual classroom.

Precisely, the theoretical corpus that explains this adjustment of technology to essential daily activities is one in which the intensive diffusion of utility and ease of use predicts not only the consumption of a device but also addiction, as is the case of electronic networks (CHUO *et al.*, 2011). The Diffusion Theory of Innovations emphasizes the compatibility factor to explain the influence of technology in everyday life and the meanings of people's daily acts (LOPEZ; LOPEZ, 2011). It raises a series of interactions with technology that contribute to build-

ing a common meaning between users and communities. She argues that a positive meaning of technology will determine the intensive use and loyalty of users (SIMSEK, 2011). In this sense, training in the traditional classroom has been favored with the inclusion of video projectors, synthesizers, computers and the Internet, but in the virtual classroom the diffusion of innovations or construction of a meaning of compatibility has been observed with greater emphasis to explain addiction to electronic networks.

Starting from the foundations of usefulness and ease of use of technology, the dissemination of both virtues explained the consumption of technology such as Facebook, Twitter, Instagram, WhatsApp, YouTube, TikTok, Periscope or SnapChat. The Theory of Electronic Consumption showed that all these factors are determinants of addiction, which in the case of the traditional and virtual classroom explain the low performance of approximately 20% due to the intensive use of these networks (NUNEZ *et al.,* 2013). Furthermore, this theory introduced the risk factor to contrast addiction with anxiety. In the virtual classroom, these findings allowed the sentimental and affective contents to be directed towards emotional intelligence to reduce failures in executing a task, guaranteeing the fulfillment of objectives and goals.

The concept of risk, even though it is a classic variable in economic-administrative studies, was not introduced in the models of acceptance, diffusion and consumption of technology until the first decade of the millennium when the model of electronic consumption determined the intention of use (GARCÍA; ESPINOZA; CARREÓN, 2017). Technology from a correlation between risk and profit (ORANTES, 2011). The reasoning was that both risk and utility are part of a threshold of streak and acceptance of the technology and therefore anticipate gradients of use (SOURCE; SMITH; GRACIA, 2010). An increase in risk implies a reduction in intensive use, but a decrease would not necessarily indicate greater consumption (THE et. all, 2010). This finding allowed us to observe learning based on ambivalence in the traditional and virtual classroom. An internet user can learn from content that he considers to be uncertain from taking high risks that will correspond with high benefits. It is the case of the plagiarism of a job which involves a high risk (failure), but also a higher gain (approval).

The rationale for intentions and behaviors based on high risks and profits was explained by the Theory of Prospective Decisions (GARCÍA; RIVERO; AGUILAR, 2018). It is a theoretical, conceptual and empirical framework that highlights a non-rational choice route in which heuristics (everyday phrases like "he who does not risk does not win") guide strategies and actions (SANDOVAL; SAUCEDO, 2010). From this principle, the traditional classroom and especially the virtual classroom transformed its contents to regulate these prospective decisions. This is the case of academic plagiarism which has been reduced to its minimum expression after the similarity detection software was adopted and implemented in the universities.

STUDIES OF BUSINESS TRAINING

Since its inception, the Internet has been a hegemonic factor in academic and professional training, although its use as a tool for information processing has not even been explored (GARCÍA, 2008). It is possible to appreciate that: 1) the studies focus on predicting the use of the Internet; 2) cognitive factors are determinants of the fusion between technology and capabilities; 3) the perception of Internet use is essential for knowledge management; 4) the production and transference of knowledge is carried out in organizations that adopted information technologies, devices and networks (GARCÍA, 2007).

In the case of the perception of Internet use, it has focused on the capacity, utility and ease of use as the determinants of the dispositions and intentions of Internet use, although the perceptions of risk are the determinants of decision making in transactions and purchase of products or the request for digital services (GARCÍA, 2011).

Precisely, in the case of the perception of utility and the perception of risks, these have demonstrated their predictive power with respect to the intentions of use and consumption of digital services, but in the case of the perceptual dimensions they have not diversified in accordance to technological advances (GARCÍA, 2012).

The perceptual dimensions in relation to capabilities and technological advances would explain the relationship between risks and utility with respect to the efficient use of the Internet (GARCÍA *et al.*, 2013a).

The perception of risks has been a determinant of favorable attitudes towards the use of the Internet, as would be the case of identity theft and pathologies such as harassment (GARCÍA *et al.*, 2012).

In the case of perceived utility, expectations have been addressed from instruments that explore individual features such as the use of digital technologies and networks that explain information processing (GARCÍA *et al.*, 2013b).

