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Dedicada a artículos científicos inéditos, originales e innovadores en su enfoque transdisciplinar para lograr el desarrollo sostenible con incidencia social.

Identidad

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CONTENIDO

CARTA EDITORIAL

Es nuevamente un placer presentar el segundo número de la revista **Scientia et PRAXIS** seriado como Volumen 01, Número 02, del año 2021, correspondiente al periodo julio-diciembre de 2021 a los lectores, siendo nuestro el objetivo principal de la revista mostrar el trabajo científico orginal e inédito en el ámbito de cómo la innovación es uno de los principales impulsores transdisciplinares para lograr el desarrollo sostenible y con incidencia social destacando contribuciones tanto al campo del conocimiento (*Scientia*) como al de aplicación (*Praxis*)**.**

El primer artículo mostrado, es una investigación que contribuye a la teoría del estilo de toma de decisiones del consumidor en línea para descubir nuevas orientaciones y segmentaciones de los msmos y generar estrategias de innovación de marketing para las empresas, en la nueva normalidad.

El segundo artículo, prueba un modelo innovador que explica cómo el usuario profesional de las redes sociales en el marketing digital y el comercio electrónico puede utilizar la alfabetización en información de las redes sociales para tomar decisiones comerciales bajo los tiempos del COVID-19, como habilidades de innovación para combatir las narrativas de noticias falsas para nueva normalidad.

El tercer artículo, es una aportación de los autores por explicar cómo marco una propuesta denominada como NOMOFOMO, compuesto por la aceptación de las innovaciones en las redes sociales, la "nomofobia" y el " miedo a no ser considerdo en la red", interactúan con las repercusiones de los usuarios de salud de los teléfonos inteligentes.

Finalmente, el cuarto artículo destaca la necesidad que los estudiantes universitarios de la Universidad de Guadalajara, se capaciten con casos reales para que experimenten el aprendizaje experiencial, en donde posean una experiencia concreta y aprendan de ella, , para armarlos de las herramientas necesarias para desarrollar una intención emprendedora.

Deseamos de esta manera que le sean útil los contenidos.

Dr. Juan Mejía-Trejo
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The Online Customer Decision-Making Styles as Marketing Innovation Strategies for the New Normal

La Toma de Decisiones del Consumidor en Línea como Estrategias de Innovación por Mercadotecnia para la Nueva Normalidad

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Keywords: profile online customer; online customer decision-making styles; marketing innovation strategy; new normal
Palabras Clave: toma de decisiones del consumidor en línea; estrategias de innovación; mercadotecnia; nueva normalidad

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ABSTRACT

Purpose. This research contributed to the customer decision-making style (CDMS) theory in the online framework (eCDMS) to unravel new orientations and segmentation to generate marketing innovation strategies for the new normal firms.

Methodology. It is based on a literature review designing a model and questionnaire applied to 400 Mexican online customers (May-Aug, 2021). The dataset is analyzed under Covariance-Based Structural Equation Modelling (CB-SEM), Cluster Analysis, and one-way-ANOVA multivariate methods.

Findings and Originality. The obtention of an empirical model with 9 factors, 24 indicators as new online customer decision-making styles orientations (eCDMS orientation), being quality, brand, and customer experience the most relevant. Besides, we obtained four new online customer groups (eCDMS Segmentation) that we called: marketing followers, price searchers, convenience shoppers, ethics& reputation keepers. The originality is based on a framework proposal about the discussion of new online consumers after the COVID-19 pandemic as the first insights to conform to an online customer decision-making style (eCDMS) theory.

RESUMEN

Objetivo. Esta investigación contribuye a la teoría del estilo de toma de decisiones del consumidor (CDMS) en línea (eCDMS) para descubir nuevas orientaciones y segmentaciones de los msmos y generar estrategias de innovación de marketing para las empresas, en la nueva normalidad.

Metodología. Se basa en una revisión de la literatura diseñando un modelo y un cuestionario aplicado a 400 consumidores mexicanos en línea (Mayo-Agosto de 2021). El conjunto de datos se analiza bajo el modelado de ecuaciones estructurales basado en covarianza (CB-SEM), elanálisis de conglomerados y el métodos multivariados ANOVA de un factor.

Resultados. Se obtiene un modelo empírico con 9 factores, 24 indicadores como nuevas orientaciones de estilos de toma de decisiones del cliente online (orientación eCDMS), siendo la calidad, la marca y la experiencia del cliente los más relevantes. Además, se obtuvo cuatro nuevos grupos de clientes en línea (segmentación eCDMS) a los que denominamos: seguidores de marketing, buscadores de precios, compradores de conveniencia, encargados de la ética y la reputación.

La **originalidad** se basa en una propuesta marco, basada en consumidores en línea después de la pandemia COVID-19, como primeros hallazgs para conformar una teoría de toma de decisiones del consumidor en línea (eCDMS).

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1. Introduction

Nowadays, a large digital evolution influences all the senses of life, especially during and after a time of crisis. After the prolonged COVID-19 lockdown, has been produced new behaviors in online customer decision-making styles (eCDMS) have elicited new online customer groups

(Ozturk, 2020). Today more than ever, the firms need new and innovative marketing strategies to understand the online customers who are constantly changing, developing themselves, changing preferences in a short time and going through behavioral modifications (Francis & Hoefel, 2018). The firms must anticipate the online customer behavior to maintain a competitive edge (Koch et al., 2020). Hence, we afford the question what are the Online Customer Decision-Making Styles (CDMS) as Marketing Innovation Strategies for the New Normal?

In this regard, the study's novelty is to identify the underlying factors and indicators involved in the new online customer decision-making style (eCDMS orientation) and the new groups of online customers (eCDMS segmentation) as a consequence of new habits and behaviors produced after a prolonged quarantine and lockdown of COVID-19 pandemic in Mexico as predictors for the new normal conditions. The predictors are gathered by designing a conceptual framework proposal as a generation of marketing innovation strategies. The framework's design is explained in the following sections to relate the results and contributions.

1.1.The Customer Decision Making-Styles (CDMS) and its evolution

Customers are highly sensitive while making decisions and marketing stimuli provide the necessary information and knowledge about the product or service; they are also influenced by social and psychological elements like society, family, personal, motivation, and learning. Indeed customers use a variety of decision-making styles (CDMS). Today modern companies have adopted the CDMS techniques to understand the thinking and decision-making standards. The cognitive learning helps the buyer to remember the previous purchase each time when similar arise buyer will use own experience to make decision. Satisfied consumer will not go for information search which comes after problem recognition and other steps in decision making. Marketers can influence post purchase decision by positive learning. The first model of CDMS was developed in 1963 by Howard and Seth (1969) integrating several psychological, social, and market pressure on the buyer's choice and information issues. However, the literature on CDMS generally follow the seminal work of Sproles and Kendall (1986) whom conceptualized a framework with 8 basic characteristics of these styles and develops a Customer Styles Inventory to measure them empirically. Since 1986 we have a series of different frameworks that trying to explain such issue. See Table 1.

Table 1. CDMS Evolution

Author	Year	Factors
*Sproles and Kendall	1986	Perfectionistic, High-Quality Conscious Consumer; Brand Conscious, Price Equals Quality Consumer; Novelty-Fashion Conscious Consumer; Recreational, Hedonistic Consumer; Price Conscious, Value for Money Consumer; lmpulsive, Careless Consumer; Confused by Over-choice Consumer; Habitual, Brand-Loyal Consumer
*Hafstrom et al.	1996	Perfectionist; Recreational/ Shopping Conscious; Careless Consumers; Time-Energy Conserving; Impulsive; Habitual/ Brand-Loyal, Price/Value Conscious
* Fan & Xio	1998	Brand Aware; Time Conscious; Over-Choice Quality; Price Conscious; Information Utilization
*** Blackwell & Minaird	2001	Input (Stimuli); Information Process; decision Process; Environmental; Individual Differences
*Canabal	2002	Brand Conscious; Perfectionist; Confused by Over Choice Consumers; Impulsive/Brand Indifferent; Time Conscious; Recreational Shopper; Price/ Value-Conscious; Dissatisfied/Careless
***Bagozzi, Gurhan-Canli et al.	2002	The Theory of Trying: Attitude toward Success; Expectation of Success; Attitude toward Failure; Expectation of Failure; Attitude toward Process or Means; Frequency of Past Trying and/or Past Behaviour; Intention to Try; Recency of past Trying and/or Past Behaviour; Trying
*** Leone Perugini et al.	2004	The Model of Goal-Directed Behaviour: Attitude, Positive Anticipated Emotions; Negative Anticipated Emotions; Subjective Norms; Desires; Frequency of Past Behavior; Intentions; Action; Perceived Behavioural Control; Recency of Past Behaviour
*** Ajzen	2006	The Theory of Planned Behavior as extension of Theory of Reasoned Action: Behavioural Beliefs; Normative Beliefs; Control Beliefs; Attitude; Subjetive norm; Perceived Behavioral Control; Intention; Behavior; Actual Behavior Control
** Bakewell & Mitchel	2006	Perfectionist; Brand-Conscious; Novelty-Fashion Conscious; Recreational Shopping; Impulsive; Confused by Over-Choice; Habitual, Brand Loyal; Store-Loyal; Time Energy Conserving; Bargain Seeking; Imperfectionism
** Lysonsky et al.	2009	Perfectionist; Brand-Conscious; Novelty-Fashion Conscious; Recreational Shopping; Impulsive; Confused by Over-Choice; Habitual, Brand Loyal
*Safiek	2009	Novelty; Perfectionist; High-Quality Conscious; Confused by Too many selection to choose Conscious; Recreational, Hedonistic Conscious; Impulsive, Careless Consumer; Variety-Seeking; Habitual Brand-Loyal; Financial, Time-Energy Conserving
Saleh et al.	2017	Perfectionistic, High-Quality Conscious; Brand Conscious Consumer; Novelty, Variety Conscious Consumer; Price, Value Conscious Consumer; Recreational, Hedonistic Consumer; Impulsive, Careless Consumer; Confused by Over-Choice Consumer; Habitual, Brand-Loyal Consumer; Fulfillment Conscious Consumer; Incentive Conscious Consumer; Recommendation Conscious Consumer; Fulfillment Conscious Consumer; Incentive Conscious Consumer; Recommendation Conscious Consumer
Karimi et al.	2018	Satisficer (Low/High); Maximizer (Low/High)
Mohsenin et al.	2018	Best Seekers, Premeditators, Innovation Seekers, Price Insensitive
Sudbury-Riley et al.	2018	The Cooperators; The Autonomous-Cooperators; The Oppositional-Cooperators; The Unaffected
Maggioni et al.	2019	Recreational Shopping Consciousness; Innovativeness; Price Consciousness; Time Pressure
Matevz et al.	2019	Brand Consciousness; Quality Consciousness; Price Consciousness; Information Utilization
Nawaz et al.	2019	Recreational and Hedonistic Consciousness; Price and Value Consciousness; Brand Consciousness; Price and Value Consciousness; Confused by over choice ; Impulsiveness and Carelessness

Thangavel et al.	2019	Brand Loyal Shoppers; Brand-Conscious Shoppers; Quality-Conscious Shoppers; Confused by over-choice/ availability of too many choices; Price/Value-Conscious Economic Shoppers; Online Store Loyal Shoppers; Online Shopping Confidence; Influence of Reference Group/Socially Desirable/ Information Seeking
Bullini-Orlandi, L. & Pierce	2020	Analytical Customer Information Processing; Intuitive Customer Information Processing; Environmental Dynamism; Customer Responsiveness; Market Performance
Koch et al.	2020	Behavioral Intentions; Perceived Usefulness; Internal Subjective Norms; External Subjective Norms

Source: *Madahi et al. (2012); **Tarnanidis et al. (2014) and other authors with own adaptation; ***UKEssays (2018)

1.2. From the CDMS to the eCDMS

All the models assume that the consumer undertakes comprehensive cognitive processing before purchase behaviour under several complex situations with the influence of a plethora of both conscious and subconscious factors. The CDMS evolution in certain circumstances may result not from attitude evaluation, but overall affective response in a process called *"affect-referral"*. These are thought to be important limitations in the context of clothing shopping where overall affective evaluation and hedonistic impulses are thought to influence some purchases (Solomon et al. 2006). The CDMS theories are widely applied in western cultures, however it is still unclear that the assumptions underpinning it are well suited to other cultures (Solomon et al. 2006).

In this sense, the eight-factor model (Sproles & Kendall, 1986) tends to be more applicable in some countries and contexts than others (Tarnanidis et al., 2014; Nawaz et al., 2019). Besides, the concept must be updated according to the new online consumer habits based on the internet and analyze the online Customer Decision Making-Styles (eCDMS) (Mejía-Trejo, 2021). Because of the COVID-19 lockdown, there are reactions highlighting new behaviors of eCDMS. For instance, millennials and high-income earners are in the lead when shopping online, switching brands at unprecedented rates. The brands need to ensure strong availability and convey value because online customers are changing how they shop in response to health and safety concerns. The online customer shopping intent wants value for their money, especially in essential categories. Online customers are changing how they spend their time at home. Finally, some trends vary by customer segment (Charm et al., 2020).

1.3.New Normal and New Consume Habits

We do not always recognize habits in our own behavior; much of people's daily lives are taken up by habits they have formed over their lifetime. The automatic response is an important characteristic of a habit. Approach 40 percent of people's daily activities are performed each day

in almost the same situations as several studies point out. Associative learning is the source of the habits. There are patterns of behavior that allow people to reach goals. The people repeat what works, and when actions are repeated in a stable context, the people form associations between cues and response (Verplanken & Wood, 2006).

The COVID-19 pandemic and the prolonged lockdown with social distancing mandates have disrupted the online customer habits of shopping as well as buying. Customers are learning new habits. The online customers, for instance, prefer the store comes to home instead to go to the store. While customers think to go back to pre-COVID old habits, it is likely that they will be modified by new procedures and regulations in the way customers buy and shop services and products. New new normal habits have been emerged by technology advances, changing demographics, and innovative ways customers have learned to cope with blurring the work, leisure, and education boundaries (Seth, 2020).

Taking into account the particular consumption of COVID-19 lockdown Mexico (Deloitte, 2021): for instance, the daily use of a laptop increased to 78% and the tablet to 64%, as result of changes in the formats in education and distance work; the arise of access to wearables, like smartwatches, from 54% in 2019 to 72% in 2020 for health monitoring (oxygen levels in the blood) and exercise due to the social distance measures, 17% of people (mainly between 18 to 34 years old) acquired a smartphone. This can be considered as a habit of unusual consumption due to the COVID-19 pandemic disruption. Hence, COVID-19 pandemic is changing how consumers behave across eight spheres of life for instance work, shopping and consumption, learning, life at home, communications and information, play and entertainment, travel and mobility, health and wellbeing (Kohli et al., 2020). An analysis carried out by Cabrera (2020) concludes that Mexico has catapulted the use of e-commerce to such a degree that the progress registered during COVID-19 has a penetration of three years ahead. Therefore, many of the trends are accelerations of past behaviors producing perceptions that we covered a *"decade in days"* when it comes to the adoption of digital. Most behaviors will see a linear development trend or stick in the next normal with different impacts in several industries; for instance, behavior changes will reshape eCDMS journeys and the regarding companies will need to adapt fast (Kohli et al., 2020).

2. The online Customer Decision Making-Styles (eCDMS) proposal framework

Marketers, advertisers, brands, and businesses need to focus on the psychology and behavior behind each facet of the eCDMS to engage with, influence, and empower customers at every stage. Understanding the eCDMS, the opportunities within each stage, and how customers interact during and between each stage is crucial to success (Koscierzynski, 2020). Modern customers make decisions at their own pace, on their own time, and on their terms. The modern decision-making journey is less linear; it is multi-dimensional and interconnected (Thangavel et al., 2019; Koscierzynski, 2020).

The preceding decision-making models in Table 1 are considered relevant from a broad-stroke perspective. In this research, 4 specialists discussed and analyzed them: 2 research professors in digital marketing and 2 SME CEOs in digital marketing strategies (in Mexico) to determine a final ex-ante model and a final questionnaire concluded and depicted in Table 2**.**

Table 2. Final Design of eCDMS Questionnaire

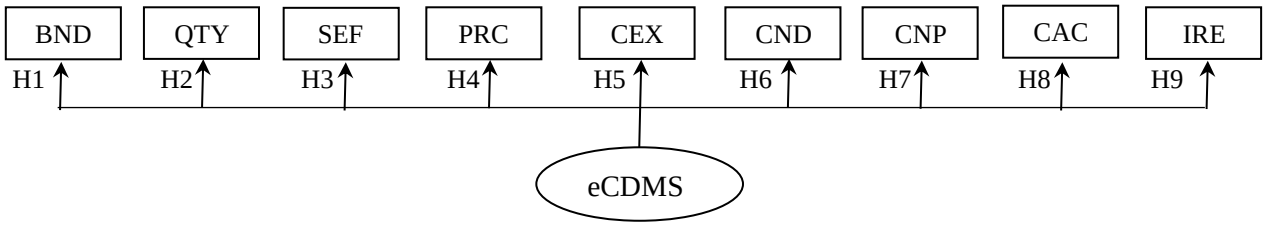
eCDMS Conceptual Construct Framework		
Factors	----Indicators--- Respond only for one option, according to Likert Scale 1-7: using Likert Scale 1-7 (1.Strongly disagree; 2. Disagree; 3. Somewhat disagree; 4. Neither agree or disagree; 5. Somewhat agree; 6. Agree; 7. Strongly agree).	Authors
1. Brand. (BND)	Under online conditions: 1. BND1. My first impulse is to buy with my favorite brands (*"brand loyalty"*) 2. BND2. The higher the price of a product, the better it is quality (*"brand price"*) 3. BND3. I prefer to buy the best-selling brands (*"brand conscious"*)	Sproles & Kendall (1986); Canabal (2002); Tarnanidis (et al., (2014); Thangavel et al. (2019); Mejía-Trejo (2021)
2. Quality. (QTY)	Under online conditions, I usually try to buy the best overall product/service based on its value proposition for… 4. QTY1…performance. (*"quality performance"*) 5. QTY2…design (*"quality design"*) 6. QTY3…quick access to the availability. (*"quality in access"*)	Sproles & Kendall (1986); Fan & Xio (1998); Safiek (2009); Saleh (et al., 2017); Osterwalder & Pygneur (2010); Matevz (et al., 2019); Thangavel (et al., 2019)
3. Self-Efficacy. (SEF)	Under online conditions, despite all the information about different products/services confuses me: … 7. SEF1…I search for more information via web pages, e-mail or social media, etc., to clarify it. 8. SEF2…I feel that I can distinguish real information from fake news. 9. SEF3.The more I learn about different brands of product/services, it is easy to me to choose one.	Bandura (1997); Chen & Cheng (2018)
4. Price Consciousness.(PRC)	Under online conditions… 10. PRC1. I usually search in internet advertisements of discounts. 11. PRC2. I usually use discounts to reuse them in shopping for other products/services. 12. PRC3. I carefully watch how much I spend.	Sproles & Kendall (1986); Thangavel (et al., (2019) Mohsenin (et al., 2018); Maggioni (et al., 2019)

5. Customer Experience. (CEX)	The presentation of product/service in the online media… 13. CEX1….has a sense of human contact (*"social presence"*). 14. CEX2….is lively (*"sensory appeal"*). 15. CEX3.I feel like I get more for what I pay of product/service in the online channel. (Satisfaction).	Katawetawaraks & Lu-Wang (2011); Karimi (et al., 2018); Bleier (et al., 2019); Lai (et al., 2020)
6. Customer Action. (CAC)	My first action for accessing to the online media are more … 16. CAC1…reasoned and planned than impulsive and unplanned action. (*"reasoned answer"*). 17. CAC2…impulsive and unplanned than reasoned and planned action. (*"impulsive answer"*)	Hafstrom (et al., 1996); Bakewell & Mitchel (2006); Lysonsky (et al., 2009); Fishbein & Ajzen (2011) ; Krishna & Strack (2017); Liu & Zhang (2019); Nawaz (et al., 2019)
7. Customer Needs. (CND)	The main needs for accessing to the online media for buying products /services are more… 18. CND1…*"utilitarian"* (i.e., convenience to pay in credit/debit card/bitcoin, accessibility, payment services, assortment, speed delivery and payment, customization, availability of information). 19. CND2…*"hedonic"* (i.e., intrinsic enjoyment, visual appeal, sensation seeking, entertainment, socialize)	
8. Customer Preferences. (CNP)	The main preference for accessing to the online media is for… 20. CNP1…buying products (i.e., auctions, books, computer hardware, computer software, consumer electronics, cosmetics, department stores, fashion, flowers & gifts, food, furniture & decoration, health, hygiene, jewelery, music price comparisons, sports, tickets, toys) 21. CNP2…buying services (i.e., banking services, mobile phones, service payments, subscription services, urban mobility, entertainment, education services, shows & events, travels)	Chi-Hsun, & Jyh-Jeng, (2017); Yildiz (2020); Deloitte (2021); Lai (et al., 2020)
9. Identity, Reputation Ethics. (IRE)	The main justification for accessing online media for buying products/services is because… 22. IRE1… I search to reaffirm my individuality. 23. IRE2… I consider ethical. 24. IRE3….It is important for me, the reputation of a firm.	Francis & Hoefel (2018); Sudbury-Riley (et al., 2018); Bullini-Orlandi, L. & Pierce (2020); Koch (et al., 2020); Mejía-Trejo (2021)

Source: Own

This questionnaire includes the full spectrum of activities and specificity of online customer purchase of all the authors mentioned above (See Figure 1).

Figure 1. ex-ante Conceptual Model Proposal.



Notes: eCDMS. Online Customer Decision-Making Styles

BND. Brand; QTY. Quality; SEF. Self-Efficacy; PRC. Price Consciousness; CEX. Customer Experience; CND. Customer Needs; CNP. Customer Preferences; CAC. Customer Action; IRE. Identity, Reputation & Ethics·

Source: Own

Hence, we proposed the following hypotheses:

H1. Higher BND higher eCDMS

H2. Higher QTY higher eCDMS

H3. Higher SEF higher eCDMS

H4. Higher PRC higher eCDMS

H5. Higher CEX higher eCDMS

H6. Higher CAC higher eCDMS

H7. Higher CND higher eCDMS

H8. Higher CNP higher eCDMS

H9. Higher IRE higher eCDMS

3. Methodology

This section describes the procedure of how the datasets were posed and aggregated for further data analyses in several stages as follows:

3.1.*Stage 1.* It implied a qualitative study based on a literature review using VOSViewer software to explore SCOPUS and Web of Science scientific databases involving consistent research on the customer decision-making styles (CDMS). The selected decision-making models were discussed and analyzed by 4 specialists: 2 research professors in digital marketing and 2 SME CEOs in digital marketing strategies (in Mexico) to determine a final ex-ante model and a final questionnaire. The configurational approach enabled the understanding to identify the initial 24 indicators finally grouped in 9 underlying factors: brand (BND); quality (QTY); self-efficacy (SEF); price consciousness (PRC); customer experience (CEX); customer needs (CND); customer preferences (CNP); customer action (CAC); identity, reputation & ethic (IRE).These underlying factors and indicators are the basic components to integrate the conceptual framework to be proved empirically.

3.2.*Stage 2*. The dataset of 24 indicators and the 9 underlying factors determined the final questionnaire design (see Table 2) to be applied to 400 Mexican online customers (May-Aug-2021) as *"snowball self-report"* in the new normal. This framework is measured using Likert Scale 1-7 (1. Strongly disagree; 2.Disagree; 3.Somewhat disagree; 4. Neither agree or disagree; 5.Somewhat agree; 6.Agree; 7.Strongly agree). According to Hair (et al., 2019), the sampling frames could be addressed based on the number of framework parameters. There is a basic rule

of thumb for sample size that is 10 times the number of arrows pointing at a construct, whether as a formative indicator to a construct or a structural path to an endogenous construct. The CB-SEM algorithm obtains solutions when other methods do not converge or develop inadmissible solutions. In our case 24 indicators x 10 times= 240. The 400 Mexican online customers sample fulfill this condition widely. On the other hand, the most important demographic data of the participants are depicted in **Table 3**.

Table 3. Demographic Data

Measure	Items	Frequency	Percentage
Age	18-25	100	13
	26-30	150	13
	31-40	150	38
	Total	**400**	**100**
Gender	Female	200	50
	Male	200	50
	Total	**400**	**100**
Marital Status	Single	300	75
	Couple	100	25
	Total	**400**	**100**
	Undergraduate	200	50
	Postgraduate	150	37
	Doctorate	50	13
	Total	**400**	**100**
Monthly Income (Mexican Pesos)	>40,000	50	13
	30,000- 39,999	150	37
	20,000-29,999	150	37
	10,000-19,999	30	8
	1,000-9,999	20	5
	Total	**400**	**100**
Internet Purchasing Behavior	-Once annually (trial)	20	5
	-2-4 times annually (occasional)	160	40
	-5-10 times annually (frequent)	200	50
	-More than 10 times annually (regularly)	20	5
	Total	**400**	**100**

Source: Own

3.3. ***Stage 3.*** There are planned to apply 3 quantitative multivariate analyses. First, the framework`s validity was made through Confirmatory Factor Analysis (CFA) using Covariance-Based Structural Equations Modeling (CB-SEM) (Byrne, 2006) through the maximum likelihood method with EQS 6.2 software. Besides, were used Cronbach's alpha per factor and composite reliability index (CRI) (Hair et al., 2019; Bagozzi & Yi, 1988) as techniques to prove the scale's

reliability. For Cronbach's Alpha and CRI, all scales' values exceed the recommended value of 0.7, showing evidence and proving the scales' internal reliability (Nunnally & Bernstein, 1994; Hair et al., 2019). It was computed the average variance extracted (AVE) from the factors of the construct (Fornell & Larcker, 1981) where higher values than 0.6 are desirable (Bagozzi & Yi, 1988). The root mean square error of approximation (RMSEA), non-normed fit index (NNFI), (CFI) the comparative fit index, normed fit index (NFI) were the main settings used in this study (Byrne, 2006; Hair et al. 2019). The RMSEA values below 0.08 were acceptable (Hair et al.,2019); NNFI, CFI, and NFI values, preferably, must be suitable between 0.80 and 0.89 (Byrne, 2006; Hair et al., 2019). Hence, the eCDMS orientation was determined probing 9 hypotheses describing the relationship of each one of the 9 factors with eCDMS orientation (see Table 4).