Regarding the perceived capacity in the use of Internet has been a preponderant variable in the study of academic and professional training, as well as transfer and training programs (GARCÍA *et al.*, 2013a).

Well, the three perceptual variables such as risk and utility have been diversified in their dimensions, but only in terms of digital economic protocols such as electronic banking, bypassing aspects of educational and academic order aimed at job placement (VILLEGAS; GARCÍA; HERNÁNDEZ, 2018).

García (2018) warns that the processing of information to be determined by knowledge management improves the factor of information search and selection, explaining the perceived use of technology in terms of repositories.

García, Rivera and Aguilar (2018) demonstrated the influence of digital networks as a search and selection tool associated with the rescue of those caught by the earthquake in Mexico City, demonstrated the link between digitized knowledge networks and labor flexibility in terms of location, scope and usefulness; knowledge networks would be explained by the search and selectivity of the information.

In summary, studies of business training highlight the variables stated in the theories of technology acceptance, diffusion of innovations, electronic consumption and prospective decisions, although they qualify some variables of cognitive behavioral order such as search and information selection skills.

SPECIFICATION A MODEL OF BUSINESS TRAINING

From the theoretical, conceptual and empirical frameworks reviewed, it is possible to specify a model in which the trajectories of the axes and topics of discussion are included in a sectoral agenda such as the case of academia and continuous training.

It is possible to notice that the state of knowledge has cultivated a very precise route that goes from perceived risk to risky behavior through the usefulness, ease and compatibility supported by the heuristics that guide the decisions of technology users (GARCÍA, 2012). In fact, anxiety and addiction to these electronic devices and networks are explained from normative principles of uncertainty, contingency and volatility of information. Therefore, the specification of a model for its applicability in the virtual classroom should follow and include the variables in the conceptual order presented.

This is how the pedagogical sequences could adopt this trajectory cultivated by literature (GARCÍA, 2013). I would start the session with an introduction to data that reflects the ambiguity and imponderability of specific situations, as well as the incommensurability and unpredictability of their effects. This is the case of an old discussion about the will and judgment of computers, specifically androids. The independence of these can be noticed as a risk, but also as a utility to help various tasks.

Then, the compatibility of these androids with daily activities will allow us to anticipate increasing intentions of use until we reach a technological dependency that is updated with the purchase of new devices and applications (GARCÍA, 2018). In this process, some other variables affect the acceptance or rejection of the technology, such as that related to the adjustment of tasks or the cost of devices, but the backbone of the model lies in the fact that the risks, rather than inhibiting acceptance, encourage its use. Intensive, generate anxiety and sustain addiction.

METHOD

Are there significant differences between the theoretical dimensions of the perception of Internet use with respect to the relationships between factors and indicators to be observed?

Null hypothesis: There will be differences between the theoretical dimensions of the perception of Internet use reviewed in the literature with respect to the relationships between factors and indicators to be observed.

Alternate hypothesis: There will be significant differences between the theoretical factors and the empirical relationships between their observed indicators.

A non-experimental study was carried out with a non-probabilistic selection of 340 students from a public university in central Mexico.

The Internet Perception and Use Scale (IPU-14) was built, which included dimensions related to information processing such as search and data selection. All the items are answered with one of five options: 0 = "not likely" until 5 = "quite probable".

Confidentiality and anonymity were guaranteed in writing. The information was processed in IBM-SPSS-AMOS version 25.0 considering the normality, reliability and validity from exploratory factor analysis of principal axes with promax rotation (Byrne, 2011).

RESULTS

The statistical properties of the instrument in which it is possible to appreciate that they comply with the requirement of consistency, as well as the convergence of factors in two constructs (see Table 1). The results suggest a normal distribution of the responses of the sample to the instrument, suggesting the multivariable analysis of reliability (measurement consistent in other scenarios and samples) and validity (measurement focused on the search and data selection indicators).

Table 1 - Instrument description

Reactive	Subscale	Mean	Standard Deviation	Alpha	Search	Selection
	Search			,780		
r1	I will search for data in Google before the tutor tells me	4,56	1,30	,761	,610	
r2	I will select data on the Ensco before the teacher sends it to me	4,12	1,56	,775	,571	
r3	I'll find data in Scopus before the advisor suggests it to me	4,39	1,09	,751	,507	
r4	I will process data in Elsevier before the publisher requests it	4,73	1,78	,705	,593	