3.4.*Stage 4.* Once probed the CB-SEM, the second multivariate analysis applied was the Cluster Analysis based on the K-means non-hierarchical clustering. This procedure was applied using the SPSS 25 IBM software to categorize the eCDMS and was aimed to determine the shopping segments (eCDMS segmentation). Such a procedure is based on a large selection of initial cluster centers with well-separated values and requires a previous specification of a number of clusters (Hair et al., 2019). Therefore, iteratively re-assigns observations until the solution is achieved for optimized clustering. Such an optimization procedure allows for reassignment of observations to create the most distinct clusters (Hair et al., 2019; Mejía-Trejo 2019a). Thus, the cluster solution regarding stability and validity is enhanced (see Table 5)

3.5.*Stage 5.* Finally, the last multivariate analysis was the one-way ANOVA post hoc test. This analysis was used based on a quantitative dependent variable (eCDMS orientation) by a single factor (CDMS segmentation) variable, the one-way ANOVA procedure produces a one-way analysis of variance. To test the hypothesis that several means are equal among the groups is the homogeneity of variance analysis and ANOVA summary table (see Table 6). This technique is an extension of the two-sample t test. The differences existing among the means are determined and explained with such differences (see Table 7). The post hoc range pairwise and tests multiple comparisons can determine which means differ Homogeneous subsets are identified with range tests of means that are not different from each other. Pairwise multiple comparisons test the difference between each pair of means and yield a matrix where asterisks

indicate significantly different group means at an alpha level of 0.05 (see Table 8) ((Hair, 2019: Mejía-Trejo, 2019c). Therefore, the significance of each new groups of eCDMS were probed.

4. Results

We present three groups of analyses results:

4.1.*The CB-SEM analysis*. This analysis probed the eCDMS orientation through the model`s reliability, convergent and discriminant validity. See **Table 4.**

Table 4. Results of Internal Consistency and Convergent Validity of Latent Variables in the Theoretical Model of eCDMS Orientation

Factor	Theoretical Model Convergent Validity							Theoretical Model Discriminant Validity								
	Indicators	Loading Factor (>0.6)	Robust *t* Value	Average Loading Factor	**CBA** (>=0 .7)	**CRI** (>=0 .7)	**AVE** (>=0 .5)	**BND**	**QTY**	**SEF**	**PRC**	**CEX**	**CAC**	**CND**	**CNP**	**IRE**
1.BND	1. BND1	0.970***	1.000a	**0.93**	0.95	0.90	0.88	0.93	-	-	-	-	-	-	-	-
	2.BND2	0.950***	18.545													
	3. BND3	0.880***	14.358													
2.QTY	4. QTY1	0.960***	1.000a	**0.94**	0.92	0.9	0.89	0.70	0.94	-	-	-	-	-	-	-
	5.QTY2	0.949***	19.685													
	6.QTY3	0.901***	17.308													
3.SEF	7.SEF1	0.890***	1.000a	**0.87**	0.90	0.86	0.80	0.65	0.78	0.88	-	-	-	-	-	-
	8. SEF2	0.878***	21.519													
	9. SEF3	0.850***	19.763													
4.PRC	10.PRC1	0.900***	1.000a	**0.88**	0.87	0.85	0.78	0.58	0.68	0.75	0.83	-	-	-	-	-
	11.PRC2	0.871***	26.341													
	12.PRC3	0.868***	20.129													
5.CEX	13. CEX1	0.920***	1.000a	**0.91**	0.89	0.87	0.85	0.66	0.45	0.56	0.67	0.92	-	-	-	-
	14. CEX2	0.915***	13.902													
	15. CEX3	0.898***	15.444													
6.CAC	16. CAC1	0.850***	1.000a	**0.81**	0.81	0.84	0.68	0.69	0.56	0.68	0.59	0.54	0.82	-	-	-
	17. CAC2	0.770***	13.345													
7.CND	18.CND1	0.890***	1.000a	**0.85**	0.85	0.83	0.75	0.80	0.62	0.78	0.51	0.67	0.61	0.87	-	-
	19.CND2	0.805***	18.861													
8.CNP	20.CNP1	0.878***	1.000a	**0.84**	0.80	0.81	0.69	0.72	0.75	0.67	0.23	0.43	0.56	0.35	0.83	-
	21.CNP2	0.801***	19.891													
9.IRE	22.IRE1	0.810***	1.000a	**0.80**	0.84	0.80	0.67	0.57	0.67	0.38	0.33	0.26	0.45	0.23	0.55	0.82
	23.IRE2	0.798***	23.271													
	24.IRE3	0.785***	18.521													

Structural Relation	Standardized Path Coefficient ß	Robust *t* Value	Hypotheses	Results
BND1 -> eCDMS	0.920***	22.590	H1. *Higher BND higher* eCDMS. *There are positive effects of BND on* eCDMS	Accepted
QTY -> eCDMS	0.898***	20.198	H2. *Higher QTY higher* eCDMS. *There are positive effects of MKK on* eCDMS	Accepted
SEF -> eCDMS	0.870***	19.570	H3. *Higher SEF higher* eCDMS. *There are positive effects of STA on* eCDMS	Accepted
PRC-> eCDMS	0.827***	18.971	H4. *Higher PRC higher* eCDMS. *There are positive effects of PRC on* eCDMS	Accepted
CEX-> eCDMS	0.812***	17.265	H5. *Higher CEX higher* eCDMS. *There are positive effects of CEX on* eCDMS	Accepted
CAC-> eCDMS	0.798***	15.761	H6. *Higher CAC higher* eCDMS. *There are positive effects of CAC on* eCDMS	Accepted

CND-> eCDMS	0.787***	14.872	H7. *Higher CND higher* eCDMS. *There are positive effects of CND on* eCDMS	Accepted
CNP-> eCDMS	0.750***	13.879	H8. *Higher CNP higher* eCDMS. *There are positive effects of CNP on* eCDMS	Accepted
IRE-> eCDMS	0.720***	12,657	H9. *Higher IRE higher* eCDMS. *There are positive effects of IRE on* eCDMS	Accepted

Notes: S-Bχ^2= 924.45; df=450; p<0.000; NFI=0.840; NNFI=0.852; CFI=0.831; RMSEA=0.089; a.- Parameters constrained to the value in the identification process. ***= p < 0.001.
About Theoretical Model Discriminant Validity, the diagonal represents the square root of the average variance extracted (**AVE**)
CBA. Cronbach's Alpha, CRI. Composite Reliability Index, AVE. Average Variance Extracted; BND. Brand; QTY. Quality; SEF. Self-Efficacy; PRC. Price Consciousness; CEX. Customer Experience; CND. Customer Needs; CNP. Customer Preferences; CAC. Customer Action; IRE. Identity, Reputation & Ethics·
BND#; QTY#;SEF#;PRC#;CEX#;CND#;CNP#;CAC#;IRE# see Table 2

Source: Own data using EQS 6.2

4.2.*The Cluster analysis.* This analysis determines the number of new eCDMS segmentation groups through the final cluster centers. See **Table 5.**

Table 5. Final Cluster Centers

e-CDMS orientation	Cluster (e-CDMS segmentation)				ANOVA					
					Cluster		Error		F	Sig.
	1	**2**	**3**	**4**	Mean Square	df	Mean Square	df		
BND	**6**	4	1	1	121.045	3	.467	314	259.061	.000
QTY	**7**	4	3	2	139.695	3	.424	314	329.267	.000
SEF	4	**6**	4	4	121.045	3	.467	314	259.061	.000
PRC	4	**7**	3	3	139.695	3	.424	314	329.267	.000
CEX	**6**	4	3	4	126.131	3	.545	314	231.482	.000
CND	3	2	**7**	6	209.643	3	.815	314	257.203	.000
CNP	2	3	**6**	5	210.623	3	.815	314	257.203	.000
CAC	3	3	1	**7**	202.523	3	.894	314	226.521	.000
IRE	2	2	4	**6**	234.205	3	1.063	314	220.343	.004

Notes: BND. Brand; QTY. Quality; SEF. Self-Efficacy; PRC. Price Consciousness; CEX. Customer Experience; CND. Customer Needs; CNP. Customer Preferences; CAC. Customer Action; IRE. Identity, Reputation & Ethics
SOURCE: Own with adaptation using IBM SPSS 25

4.3.*The one-way ANOVA*. This procedure probes the equal variances through all the groups proposed. See **Table 6.**

Table 6. Test of Homogeneity of Variances eCDMS

Levene Statistic	df1	df2	Sig,
.355	2	315	.304

Source: Own using IBM SPSS 25

Using the differences between groups, within groups and the multiple comparisons method, it was determined how related are the new eCDMS segmentation groups defined. See **Table 7** and **Table 8**.

Table 7. ANOVA summary table. eCDMS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1886.667	2	943.333	83.250	.000
Within Groups	460.000	398	1.456	-	-
Total	2346.667	400	-	-	-

Source: Own using IBM SPSS 25

Table 8. Comparisons dependent variable: eCDMS. Tukey HSD. Bonferroni

(I)Type	(J) Type	Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
MKK	PRC	91.59767*	6.66932	.000	74.8507	108.3446
	CVS	74.60594*	6.98658	.000	57.0623	92.1495
	ERK	68.70554*	6.76540	.000	52.8832	87.7886
PRC	MKK	-91.59767*	6.66932	.000	-108.3446	-74.8507
	CVS	-16.99173*	7.21037	.000	-35.0973	1.1138
	ERK	-12.17659*	5.54673	.000	-29.75299	58.70432
CVS	MKK	-74.60594*	6.98658	.000	-92.1495	-57.0623
	PRC	16.99173*	7.21037	.000	-1.1138	35.0973
	ERK	14.87895*	5.88765	.000	-56.7786	-34.8755
ERK	MKK	-68.70554*	6.76540	.004	-88.7886	-51.8832
	PRC	12.17659*	5.54673	.004	-58.70432	-29.75299
	CVS	-14.87895*	5.88765	.003	36.87544	56.7786

*. The mean difference is significant at the .05 level.

Notes: MKF. Marketing Followers; PRS. Price Searchers; CVS. Convenience Shoppers; ERK. Ethics&Reputation Keepers

Source: Own with adaptation using IBM SPSS 25

5. Discussion

This research updates the CDMS theory under online conditions (eCDMS), unraveling and describing 9 orientations. In this way, based on eCDMS, orientations our research continues to analyze and determine the online customers' profiles or segmentations. Such profiling or segmentation is relevant for firms to plan digital marketing innovative strategies to grant online customer engagement according to the new normal context and hence, we have:

Table 4. CB-SEM analysis, the results of our model probed the Cronbach`s alpha model reliability (CB. >0.7), the composite reliability index (CRI>= 0.7) and the average variance extracted (AVE>=0.5) (Hair et al., 2019; Mejía-Trejo, 2019). The eCDMS model consists of 9 factors and

24 variables. Besides, the 9 hypotheses statements were approved, based on the relationship between eCDMS and each one of the 9 variables established. Although the average loading factors are so close to each other, in the first instance, the results about the eCDMS orientation indicated in decrescent order are:

The high average loading factor for quality (QTY, 0.94) is characterized by performance (i.e., delivery timing), design (i.e., new fashion), and access (i.e., availability) of products/services. These results pinpoint the pursuit of value proposition inherent in online purchasing (Sproles & Kendall, 1986; Fan & Xio, 1998; Safiek, 2009; Saleh et al., 2017; Osterwalder & Pygneur, 2010; Matevz et al., 2019; Thangavel et al., 2019). This factor remains no matter the incomes of the online customer.

The next average loading factor corresponds to the brand (BND, 0.93), that is described mainly with the willingness to buy in online media based on favorite brands (*"brand loyalty"*), a strong perception about higher the price of a product, the better its quality (*"brand price"*) associated with the best-selling brands (*"brand conscious"*). These results support the correlation between the searching of loyalty, price based on well-positioned brands as a traditional marketing strategy long time used (Sproles & Kendall 1986) but necessary to take into account in the online media shopping (Canabal, 2002; Tarnanidis et al., 2014; Thangavel et al. 2019; Mejía-Trejo, 2021). This factor tends to increase while the online customer incomes increase.

The third average loading factor was customer experience (CEX, 0.91). Here there is a high sense of human contact (*"social presence"*) with the perception of *"the lively"* (*"sensory appeal"*), and sensation of *"I feel like I get more for what I pay of product/service in the online channel"* (*"satisfaction"*). The customer experience is strongly related to high online perceptions that lead to an absolute sense of high satisfaction in online media buying (Katawetawaraks & Lu-Wang, 2011; Karimi et al., 2018; Bleier et al., 2019; Lai et al., 2020). This factor decreases in the online customer s when their perceptions decrease too.

The following average loading factor was the price consciousness (PRC, 0.88). It is described for searching in internet advertisements of discounts to reuse them in shopping for other products/service watching carefully how much the online customer r spend. This factor tends to increase as online customer income falls (Sproles & Kendall, 1986; Thangavel et al., 2019; Mohsenin et al., 2018; Maggioni et al., 2019)

The next average loading factor was self-efficacy (SEF, 0.87), where the customer tends to be skeptical when facing doubts about the information. The customer is an active subject searching for more information via web pages, e-mail or social media, etc., to clarify it. The customers can distinguish real information from fake news as they learn more about different brands of product/services as long as it is searching for in the online media (Bandura, 1997); Chen & Cheng, 2018). Like PRC, this factor also tends increase as online customer income falls.

Other average loading factor was the customer needs (CND, 0.85). This indicator describes the first needs of the online customer purchasing, determining in tough times (like the beginning of COVID-19 era) the *"utilitarian needs"* (i.e., convenience to pay in credit or debit card/bitcoin, accessibility, payment services, assortment, speed delivery and payment, customization, availability of information). The *"hedonic needs"* (i.e., intrinsic enjoyment, visual appeal, sensation seeking, entertainment, socialize) result from a lengthy lockdown of the customers. The *"hedonic needs"* indicator tends increase as online customer income increases in the new normal (Hafstrom et al., 1996; Bakewell & Mitchel, 2006; Lysonsky et al., 2009; Fishbein & Ajzen, 2011; Krishna & Strack, 2017; Liu & Zhang, 2019; Nawaz et al., 2019).

The seventh average loading factor to be described is customer preferences (CNP, 0.84). The factor is aimed to detect the first preferences for the online customers either for buying products (i.e., auctions, books, computer hardware, computer software, customer electronics, cosmetics, department stores, fashion, flowers & gifts, food, furniture & decoration, health, hygiene, jewelry, music price comparisons, sports, tickets, toys) or buying services (i.e., banking services, mobile phones, service payments, subscription services, urban mobility, entertainment, education services, shows & events, travels). The results pinpoint that the indicator of the product, especially food, water, hygiene, and health, was the most consumed in emergency times (i.e., at the beginning of COVID-19). Afterward, at the same time as the consequence of the long lockdown of customers, the services occupy a relevant place, especially for banking, subscription, and education services (Chi-Hsun, & Jyh-Jeng, 2017; Yildiz, 2020; Deloitte, 2021; Lai et al., 2020). These results are due to the new modalities of home-office for works and home-classroom for education, staying the inertia even in the new normal. The *"services"* indicator tends to increase in the factor as online customer income increases in the new normal.

The next average loading factor to describe was customer action (CAC, 0.81), characterized by how the online customer reacts to buy determining if it is a *"reasoned answer" or "impulsive*

answer". The evidence in this research pinpoints a *"reasoned answer"* in the online customers at the same time their incomes are falling for the new normal (Hafstrom et al., 1996; Bakewell & Mitchel, 2006; Lysonsky et al., 2009; Fishbein & Ajzen, 2011; Krishna & Strack, 2017; Liu & Zhang, 2019; Nawaz et al., 2019).

Finally, the last average loading factor designed to describe the expectations of the younger online customers was the identity, reputation & ethics·(IRE, 0.80). This factor remarked the online customers preference to buy more personalized products/services that highlighted their individuality, the preference to purchase products from companies that them consider ethical with reputation of the firm. The IRE factor tends to increase as the online customers is a younger between 20 and 35 years old and their income tends to increase (Francis & Hoefel, 2018; Sudbury-Riley et al., 2018; Bullini-Orlandi, L. & Pierce, 2020; Koch et al., 2020; Mejía-Trejo, 2021).

Table 5. Cluster analysis. This table shows the results based on final cluster centers and after 10 iterations better adjusted 4 clusters based on the Likert Scale 1-7, we observed and determined the new eCDMS segments names with the following proposed names. Observe that all the p values <0.005. IRE factor has a p=0.004 and is suggested to be reviewed in future studies.

QTY+BND+CEX->Marketing Followers (MKF).

PRC+SEF->Price Searchers (PRS).

CND+CNP->Convenience Shoppers (CVS).

CAC+IRE-> Ethics& Reputation Keepers (ERK).

When is applied one-way ANOVA are depicted several tables such as:

The Table 6. Test of Homogeneity of Variances eCDMS. This table shows the homoscedasticity based on the Levene´s test with the following expression result F(2,316)= 0.355, p= 0.304 > 0.05. Thus, the new groups are homogeneous; it tests the null hypothesis that the error variance of the dependent variable (eCDMS) is equal across groups (MKF, PRS, CVS, ERK).

The Table 7. ANOVA summary table eCDMS. This table describes the result of the one-way ANOVA where we have F(2,316) = 83.250, p<0.05 and η^2 = 80% (1886.667/2346.667). In other words, we explain that there are media significant differences between groups.

The Table 8. Multiple Comparisons. It is a complementary result of one-way ANOVA, and it probed all the possible pairwise comparisons for our new 4 eCDMS segmentation profile groups with p< .005, thus, the groups are clearly differenced using Tukey and Bonferroni procedures (only the ERK segmentation group is interesting to be reviewed in future analyses because all the p values

are around .003 and .004). Such groups, we called: marketing followers (MKF), price searchers (PRS), convenience shoppers (CVS), and ethics & reputation keepers (ERK).

5.1.Theoretical implications

We contribute with a reliable and robust empirical framework to help academics, retail, and marketing managers, in eCDMS orientations, benefit from the results reported here. For instance, the marketing innovations strategies under online conditions could be determined based on 9 factors: brand (BND); quality (QTY); self-efficacy (SEF); price consciousness (PRC); customer experience (CEX); customer needs (CND); customer preferences (CNP); customer action (CAC); identity, reputation & ethic (IRE).

A secondary result is the fact to have determined the 4 new eCDMS segmentations profile that supports such marketing innovations strategies based on the following proposed profiling's:

Marketing Followers (MKF) is the result of the first cluster (see Table 5) and is composed of the brand (BND), quality (QTY), and customer experience (CEX) factors. This eCDMS profile is characterized by a first impulse to buy previously recognized brands fostering *"brand loyalty"*; also, the online customer is willing to think: *"the higher the price of a product, the better it is quality"* associated as a *"brand price"* and hence, exists a preference to buy the best-selling brands as a *"brand conscious"* (Sproles & Kendall, 1986; Tarnanidis et al., 2014; Thangavel et al., 2019; Mejía-Trejo, 2021). This eCDMS profile takes into account the shopping of products/services, the performance (*"quality performance"*), design (*"quality design"*), and access (*"quality in access"*). Furthermore, this profile is aimed to pursue the value proposition (Osterwalder & Pigneur, 2010) in the consume with a high sense of human contact (*"social presence"*), lively (*"sensory appeal"*), and strength feeling like: *"I get more for what I pay of product/service in the online channel"* (*"satisfaction"*) (Katawetawaraks & Lu-Wang, 2011; Bleier et al., 2019; Lai et al., 2020).

Price Searchers (PRS) is the result of the second cluster (see Table 5), and it is composed of self-efficacy (SEF) and price consciousness (PRC) factors. Despite all the information about different products/services that might confuse the online customer, this eCDMS profile is characterized by searching for more information via web pages, e-mail or social media, etc., to clarify it. The online

customer feels that can distinguish real information from fake news. Hence, the online customer tends to think: *"the more I learn about different brands of product/services, it is easy to me to choose one"* (Bandura, 1997; Chen & Cheng, 2018). Besides, the online customer usually searches the advertisements of discounts to reuse them in shopping for other products/services and carefully watch how much they spend (Sproles & Kendall, 1986; Thangavel et al., 2019).

Convenience Shoppers (CVS) is the result of the third cluster (see Table 5) and is composed of customer needs (CND) and customer preferences (CNP) factors. It is characterized by how the online customer experiences that ultimately saves them time and effort. Convenience is quick, easy, close by and allows a shopper to get what they need, when they need. This eCDMS profile is characterized by two types of convenience: the *"utilitarian"* (i.e., convenience to pay in credit or debit card/bitcoin, accessibility, payment services, assortment, speed delivery and payment, customization, availability of information) or *"hedonic"* (i.e., intrinsic enjoyment, visual appeal, sensation seeking, entertainment, socialize) (Fishbein & Ajzen, 2011; Krishna & Strack, 2017).
Such types of conveniences are aimed to both preferences for buying *"products"* (i.e., auctions, books, computer hardware, computer software, consumer electronics, cosmetics, department stores, fashion, flowers & gifts, food, furniture & decoration, health, hygiene, jewelery, music price comparisons, sports, tickets, toys) or *"services"* (i.e., banking services, mobile phones, service payments, subscription services, urban mobility, entertainment, education services, shows & events, travels) (Fishbein & Ajzen, 2011; Krishna & Strack, 2017; Liu & Zhang, 2019).

Ethics & Reputation Keepers (ERK) are the result of the fourth cluster (see Table 5) and are composed of customer action (CAC**)** and identity, reputation, and ethics (IRE) factors.
This eCDMS profile is characterized by the main justification for an online customer to reaffirm its individuality or for a firm`s ethics or reputation issues (Francis & Hoefel , 2018; Mejía-Trejo, 2021). Despite the above description, this segment is suggested to remain a potential group to be analyzed in future studies due to the p values obtained around .003 and .004 (see Table 6); in other words, it is an incipient segmentation group to observes its evolution.

5.2.Practical Implications

This study makes several practical contributions to the field:

First. We designed a solid conceptual framework relating 9 factors as eCDMS orientation (see Figure 1): brand (BND); quality (QTY); self-efficacy (SEF); price consciousness (PRC); customer experience (CEX); customer needs (CND); customer preferences (CNP); customer action (CAC); identity, reputation & ethic (IRE). This framework consists of 24 indicators. Prior studies did not consider the new normal environment (post-COVID-19 era), especially for Mexico, as we did. The study's novelty is to identify the underlying factors, indicators, and how they are involved in the new electronic customer decision-making styles (eCDMS) orientations after a prolonged quarantine and lockdown as predictors for the new normal conditions.

Second. Because of the new customer habits, the eCDMS orientations framework is the basis to unraveling the new groups of eCDMS segmentations (see Table 8) described lines above, as: the marketing followers (MKF), the price searchers (PRS), the convenience shoppers (CVS), and the ethics& reputation keepers (ERK). These categories are very useful to the firms to determine the marketing innovation strategies more accurately.

Third. The final empirical eCDMS framework is helpful to academics, firms' retailers, and marketing managers to determine marketing innovation strategies if we combine the 9 factors as eCDMS orientation with the 4 groups of eCDMs segmentation, it is possible to get marketing innovations based on different cohorts just as generation X, Y, Z, etc., or different educations levels such as college, undergraduate, postgraduate, or doctorate, or different monthly incomes, or different gender perceptions. Furthermore, we can get a combination of such conditions, for instance, how is the relationship between the eCDMS orientation and eCDMS segmentation under women perception with incomes in the range of 10,000-19,000 pesos, with a college education from generation Y?

Fourth. The eCDMS contributes to updating the original CDMS theory of Sproles & Kendall (1986) in new contexts such as the online media customers and the effects of a prolonged quarantine and lockdown for the new normal conditions after COVID-19. The empirical findings

of this research suggest that the first eCDMS orientations are quality (QTY), brand (BND), and customer experience (CEX). In other words, they are the three dominant shopping motivations that drive the eCDMS orientations. At the same time, these three orientations are the basis to describe a new group of customers called here marketing followers (MKF). These people are searching for brands, quality of products/services, and a high customer experience. It is not rare if we notice that our demographic data point out our leading group of people between 31-40 years old with monthly incomes in the range of 30,000-39,000 pesos (150 persons, 47% of the sample).