Reactive	Subscale	Mean	Standard Deviation	Alpha	Search	Selection
r5	I will choose data in Copernicus before the capacitor recommends it to me	4,01	1,32	,743	,643	
r6	I will investigate data in Scopus before the system allows it	4,74	1,56	,741	,606	
r7	I will compare data in Copernicus before the advisor asks me to	4,19	1,08	,790	,593	
	Selection			,769		
r8	On Scopus I will review the summaries before the advisor tells me that	4,14	1,01	,752		,592
r9	At Copernicus I will discuss the summaries with experts before the system allows it	4,62	1,03	,751		,503
r10	At Ebsco I will read the summaries before the advisor recommends it to me	4,18	1,05	,705		,503
r11	In Google I will place the summaries before the teacher searches for them	4,05	1,09	,782		,641
r12	In Scopus I will find the updated summaries before the teacher suggests them to me	4,93	1,06	,775		,608
r13	In Copernicus I will articulate the findings before the teacher teaches me the technique	4,69	1,14	,753		,602

Reactive	Subscale	Mean	Standard Deviation	Alpha	Search	Selection
r14	In Google I structured the summaries by importance before the advisor instructed me	4,15	1,15	,705		,594

Note: Elaborated with data study: Adequacy (KMO =, 752), Sphericity ($X^2 = 124, 23$ (34gl) p =, 000). Extraction: Main axes, Rotation: Promax. Search perception (18% total variance explained and alpha of, 780), Perceived Selection (11% total varianza explained and alpha of, 775). All the items are answered with one of five options: 0 = "not likely" until 5 = "quite probable",

Once the two factors that explained 29% of the variance were subtracted (29 out of 100 observations are explained by the relationship between the search and data selection factors), we proceeded to estimate their relationship structure in order to be able to see their trajectory structure (see Table 2).

Table 2 - Correlations and covariations

	Mean	Standard Deviation	Search	Selection	Search	Selection
Search	23,14	15,46	1,000		1,896	,621
Selection	26,57	10,46	,435**	1,000		1,894

Note: Elaborated with data study; *p < ,01; **p < ,001; ***p < ,0001.

Established the relationships between the factors, we proceeded to estimate the trajectory structure between these same factors and the indicators, considering the theory of prospective decisions which suggests the coexistence of risks when searching and usefulness when selecting data (see Figure 1).
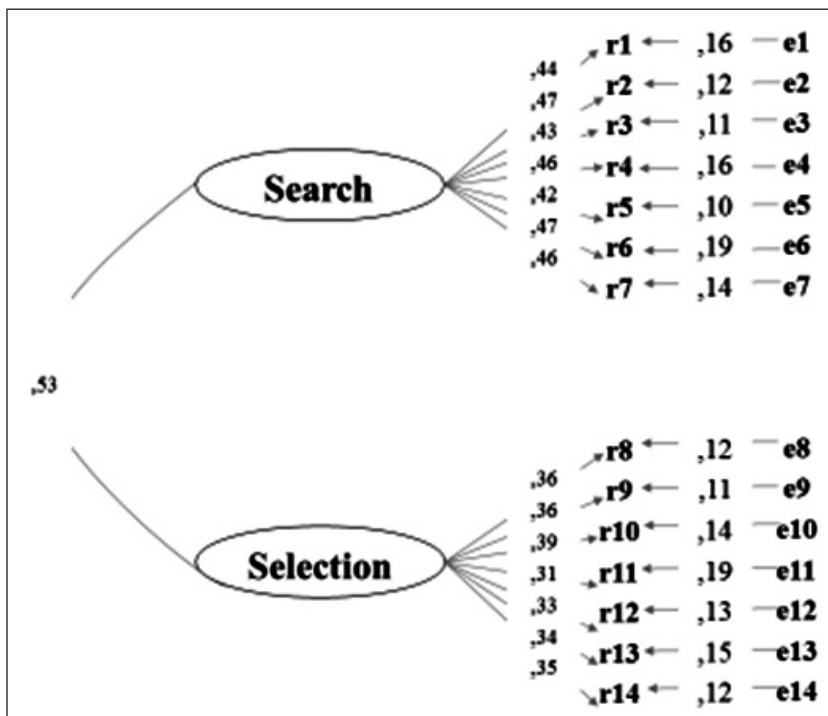
Figure 1 - Structural equation modelling

Note: Elaborated with data study; R = Reactive, e = Error measurement indicator, ← relations between error and indicator, → Relations between factors and indictors

The adjustment and residual parameters $\lceil X^2 = 456,34\ (34gl)\ p = ,008;$ GFI = ,990; CFI = ,995; RMSEA = ,009 $\rfloor$ suggest the null hypothesis of the null hypothesis relative to the adjustment of the theoretical dimensions of the perception of Internet use with respect to its observed factors and inducers.