Fifth. The findings suggest that the new eCDMS segmentation (4 target customers) could be flexible in their eCDMS orientation (9 groups). The firms' retailers and marketing managers must understand their target customers. The online customer decision-making styles (eCDMS orientation) under different contexts (i.e., time of crisis like COVID-19 or time of enjoyment like Olympiads) is the basis to improve their marketing innovation activities and grant effective communication to support customer decisions. Besides, the firms' retailers and marketing managers must actively observe the eCDMS orientations to identify and determine emerging new eCDMS segmentations or new online customers that show changes in shopping/buying in online media. This surveillance is necessary for instance, to enhance the positioning, advertising products/services, intriguing the online customers, and get good customer personalization. These actions should increase customer satisfaction regarding shopping/buying for the company's products and services.

Sixth. The COVID-19 pandemic has demonstrated very impressive online customer behaviors, especially in hygiene and security issues, just like, at the beginning of COVID-19 massive purchases of toilet paper, antibacterial gel, or masks representing a phenomenon to carry out further studies regarding times of crisis.

6. Conclusion

The study contributes to the theory of customer decision-making styles (CDMS) under online media. The prolonged lockdown and social distancing to combat the COVID-19 virus has generated significant disruptions on online customer decision-making styles prevailing the habit that *"the store has to come to the customer."* Online customers have adapted to house arrest for a

prolonged time, based on adopting digital technologies that facilitate work, study, and consumption in a more convenient manner modifying the existing habits in all the circumstances.

The firms need to understand this new online customer decision-making style (eCDMS) to design new marketing innovations strategies to facilitate the new normal transactions and remain in the market.

This research argued that, although eCDMS have been investigated extensively since the Sproles & Kendall (1986) work, incipient research has started conceptualizing how the new habits after a prolonged time of crisis (i.e., COVID-19) and which are the new customer groups under online rules. Hence, this paper conceptualizes the online customer decision-making styles (eCDMS) based on updating customer decision-making theory to unravel new online consumer decision-making styles in orientation and online customer segmentations.

Thereby, we offer insights into understanding the electronic customer decision-making styles (eCDMS) orientations based on a framework with 9 factors: brand (BND); quality (QTY); self-efficacy (SEF); price consciousness (PRC); customer experience (CEX); customer needs (CND); customer preferences (CNP); customer action (CAC); identity, reputation & ethic (IRE) with 24 indicators. This empirical framework is the basis to determine 4 new groups or eCDMS segmentations: the marketing followers (MKF), the price searchers (PRS), the convenience shoppers (CVS), and the ethics& reputation keepers (ERK) to elicit marketing innovation strategies for the firms in the context of the new normal.

The empirical findings of this research suggest that the first eCDMS orientations are quality (QTY), brand (BND), and customer experience (CEX). At the same time, these three orientations are the basis to describe a new group of customers called here marketing followers (MKF).

7. Limitations and future studies

All empirical studies have certain limitations:

First. Due to recruiting respondents' *"snowball self-report"* nature, sampling methods may limit survey as biased results. The survey results are based on the questionnaire's self-reported data to remind them of their opinions due to the biased demographic characteristics; for instance, more people from the city than the rural zones or more people between 31-40 years old with monthly incomes in the range of 30,000-39,000 pesos (150 persons, 47% of the sample).

Second. The relationship between eCDMS orientation and eCDMS segmentations have several variations to analyze more accurately, for instance, the relationship between (eCDMS segmentation) online customer needs (CND) and preferences (CNP) under major emphasis with identity, reputation & ethics (IRE), brand (BND), and price consciousness (PRC) (eCDMS orientation). In this sense, it is highly recommended to study in a matrix arrangement of 36 cross-points combining eCDMS orientations (9 groups) vs. eCDMS segmentations (4 groups) to determine marketing innovations more accurately and under the rules of different industries. Besides, the eCDMS is different among the online customers; for instance, B2C, B2B, B2G, etc., require the special attention of researchers and future studies in this area.

Third. The cultural vision must be considered because there are different introductions and uses of the technology, different perceptions of the new normal means, the different social media literacy or adoption of social networking sites, etc. The cultural background is a source of different people's reactions. A longitudinal study would provide more validity on causal inferences than prior studies that were based on cross-sectional data to precise the eCDMS framework (Bagozzi, et al. 2000).

Fourth. The eCDMS in this empirical research is not framed only in mobile technology. To undertake future studies of mobile eCDMS should specify features such as the real-time and location-sensitive nature that enhances their value in the customer decision-making process.

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Social Media Information Literacy vs. Fake News: Probing the Business Decisions under COVID-19 times as Innovation skills with fsQCA

Alfabetización en la Información de las Redes Sociales vs. las Falsas Noticias: Probando la Toma de Decisiones de Negocios en tiempos de COVID-19, como habilidades de Innovación con fsQCA

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Keywords: digital marketing; e-Business; fake news; social media information literacy framework; innovation skills; **fsQCA.**
Palabras clave: marketing digital, e-business, noticias falsas, marco de alfabetización en información en redes sociales, habilidades de innovación; **fsQCA.**

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ABSTRACT

Purpose. This research aims to probe a framework explaining how the social media user professionals in digital marketing and e-business can use social media information literacy (**SMIL**) for business decisions under COVID-19 times as innovation skills to combat fake news narratives (**FKN**) to the next normal.

Methodology. A literature review was done with Delphi-Focus Group and Analytic Hierarchy Process (**AHP**) under academics and professionals' supervision as **SMIL** experts. The survey was on **400** young Mexican SMEs' digital marketing and e-business from Jul-Sep 2021.

Findings and Originality. The original findings confirm a framework with five factors, nineteen variables, **71** items, and five paths as innovation skills**.**

Originality. The fuzzy-set Qualitative Comparative Analysis (fsQCA) technique to discover relationships.

RESUMEN

Propósito. Esta investigación tiene como objetivo probar un modelo que explique cómo el usuario profesional de las redes sociales en el marketing digital y el comercio electrónico puede utilizar la alfabetización en información de las redes sociales (**SMIL**) para tomar decisiones comerciales bajo los tiempos del **COVID-19,** como habilidades de innovación para combatir las narrativas de noticias falsas (**FKN**) para nueva normalidad.

Metodología. Se realizó una revisión de la literatura con Delphi-Focus Group and Analytic Hierarchy Process (**AHP**) bajo la supervisión de académicos y profesionales como expertos en **SMIL**. La encuesta se centró en el marketing digital y el comercio electrónico de 400 jóvenes pymes mexicanas entre Jul-Sep de 2021.

Hallazgos. Los hallazgos originales confirman un modelo con cinco factores, diecinueve variables, 71 ítems y cinco caminos como habilidades de innovación.

Originalidad. La aplicación de la técnica fuzzy-set Qualitative Comparative Analysis (**fsQCA**), para descubrir las relaciones.

1. Introduction

As infections from the **COVID-19** pandemic continue increasing worldwide, social media keep producing fake news, accepted in multiple sectors of the population with adverse effects in numerous areas such as health, education, business, economy, public policies, etc. (Fernández-Rúa, 2020). In this sense, to combat fake news, the researchers have proposed interventions and solutions to the authorities from both perspectives: the technology (e.g., improving algorithm of platforms or introducing, for instance, bots and botnets), and the individuals (e.g., social media information literacy) (Berthon & Pitt, 2018; Burkhardt, 2017). Hence, the improvement for

business because (Ranatunga et al., 2020) because fake news can cause irreversible damage to companies and sink their stock price (Atkinson, 2019). Evidence-based on algorithm analyses data sets of fake stock promotion articles prosecuted by the U.S. Securities and Exchange Commission (SEC). Their initial findings reveal that fake news has a price impact on small-cap companies with high retail ownership but not a particularly significant impact on large enterprises. Businesses must combat fake news (Loeb, 2019). The business's recovery for the next normal is digital (Mischke et al., 2021), and the development of digital skills based on literacy for firms, employees, and users is vital. Digitalization and innovation are an intertwined couple representing competitive advantages (LaBerge et al., 2020; Baig et al., 2020), but first, it is necessary to prepare those involved through digital literacy based on social media. The research novelty is reached from the proposal to empower individuals to cultivate skepticism and determine the underlying variables that constitute social media information literacy (**SMIL**) as innovation skills to be developed to combat the fake news for the next normal to improve business performance.

1.1.Digitalization, Innovation and Social Media Information Literacy (SMIL)

The **COVID-19** pandemic has speeded the adoption of digital technologies by several years, and that many of these changes could be here for the long haul (La Berge et al., 2020). Therefore, firms must digitize their business to protect employees and serve customers facing mobility restrictions because of the **COVID-19** pandemic (Baig et al., 2020). Next-generation of products and services will be developed in several innovation trends, just like open-innovation processes (Deiser & Newton 2013). The **SMIL's** importance as innovation skills to be developed is due to its digitalization nature. According to OECD (2018), digitalization provides a wealth of innovation opportunities for firms based on economic and social activities that provide innovative data sources, advanced digital technologies, and data analytics. Digital-based innovations include business process innovations or products that contain ICTs, for their development or implementation (Beig, 2020; OECD, 2018). To summarize, the **SMIL** as innovation skills of the workforce is essential due to digital technologies for collaboration, communication, and value exchange. Academics and specialists perceive digital marketing and e-business as two business activities of a technological high speed-changing environment (Wymbs, 2011), the main reason to select executives as research subjects in this paper.

1.2.The Fake News and SMIL Skills

Although it is not a novelty, its popularity in social media is increasing. It has a pervasive presence, which allows the interaction and dissemination of distorted ideas (Zhou et al., 2020b). Unfortunately, social media has become a tool for the rapid spread of misinformation and fake news (Rampersad et al., 2019). It affects the organization's reputation several times with top venue through Facebook, Twitter, Blogs, and other social media tools with topics ranging from products and services, organizations, and brands to individuals (NACM, 2018)). For instance, in Latin America, two out of five organizations have been affected by fake news (LCM, 2019). In early education, we have significant problems. The Commission on Fake News and the Teaching of Critical Literacy Skills in United Kingdom (NLT, 2018) reported that only 2% of children and young people have critical digital literacy skills. They need to tell if a news story is real or fake; 49.9% of children are worried about not being able to spot fake news; 60.6% of children now trust the news less as a result of fake news. Teachers (60.9%) believe fake news harms children's well-being, increasing their anxiety levels; 53.5% believe that the national curriculum does not equip children with the literacy skills they need to identify fake news. Indeed, in the **COVID-19** pandemic era, it is considered the *"perfect storm"* for conspiracy theories, gossips, and fake news (Fernández-Rúa, 2020), provided by social media sources, and concluding: *"much is known, but a lot is ignored"* (Muñoz-Sanz, 2021). According to United Nations Educational, Scientific and Cultural Organization (UNESCO, 2018), we have:

1. Disinformation usually refers to an attempt to confuse or manipulate people deliberately (usually carefully planned) by delivering false information to people combined with parallel and intersecting communication strategies and other tactics (such as hacking or compromising persons).
2. Misinformation usually refers to misleading information created or disseminated without manipulative or malicious intent.
3. Malinformation referred to information based on reality but used to cause harm to individuals, organizations, or countries. It is essential the capability of messages and information distinction if they are false or true in different levels (e.g., messages with some truth) and how they were created, produced, or distributed by entities with or not intentions to harm rather than serve the public interest. All the information disorder (dis-information, misinformation and misleading information) that violates a person's privacy without public interest justification go against the

journalism standards and ethics. These three types of information disorders are problems facing society. However, dis-information is incredibly harmful and dangerous because it is often planned and executed using automated technology, with abundant resources and strengthened. Hence, fake news is a deliberate, intentional lie and points to people being actively misinformed by malicious actors (Karlova & Fisher, 2012). See **Table 1.**

Table 1. The Information Disorder

FALSE		**INTENT TO HARM**
Misinformation	**Disinformation**	**Malinformation**
False Connection; Misleading Content	False Context; Imposter Content; Manipulated Content; Fabricated; Content Deception	(Some) Leaks; (Some) Harassment; (Some) Hate Speech
FAKE NEWS Tendency		

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO, 2018), with own adaptation

Furthermore, there are seven narrative categories recognized and present in the news, disinformation, misinformation, and malinformation embedded in what facts are selected as salient in the news (or in what facts are made up or taken out of context in toxic communications). See **Table 2**.

Table 2. Different Fake News Narratives (FKN)

Fake News Narrative	Description
1. Satire and Parody (**S&P**)	No intention to cause harm but has potential to fool
2. False Connection (**FCN**)	When headlines, visuals or captions don't support the content
3. Misleading Context (**MSC**)	Misleading use of information to frame an issue or individual
4. False Context (**FCT**)	When genuine content is shared with false contextual information
5. Imposter Content (**IMC**)	When genuine sources are impersonated
6. Manipulated Content (**MPC**)	When genuine information or imagery is manipulated to deceive
7. Fabricated Content (**FBC**)	New content is 100% false, designed to deceive and do harm

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO, 2018) with own adaptation

Moreover, automatic fake news detection has been developed in recent years, where current methods can be generally grouped into content-based (**IMC**, **MPC,** and **FBC**) and propagation-based methods based on context (**MSC** and **FSC**) (Zhou et al., 2020a). Hence, this research involves fake news, which those dimensions in all the seven narratives of information disorder according to UNESCO (2018).

3.1.Fake News and Business

There is an increasing number of academics works about the impact of fake news on business. For instance, there is evidence that brands have been impacted in **4** scenarios based on firms:

a. Those that appear in fake news stories or being the targeted,

b. Corporate ads that are appearing by the side of fake news stories,

c. Corporate ads are appearing on liberal (or conservative) leaning news websites

d. Companies are being found to finance fake news indirectly or directly (Berthon & Pitt, 2018).

Indeed, fake news is bad for business, and social media platforms must help users identify fake news. Ignoring the problem could lead to substantially weaker user engagement (Jacobs, 2018). The prevalence and impact of fake news from crowd-sourced origins continue to grow and generate attention and concern in the financial markets. Markets are most vulnerable when high real-time information costs and the ability to take corrective action immediately are limited (Loeb, 2019). Edelman Trust Barometer (ETB, 2021) reveals the epidemic of misinformation and widespread mistrust of societal institutions and leaders around the world. One tool to achieve it is the development of **SMIL** for business innovation skills. It is a successful key factor for business models, how they work, perform, and manage different skills to be developed in the workplace. This context changes the expectations of business owners' traditional leadership skills and models because they are no longer enough to foster market-leading innovation and entrepreneurial returns. It is necessary to assess the **SMIL** effect for business decisions (Oluwakemi, 2019). It is recognized that highly **SMIL** contributes to minimizing business uncertainty and thereby increases the firms' economic performance, and it is a novel perspective (Ranatunga et al., 2020).

3.2.From Digital Literacy, Information Literacy, Media literacy to SMIL

There is currently a call for cultivating a combination of digital literacy, information, and media literacy (Lee & So, 2013) and, recently, social media information literacy (Bühler et al., 2020). However, this situation will require the researchers' viewpoint according to their needs to study three separate fields because there are still unclear boundaries, although they share the same goals. Their publications might overlap in several terms (Lee & So, 2013). See **Table 3.**

Table 3. Some definitions of digital, information, media literacy

Author	Definition
American Library Association (ALA, 2021a)	Digital literacy : "is the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."
American Library Association (ALA, 2021b)	Information Literacy is set of abilities requiring individuals to: "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." To be information literate, then, one needs skills not only in research but in critical thinking.
Center for Media Literacy (CML, 2021)	"Media Literacy is a 21st-century approach to education. It provides a framework to access, analyze, evaluate, create and participate with messages in a variety of forms – from print to video to the Internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression necessary for citizens of a democracy."
United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020)	"Information literacy and media literacy together as a combined set of competencies necessary for life and work today."
National Association for Media Literacy Education. (NAMLE, 2020).	"Media literacy is the ability to access, analyze, evaluate, create, and act using all forms of communication. In its simplest terms, media literacy builds upon the foundation of traditional literacy and offers new forms of reading and writing. Media literacy empowers people to be critical thinkers and makers, effective communicators and active citizens."
Schilder & Redmond, (2019)	"Media literacy works to develop audiences' awareness and abilities to decode key areas of message construction, dissemination, and effects."
Deiser & Newton (2013)	" It is the interplay of leadership skills and related organizational-design principles organizational media literacy, which we define along six dimensions that are interdependent and feed on one another (exhibit): producer, adviser, architect, analyst, recipient, distributor"
OFCOM (2010)	"Media literacy is the ability to access, understand and create communications in a variety of contexts."
Lee (2010)	"Media literacy is considered to be a series of communication competencies, including the ability to access, analyze, evaluate, and communicate information in a variety of forms"

Notes: **DIL.** Digital Information Literacy; **INL.** Information Literacy; **MEL.** Media Literacy
Source : several authors with own adaptation

Nonetheless, here **SMIL** means the combination of information and media literacy socially accepted as a set of competencies necessary for life and work with critical thinking, creativity, literacy, intercultural, citizenship, knowledge, and sustainability published by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2018). As the 21st century in the **post-COVID-19** pandemic or the next normal era, after a large lockdown, people's learning skills have been transformed from conventional methods into a social and technological environment based on the internet. It elicits gradually but rapidly shifts to a knowledge society influenced by social media. For instance, this situation has forced individuals to be warned: "Don´t everything you see, hear, or read on social media" (Burkhardt, 2017).

3.3.The Main Variables of Social Media Information Literacy Factor

The lack of frameworks explaining the **SMIL for business decisions as innovation skills factor**s related to face the different **FKN** elicited to undertake a bibliometric analysis using **VOSviewer** software on the **SCOPUS** and **Web of Science** databases. The aim was to search the meaning of **SMIL for business decisions as innovation skills** factor, the main underlying variables, and items related to the social media user to be used as a proposed framework to combat the fake news in the next normal. Afterward, we made a qualitative study of this research, applying a Delphi Panel Focus Group and Analytic Hierarchy Process (**AHP**) (Saaty, 2008). This procedure implied three academics and three professionals, both **SMIL** experts, to determine the main underlying variables and items involved as a conceptual framework. The results of the underlying factors and variables of **SMIL** are depicted in **Table 4.**

Table 4. Delphi Panel-Focus Group with AHP

Objective	Social Media Information Literacy (SMIL) factor with underlying variables			
	ID	Names suggested by three SMIL professors (academic vision)		Weighing suggested by three SMIL professionals (expert vision)
		Factors	Variables	AHP weighing (%) importance
Alternatives	1	A&R	AWN	30
	2		REC	30
	3		UST	40
	Total			100
	4	SFU	SEA	40
	5		FND	35
	6		UND	25
	Total			100
	7	ASM	EVA	50
	8		SKP	35
	9		REE	15
	Total			100
	10	AOI	CRE	60
	11		COM	20
	12		FAC	20
	Total			100

Notes: **SMIL.** Social Media Information Literacy; **A&R.** Awareness and Recognition; **AWN**. Awareness of Information; **REC.** Recognition**; UST.** Use of Technology; **SFU.** Search and Find to Understand; **SEA**. Search; **FND.** Find; **UND.** Understand; **ASM.** Assessment; **EVA.** Evaluation; **SKP.** Skepticism; **REE**. Reevaluation; **AOI.** Abilities over Information; **CRE.** Creation; **COM.** Communication; **FAC.** Final Action
Source: Own.

3.4.Describing the framework

Awareness and Recognition (**A&R**) is the factor in being warned about true and fake information. It is described in two variables:

a. Awareness (**AWN**) can apply critical thinking to explain the information clearly (Burkhardt, 2017). It means people often mistake a surface-level awareness for more profound understanding; a cognitive bias occurs when people mistake familiarity or awareness for actual understanding (LFJ, 2017). Mainly, for young people, information seems more easily obtained by entertainment media (e.g., a video in-class demonstration or comic-book than a written check-list handout), but they do not warn that could be not true (Burkhardt, 2017).

b. Recognition (**REC**). This is a capability to recognize the information needings, the need of information (Bühler, 2020), and the information's value according to the online site reputation (NACM, 2018).

Use of Technology (**UST**). It is the capability to use different devices, mainly: desktops, laptops, tablets, and smartphones, by social media users (AMX, 2021).

Search and Find to Understand (**SFU**). This factor is the capability of searching and finding the information to interpret and understand the information's meaning. It is described in three variables:

a. Search (**SEA**) is a capability to search and decide how and where to find the information needings with technical access, applying adequate search strategies for information (e.g., using date, hashtag, keywords, user, etc.).

b. It is relevant to choose appropriate sources when searching the information (Bühler et al., 2020).

c. Find (**FND**). This variable can find, collect, retrieve, and choose appropriate information (Bühler et al., 2020).

Understand (**UND**). This variable specifies how to interpret and identify the intention and the different points of agreement among the sources to understand the information (Bühler et al., 2020).

Assessment (ASM). This factor involves the capability to process the evaluation and revaluation of the information with a unique feature: skepticism. This factor is described in three variables as follows:

a. Evaluation (**EVA**). This variable specifies capabilities of evaluation of the relevance, credibility, accuracy, quality of information. It is helpful to evaluate and identify if the

information is a piece of fake news (Bühler et al., 2020; Zhou et al. 2020a; NACM, 2018); LFJ, 2017). According to Burkhardt (2017), social media users can evaluate several capabilities, such as visiting sites for fact-checking to evaluate the news (e.g., Snopes, PolitiFact, FactCheck). Besides, they seek experts in a subject to evaluate and clear the information; to evaluate and confirm the links after receiving information; to evaluate and improve their abilities to identify fake news; to evaluate and distinguish a real source of information; to evaluate and evaluate distinguish bias information. Following Burkhardt (2017), young people spent fewer than 15 seconds actively on a page as social media users dedicated to read, understand, and evaluate a headline.

b. Skepticism (**SKP**). This variable can invoke a moment of doubt as to the truth of the information among the processes of evaluation (**EVA**) and reevaluation (**REE**) to prevent the spread of fake news. Based on Burkhardt (2017), this variable describes the mistrust in friends' social media to get information. It is associated with the sentence: "the more times I hear something repeated, more likely I think it is not true".

c. Reevaluation (**REE**) is the variable conceived as a capability of subsequent evaluation or rating that reflects the evaluation information practice. It is based on Bühler's (et al. 2020) work that suggests: "users' reaction evaluation of the content; reevaluation information from another user; reconsidering the capability existing evaluation of information and identifying the benefits of reevaluating information".

Abilities over information (AOI). This factor is implying the capability to process what to do with the information obtained. It is described as follows:

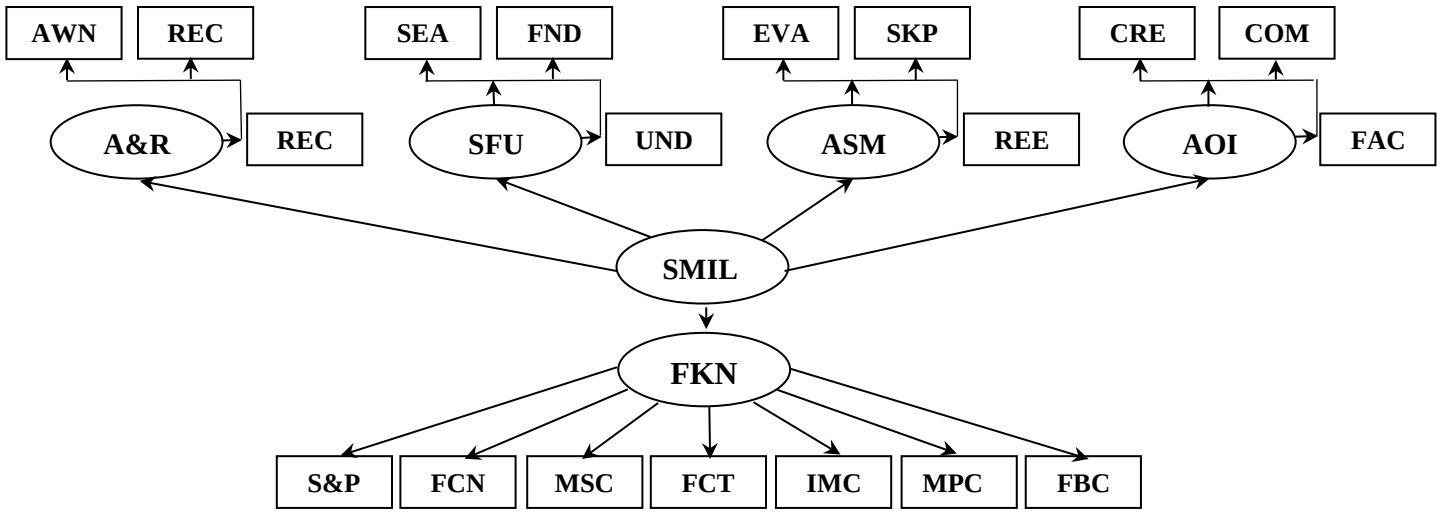
a. Creation (**CRE**) is the variable described by Bühler (et al., 2020) with several capabilities to treat the information, such as rephrasing, merges to create, modification, or clear its meaning. The creation of new information context changes the scope by reducing information, enriching identified information, and designing new information, amongst others.

b. Communication (**COM**). Bühler (et al., 2020) describes this variable as capable of displaying, sharing, exchanging, and providing feedback with positive criticism to other users.

c. Final Action (**FAC**). This variable can determine what action to take, no matter if the information is genuine or fake. Such actions are: keep and storage; delete; modify and share; share (Zhou et al., 2020a; NACM, 2018; Burkhardt (2017); LFJ, 2017)).