DISCUSSION

The contribution of the present work consists in establishing the reliability and validity of an instrument that measures the perception of Internet use, but the type of non-experimental study, the type of non-probabilistic sample selection and the type of exploratory analysis

limited the results to the research scenario, suggesting the inclusion of compatibility and self-efficacy.

The percentage of variance explained suggests the inclusion of both factors, although the internal consistency seems to indicate the exclusion of items that will reduce both factors.

However, the IPU-14 should be contrasted in other scenarios and samples in order to give it validity and be able to associate it with other scales that the literature refers to adoption models of technology, electronic commerce and risk in transactions.

The objective of this paper has been to establish the reliability and validity of an instrument that measures the perception of Internet use, but the IPU-14 shows a consistency that is insufficient, as well as a validity that would include a third factor related to the use of the Internet. Efficacy, although the type of study, sampling and analysis limit the results to the context of the investigation, the contrast of the instrument in other samples will be relevant.

In relation to the Theory of Business Training which highlights a rational, deliberate, planned and systematic process of adoption of technology, diffusion of innovations, electronic consumption and prospective decision to explain the intensive use, anxiety and addiction to technology In a confined situation, this study has established two factors related to the search and selection of information that explained 29% of the total variance. Research lines concerning the modeling of these dimensions in content for the electronic classroom will allow anticipating the performance of those who adapt the phenomenon in question.

Regarding studies of business training in which the search and selection of data are essential for the anticipation of entrepreneurship, this study highlights that when correlating with each other, both factors seem to reveal the inclusion of a third factor that the literature identifies as computational self-efficacy, perceived behavioral control, and perceived ease of use to account for data processing and management. On the digital whiteboard, these two factors found will allow the development of project-oriented learning-oriented content, strategic planning and digital entrepreneurship.

The theoretical, conceptual and empirical specification of the model for the study of business training, it is necessary to highlight that the present work demonstrated a two-factor structure that would allow the inclusion of a third factor considered as data processing, although in the classroom Virtual that variable would be related to self-management and self-efficacy.

In summary, the findings found seem to agree with the results issued by the consulted literature that the deliberate, planned and systematic process of acceptance, diffusion and use of technology depend on situations rather than on organizational or educational systems. In this process, technology mediates the demands of the environment and the resources with which users will respond.

CONCLUSION

The contribution of the present work to the state of the question lies in the revision of theories, studies and models that seek to explain the deliberate planned and systematic process of adoption of the technology, as well as the prospective decisions in risk situations that users would take before of a risk event. In addition, the diagnosis of the level of search and selection of data as factors of business training. Finally, a discussion about the implications with the virtual classroom allowed an overview of the state of the question in the sample studied.

However, the results can only be applied to the study sample and therefore the application of the recommendations to that same group, although the discussion about the replication of this work in other scenarios and samples is opened, considering the extension of the pandemic mitigation policies focused on social isolation.

In this confinement scenario, the adoption of technologies, the diffusion of their risk and usefulness will allow anticipating decision scenarios in the face of imponderable, unpredictable and uncontrollable events. Regarding the virtual classroom, the applications of the results will predict differences between collaborative groups regarding common objectives, tasks and goals.

ESPECIFICAÇÃO DE UM MODELO DE TREINAMENTO
DE NEGÓCIOS USANDO A SALA DE AULA VIRTUAL
ANTES DO COVID-19

Resumo: *o objetivo deste trabalho é examinar o treinamento de negócios mediado pela sala de aula eletrônica. Um estudo transversal, exploratório e psicométrico foi realizado com 340 estudantes selecionados de uma uni-*

versidade pública no centro do México. A busca e a seleção das informações foram estabelecidas como fatores modelo. Nas duas dimensões, o conteúdo é proposto para a sala de aula virtual, discutindo suas implicações para os estudos de tecnologia e educação.

Palavras-chave: *Governo. Internet. Redes. Tecnologias. Dispositivos.*

ESPECIFICACIÓN DE UN MODELO DE FORMACIÓN EMPRESARIAL UTILIZANDO EL AULA VIRTUAL ANTE LA COVID-19

Resumen: *El propósito de este artículo es examinar la formación empresarial mediada por el aula electrónica. Se realizó un estudio transversal, exploratorio y psicométrico con 340 estudiantes seleccionados de una universidad pública del centro de México. La búsqueda y selección de información se establecieron como factores en el modelo. En ambas dimensiones, el contenido se propone para el aula virtual, discutiendo sus implicaciones para los estudios de tecnología y educación.*

Palabras clave: *Gobierno. Internet. Redes. Tecnologías. Dispositivos.*

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