Because there is no exist SMIL model enough consolidated, we proposed the following hypothesis: *"**H:** There is no single best combination of underlying factors, variables, and indicators that lead to the better use of **SMIL** in digital marketing or e-business issues. These combinations of underlying factors could be considered innovation skills for business decisions to combat **FKN**."* The final proposal of the framework is depicted in **Figure 1.**

Figure 1. Final Proposal of framework underlying factors SMIL vs FKN



Notes: **SMIL.** Social Media Information Literacy
A&R. Awareness and Recognition; **AWN**. Awareness of Information; **REC.** Recognition**; UST.** Use of Technology **SFU.** Search and Find to Understand; **SEA**. Search; **FND.** Find; **UND.** Understand; **ASM.** Assessment; **EVA.** Evaluation; **SKP.** Skepticism; **REE**. Reevaluation ; **AOI.** Abilities over information; **CRE.** Creation; **COM.** Communication; **FAC.** Final Action; **S&P.** Satire and Parody; **FCN.** False Connection; **MSC.** Misleading Context; **FCT.** False Context; **IMC.** Imposter Content; **MPC.** Manipulated Content; **FBC.** Fabricated Content.
Source: own

4. Research Method

Stage1. It implied a qualitative study based on a literature review involving consistent research on the **SMIL** for business decisions to combat **FKN** to precise a set of criteria researchers used. The configurational approach enables the understanding to identify underlying factors, grouping the variables and indicators as components to serve a conceptual model empirically proved.

Stage 2. A literature review was done based on Delphi-Focus Group and **AHP** with three academics and three professionals in digital marketing and e-business, both experts in **SMIL**. The

final questionnaire consisted of five underlying factors, nineteen variables, and 71 items**.** See **Appendix**.

Stage 3. This research was based on **400** young Mexican executives of SMEs digital marketing and e-business from Jul-Sep, 2021 hat were asked to answer the questionnaire created to capture the **SMIL** for business decisions as skills facing the concepts of the seven fake news narratives. To achieve it: the sample subjects were exposed to see different fake news narratives (based on the next normal and involving themes digital marketing or e-business). The subjects were noticed with a brief explanation of the concepts treated; after the research scope exposition and explanation, they answered the questionnaire. The questionnaire´s reliability is high (**0.7-0.9**) (Mejía-Trejo, 2020) with Cronbach`s Alpha = **0.802** for N= **400** and **71** items per record. The participation was voluntary, confidential with no reward for the participants, and using survey monkey forms from Jan to Jul 2021. The final **400** questionnaires were analyzed under the **fsQCA 3.0** program determining the several underlying factor patterns to get the same outcome. The **SMIL** for business decisions as innovation skills produces the same outcome: to combat the **FKN** to determine the several solutions and prove them. Result analyses, discussion, and conclusions.

4.1.Frequency distributions of demographic data

According to the results obtained from the frequency analysis of **400** subjects, the sample is considered representative of a young executive social media user expert in digital marketing or e-business**.** The sample consisted of more female executives (**62.5%**), the majority of respondents are between 25-35 years old (**100%**). In terms of educational status, all of them are undergraduates in marketing (**35% female/15%% male**) and international business (**15% female/35% male**).

4.2.The fsQCA analysis technique

The **fsQCA** (*fuzzy-set Qualitative Comparative Analysis*) technique allows determining multiple paths leading to the same outcome can be captured, known as *the principle of equifinality* (Ragin, 2008; Ordanini et al., 2013; Schneider & Wagemann, 2010). The **fsQCA** contains "*sufficient"* and *"necessary"* conditions (may exist or not in the solution) marked by their existence, nonexistence, or *"irrelevant"* conditions. The outcome relationship with strong causality is called *"core conditions,"* and the weaker "*peripheral conditions"* for both cases are sufficient and necessary (Fiss, 2011). **fsQCA** calibrates the data (logarithmic conversion of raw data, from **0** to **1**)

(Ragin, 2008; Rihoux y Ragin, 2009), and a fuzzy algorithm generates a solution. The solution represents the combination of the conditions leading to a unique outcome producing a *"truth-table"* where each row represents the observations quantity in each combination (Ragin, 2008; Mejía-Trejo, 2020). The *"consistency"* is measured; this is the correspondence level among the sample cases sharing a configuration or a causal condition in displaying an outcome-focused (Ragin, 2008; Fiss, 2011). The **fsQCA** provides three sets of *"complex, parsimonious, and intermediate solutions"* to reach the same outcome to be explained under the *"coverage"* and *"consistency"* concepts for each solution generated.

5. Results

The main configurations to obtain high values of the underlying factors of **SMIL** and getting low values to fake news narratives (**FKN**), as findings from the **fsQCA** are shown in **Table 5.**

Table 5. Sufficiency condition analysis

SMIL (Social Media Information) vs ~FKN							
Solutions /Conditions	**A&R**	**SFU**	**ASM**	**AOI**	**Raw Coverage** ***(0.25 to 0.65= informative)***	**Unique Coverage (>0.01)**	**Consistency (>0.75)**
1	**O**	**o**	**O**	**o**	**0.51**	**0.05**	**0.95**
2	**O**	**o**	**O**		0.45	0.04	0.90
3	**o**	**o**	**o**		0.33	0.03	0.85
4	**o**	**o**	**o**	**o**	0.29	0.02	0.80
5	**o**		**o**		0.27	0.01	0.77
6	**o**			**o**	0.20	0.01	0.39
7		**o**	**o**		0.18	0.009	0.30
8		**X**		**X**	0.15	0.006	0.25
Overall Solution Coverage (a)				0.82			
Overall Solution Consistency (>0.75) (b)				0.77			
Frequency cutoff				1			
Consistency cutoff (>0.75)				0.83			

Notes *according to Ragin (2008):* **o .** Presence of a condition or "*core conditions".* **o** . Presence of a condition as *"peripheral conditions".* **X** . Negation of a condition (Absence) or *"peripheral conditions".* . Blank spaces indicate *"do not care"* conditions. (a). Similar to a R square in MRA (b). Similar to a correlation
Source: Own data using **fsQCA 3.0**

The results can be interpreted by the introduction of the Boolean algebra algorithm:

*High (**A&R**) * Low/Medium (**SFU**) * High (**ASM**) * Low/Medium (**AOI**) + High (**A&R**) * Low/Medium (**SFU**) * High(**ASM**)) + Low/Medium (**A&R**) * Low/Medium (**SFU**) * Low/Medium (**ASM**) + Low/Medium (**A&R**) * Low/Medium (**SFU**) * Low/Medium (**ASM**) **

*Low/Medium (**AOI**) + Low/Medium (**A&R**) * Low/Medium (**ASM**) + Low/Medium (**A&R**) * Low/Medium (**AOI**) + Low/Medium (**SFU**) * Low/Medium (**ASM**) + Negated/Absence (**~SFU**) * Negated/Absence (**~AOI**)-> Negated/Absence (**~FKN**)*

Thereby, regarding the high values in media information literacy (**SMIL**) young executives in digital marketing or e-business issues will show low levels to combat fake news narratives **(FKN)**; this unique outcome is reached through eight combinations of the variables as solutions (*"recipes,"* Ragin 2008) as follows: according to the **Table 5, solutions 1, 2, 3, 4, and 5** are the only ones that fulfill *"raw coverage"* (**0.15** to **0.51**), *"unique coverage"*>0.01, and "*consistency"*>**0.75**. All these solutions, we have the presence or *"do not care"* of the underlying factors (but not the absolute absence or negation of them). **Solutions 1,2**. The young executives in digital marketing and e-business have impact in low values of **FKN** when they have high **A&R** or high **ASM** or at the same time low/medium values of **SFU** or at the same time low/medium values of **AOI** for solution 1 and no matters the value in **AOI,** for solution 2. These solutions explain the values of the **SMIL** underlying factors in **51%** and **45%**, respectively. **Solutions 3, 4.** The young executives in digital marketing and e-business have an impact in low values of **FKN** when they have low/medium **A&R** or low/medium **SFU** or low/medium **ASM** or at the same time no matters the value of **AOI** in solution 3 and at the same time low/medium values of **AOI** in solution 4. These solutions explain the values of the **SMIL** underlying factors in **33%** and **29%**, respectively. **Solution 5.** The young executives in digital marketing and e-business have an impact on low values of **FKN** when they have low/medium **A&R** or the value of **SFU** or **AOI.** However, the solution (configuration or *"recipe")* cannot predict all cases with a high score on the result like the other four solutions because there are other configurations that can predict high scores for the same result (i.e., in the figure upper left corner). Solutions with consistency greater than **0.80** are useful and can be used to advance the theory (Woodside, 2017).

6. Discussion and implications

According to the specialists (Mischke, 20201; Baig et al. 2020, La Berge et al., 2020), the worldwide economic recovery for the next normal is based on digital actions that foster innovation. In that case, all the actors involved must develop social media information literacy skills (Bühler et al., 2020; Zhou, et al., 2020a; NACM, 2018; Burkhardt, 2017; LFJ, 2017; Deiser & Newton, 2013). Besides, it is important to digital marketing and e-business to practice the **SMIL** for

business decisions because of the mentioned digital expectations about the next normal, making digital media the primary (or only) customer-facing communication method for most organizations (SPS,2020).

There are studies around the use of **SMIL** as innovation skills can be embedded successfully in young executives in digital marketing or e-business (Johnson et al., 2013) and studies about the relationship between technological developments and curriculum design (Wymbs, 2011). The research novelty of this research involved such concepts and applications of digital information technology and social media information literacy to combat the fake news narrative in one concept, the **SMIL-FKN** for business decisions innovation skills.

6.1.Theoretical implications

This research has a novelty methodology and approach based on **fsQCA** analysis. Previous studies to analyze the effects of fake news narratives. The **fsQCA** involves complex construction and configuration theories based on the asymmetry between the young executives in digital marketing and e-business with **SMIL** for business decisions to combat **FKN**. This research contributes to the following theoretical issues:

First. The expectation about innovation and other digital advances (even in progress) to propose and improve over how both can increase productivity growth, dynamic, and sustained in the digital next normal (Baig et al., 2020; La Berge et al., 2020; Mischke et al., 2021). In this sense, through the assimilation and implementation of SMIL innovation skills (Deiser & Newton 2013).

Second. We determine the crucial role for the **SMIL** proposal framework composed of a combination of four underlying factors as awareness and recognition (**A&R**), search and find to understand (**SFU**), assessment (**ASM**), and abilities over information (**AOI**). This research also extended the **SMIL** framework by examining the underlying variables in correspondence with each of the twelve underlying factors, such as awareness of Information (**AWN**); recognition **(REC); u**se of technology (**UST); S**earch (**SEA**); find (**FND**); understand (**UND**); evaluation (**EVA**); skepticism (**SKP**); reevaluation (**REE**); creation (**CRE);** communication (**COM**); final action (**FAC**) (Bühler et al., 2020; Zhou et al., 2020a; NACM 2018; OECD, 2018; Burkhardt, 2017; LFJ, 2017).

Third. With **fsQCA3.0** software, we determine how interacting as underlying factors of **SMIL** with their twelve variables and **64** items to minimize the **FKN** effects under several patterns to achieve it. The **fsQCA** (Ragin, 2006, 2008; Fiss,2011; Woodside, 2017) expands the scope of previous works in this regard (Xing-Zheng & Niann-Chung, 2021; Apuke & Bahiyah, 2020; Chen & Cheng, 2018; Lee et al., 2018).

Fourth. These results about the **FKN** violation pattern categories could be a proposal tool to measure a charge, level, degree of misleading or clouding information and categorize it. A fake news narrative could be associated with exaggeration when the quality principle based on truth is violated or a redundant presentation style when quantity has been reached. For instance, prior research shows that fake reviews are represented extremely using exaggeration and fantastic descriptions (Lee et al., 2018). Our findings show in solutions **1 and 2,** have the awareness & recognition (**A&R**), search & find to understand (**SFU**), and assessment (**ASM**) with a constant presence; this assures the presence (or *"don't care"*, but not the negation) of the underlying variables: awareness of information (**AWN**); recognition (**REC**)**;** use of technology (**UST**); understand (**UND**); evaluation (**EVA**); Skepticism (**SKP**) and creation (**CRE**) according to **Table 5**, being **AWN**, **REC**, and **SKP** common whether **FKN** or **~FKN**.

Besides, solutions **1 and 2** show that awareness & recognition (**A&R**) and assessment (**ASM**) are with high presence as *"core factors,"* suggesting that they have a critical role in driving the **SMIL** to combat **FKN** (Zhou et al., 2020a; NACM, 2018); Burkhardt, 2017; LFJ, 2017). The young executives are expected to analyze the top headlines not requiring increased effort if they are not warned enough about the information's quality assessment. Hence, the opportunity to reinforce the **A&R** and **ASM** into the **SMIL** for business decisions as innovation skills to combat **FKN.** Thereby, ***H:*** **It is positive**; in other words, eight combinations of underlying factors, variables, and indicators lead to the better use of **SMIL** for business decisions for young executives in digital marketing or e-business issues. Only five of such combinations could be considered innovation skills to combat (**FKN**).

6.2.Practical implications

The research findings provide valuable implications for expert academics, expert consultants, and professional practitioners of social media literacy information (**SMIL**) to develop business decisions as innovation skills in digital marketing and e-business issues and general social media users. Based on the questionnaire (see **Appendix**) results, where the first main sentence is: "*have you ever ear, read and practice some about digital media literacy, information literacy, media literacy, or social media literacy in your career?"* reveals that more than **80%** of the respondents show low levels about this topic demonstrating not to be sure about what it does it mean. Besides the **Figure 3** results where the best **solution 1** reports only **35/400** (less than the 10% of the sample) of young executives in digital marketing and e-business following the **SMIL** for business decisions as innovation skills to combat **FKN,** demonstrated a lack of **SMIL** culture. According to the demographic data, involving the ages of (25-35 years old) the respondents we detected the great necessity to start at early professional education stages the **SMIL** to avoid and combat fake news narratives. The media education needs to enable young executive experts in digital marketing or e-business to apply both media and cultural studies' critical legacies alongside literacy education to the contemporary media ecosystem rather than producing competence frameworks for **SMIL**. It is a neutral set of skills for citizens (McDougall, 2019) where early education must change to adopt a dynamic approach to media literacy, increasing the experience and reflexive in handling information aspects of digital media practice.

Incorporating **SMIL** for business decisions in the curriculum is essential to respond academically to digital media education (McDougall, 2019; Burkhardt, 2017). Also, it is vital to add for social media users a critical exploration of several innovative concepts such as algorithms of AI, bots, botnets, big data, data science, the internet of things, etc. If these novelty concepts are adopted into the media education curriculum, **SMIL** will avoid and combat **FKN**. It must be applied in practical learning in their uses for social justice instead of training the next generation to use these for even further commercial and political exploitation of one another (McDougall, 2019; Burkhardt, 2017; LFJ, 2017).

By another hand, the study suggests (see **Table 5**) at least the practice about awareness (**AWN**), recognition (**REC**) with skepticism (**SKP**) to combat **FKN**. This suggests it is not only among the young executives in digital marketing and e-business but also among other professionals who do not stop practicing under any circumstances for business decisions. Based on the **Table 5** results about the **FKN** violation pattern categories, a measurement tool to verify a previous level of

misleading or clouding information and the categories could be helpful for many kinds of professionals, not only the young executives in digital marketing and e-business.

7. Conclusions

We offer insights into the body of knowledge about **SMIL** for business decisions as innovation skills to combat **FKN** to the next normal to be considered in the curriculum of all kinds of professionals, in our case, the young Mexican executives of **SMEs** digital marketing and e-business. Also, we offer a design of a proposal framework of **SMIL-FKN** composed of five underlying factors, nineteen variables, and **71** items. Finally, the evidence of five combinations could be considered **SMIL** business innovation skills to combat fake news narratives (**FKN**).

8. Limitations and future studies

First, It is necessary to include other communication theories such as cognitive dissonance theory (**CDT**), persuasion knowledge management (**CKM**), or Social Information Processing Theory (**SIP**) and their effects to update such theories with **SMIL** to improve. **Second.** There is a unique concept called *"self-efficacy"* (Bandura, 1997); as a faculty of an individual, what can do with the gained skills, and it would be interesting to be applied and updated under the **SMIL** scope. **Third.** It would be interesting to apply Covariance-Based Structural Equation Modeling (**SEM**) to measure the validity of the **SMIL** framework proposed here.

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APPENDIX

Questionnaire designed on literature review with operational definition of constructs

Social Media Information Literacy (SMIL)			
Factor	**Variables**	**Indicators. [Respond according to Likert Scale 1-5: 1 – Not at all aware; 2 – Slightly aware; 3 – Somewhat aware; 4 – Moderately aware; 5 – Extremely aware.**	**Authors**
A&R	**AWN**	**1.** I am aware that information must be under critical-thinking to be explained. **2.** I am aware that information is more easily obtained if it is by entertainment media. **3.** I am aware of information features by means of workshops, tutorials, YouTube videos, games, etc. **4.** I am aware that easy information obtained by entertainment media could be not true (e.g., a video in-class demonstration or comic-book than a written check-list handout)	NACM (2018); Burkhardt (2017); LFJ (2017).
	REC	**5.** I have the capability to recognize the information I need. **6.** I have the capability to recognize my need of information. **7.** I have the capability to recognize the value of the information according to the online site reputation.	Bühler (et al. 2020); NACM (2018); Burkhardt (2017); Learning for Justice (LFJ, 2017).
	UST	**8.** I have the capability to use a desktop more than other device to handle information. **9.** have the capability to use a smartphone more than other device to handle information. **10.** I have the capability to use a tablet more than other device to handle information. **11.** I have the capability to use a smartTV more than other device to handle information. **12.** I have the capability to know and manipulate several types of software to achieve the communication (e.g., Zoom, Meet, Jeans, Teams, etc.)	AMX (2020)
SFU	**SEA**	**13.** I have the capability to search and decide where and how to find the information I need. **14.** I have the capability to search and technically access information. **15.** I have the capability to apply appropriate search strategies for information (e.g., use of meaningful keywords, date, hashtag, user). **16.** I have the capability to search and choose appropriate sources when searching for information.	Bühler (et al. 2020); Burkhhardt (2017)
	FND	**17.** I have the capability to find and collect information. **18.** I have the capability to find and retrieve information. **19.** I have the capability to find and choose appropriate information.	
	UND	**20.** I have the capability to understand the context and actors of information. **21.** I have the capability to understand the meanings and intention of information. **22.** I have the capability to identify points of agreement and disagreement among sources to understand the information	
ASM	**EVA**	**23.** I have the capability to evaluate the relevance of information. **24.** I have the capability to evaluate the credibility of information. **25.** I have the capability to evaluate the accuracy of information. **26.** I have the capability to evaluate the quality of information. **27.** I have the capability to evaluate the veracity of information. **28.** I have the capability to evaluate and identify if information is a fake news.	Bühler (et al., 2020; Zhou (et al. 2020a); NACM (2018); LFJ (2017).
		29. I have the capability to evaluate and visit sites for fact-checking to evaluate the news (e.g., Snopes, PolitiFact, FactCheck) to compare critically. **30.** I have the capability to evaluate and seek out experts with expertise in a subject to evaluate and clear the information. **31.** I have the capability to evaluate and confirm the links after receiving information.	Zhou (et al., 2020a);NACM (2018); Burkhardt (2017); LFJ (2017)

		32. I have the capability to evaluate and improve my abilities to identify fake news. **33.** I have the capability to evaluate and distinguish an original source from a bot source of information. **34.** I have the capability to evaluate and distinguish bias information. **35.** I have the capability to evaluate and remember better if I have done something by myself to get better information.	
		36. I have the capability to evaluate news headlines from different perspectives: Clickbait patterns based on phrases and expressions; Readability; Sensationalism with sentiment; Sensationalism with punctuation; Sensationalism with similarity; News worthiness with quality; News worthiness with informality	Zhou (et al., 2020a)
	SKP	**37.** I have the capability to not trust in my social media friends to get information **38.** I have the capability to do not trust more on my friends than the authority based on social media **39.** I have the capability to identify : "*the more times I hear something repeated, more likely I think it is not true"* **40.** I have the capability to read deeply in the search of information. **41.** I have the capability to encourage me for asking questions **42.** I have the capability to practice the information skepticism **43.** I have the capability to apply immediately my critical-thinking skills to assess the information **44.** I have the capability to be careful about accepting social media friends requests	Burkhardt (2017)
	REV	**45.** I have the capability to use reflective practices in order to re-evaluate information. **46.** I have the capability to evaluate users' reaction on my content. **47.** I have the capability to evaluate information from interaction with other users. **48.** I have the capability to reconsider my existing evaluation of information. **49.** I have the capability to identify the benefits of re-evaluating information.	
AOI	**CRE**	**50.** I have the capability to create a rephrase information to clarify its meaning. **51.** I have the capability to create context for information. **52.** I have the capability to modify identified information. **53.** I have the capability information. **54.** I have the capability to change the scope by reducing information. **55.** I have the capability able to enrich identified information. **56.** I have the capability to design new information.	Bühler (et al. 2020)
	COM	**57.** I have the capability to display information for a given audience. **58.** I have the capability to share information with others. **59.** I have the capability to provide feedback. **60.** I have the capability to communicate information safely and securely. **61.** I have the capability to exchange information. **62.** I have the capability to provide positive criticism to other users.	
	FAC	**63.** I have the capability to decide if the information is true: -Keep and storage; -Delete; Modify and share; -Share **64.** I have the capability to decide if the information is fake: -Keep and storage; -Delete; Modify and share; -Share	Bühler (et al. 2020); Zhou (et al., 2020a); NACM, (2018); Burkhardt (2017); LFJ (2017).

Fake News Narrative (FKN) Factor		
Variables	**Indicators. [Respond according to Likert Scale 1-5: 1 – Not at all aware; 2 – Slightly aware; 3 – Somewhat aware; 4 – Moderately aware; 5 – Extremely aware.**	**Authors**
S&P	**65.** About fake news, I have the capability to identify of any social media message the no intention to cause harm but has potential to fool.	UNESCO (2018).
FCN	**66.** About fake news, I have the capability to identify of any social media message when headlines, visuals or captions don't support the content.	
MSC	**67.** About fake news, I have the capability to identify of any social media message the misleading use of information to frame an issue or individual	Zhou (et al. (2020a); UNESCO, (2018).
FCT	**68.** About fake news, I have the capability to identify of any social media message when genuine content is shared with false contextual information.	

IMC	**69.** About fake news, I have the capability to identify of any social media message when genuine sources are impersonated.	
MPC	**70.** About fake news, I have the capability to identify of any social media message when genuine information or imagery is manipulated to deceive.	
FBC	**71.** About fake news, I have the capability to identify of any social media message new content is 100% false, designed to deceive and do harm.	

Notes: **SMIL.** Social Media Information Literacy; **A&R.** Awareness and Recognition; **AWN**. Awareness of Information; **REC.** Recognition; **UST.** Use of technology; **SFU.** Search and Find to Understand; **SEA**. Search; **FND.;** Find; **UND.** Understand ; **ASM.** Assessment; **EVA.** Evaluation; **SKP.** Skepticism; **REV**. Revaluation ; **AOI.** Abilities over information; **CRE.** Creation; **COM.** Communication; **FAC.** Final Action; **FKN**. Fake News Narrative; **S&P**. Satire and Parody; **FCN**. False Connection; **MSC**. Misleading Context; **FCT**. False Context; **IMC**. Imposter Content; **MPC**. Manipulated Content; **FBC**. Fabricated Content.
Source: several authors with own adaptation

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NOMOFOMO in the health of the Smartphone User for the New Normal: a contribution to the Social Media Health Interaction Theory

NOMOFOMO en la salud del Usuario de Smatphone en la Próxima Normalidad: una contribución a la Teoría de la Interacción de la Salud en las Redes Sociales

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ABSTRACT

Purpose. The paper is aimed to explain how the NOMOFOMO proposal framework, composed of social media innovations acceptance (SMA), *"nomophobia"* (NMF), and *"fear of missing out"* (FOM), interacts with smartphone health user repercussions (HRP), contributing to profile social media health interaction theory (SMT).

Methodology. It is based on a literature review defining a final questionnaire survey to **431** smartphones users (Jun-Aug-2021) with PLS-SEM analysis.

Results. SMA Socialization and Education dimensions, and HRP like pain and movement extremely slowly appearing face like upset or sad, anxiety and anger as central affections.

Originality. The framework gathers four empirically proved separately constructs.

RESUMEN

Propósito. El documento tiene como objetivo explicar cómo el marco de la propuesta NOMOFOMO, compuesto por la aceptación de las innovaciones en las redes sociales (SMA), la *"nomofobia"* (NMF) y el *" miedo a no ser considerdo en la red"* (FOM), interactúan con las repercusiones de los usuarios de salud de los teléfonos inteligentes (HRP), contribuyendo al perfil de la teoría de la interacción de la salud en las redes sociales (SMT).

Metodología. Se basa en una revisión de la literatura que define una encuesta de cuestionario final a 431 usuarios de teléfonos inteligentes (junio-agosto-2021) con análisis PLS-SEM.

Resultados. SMA dimensiones de Socialización y Educación, y PRH como dolor y movimiento de aparición extremadamente lenta cara como malestar o tristeza, ansiedad e ira como afectos centrales.

Originalidad. El marco reúne cuatro constructos empíricamente probados por separado.

1. Introduction

More than 4.80 billion people worldwide use the internet, almost 61% of the world´s total population. With an annual rate of 5.7 % (DAW, 2021) being affected by the COVID-19 pandemic, actual figures may be much higher. Most internet users (92.1 %) use mobile devices to go online at least some time, but computers also account for an important share of internet activity. Mobile devices have become a fixture of everyday life for millions of people. In 2020, the number of unique mobile internet users stood at 4.28 billion, indicating that over 90% of the global internet population uses mobile devices to go online (Statista, 2021a). In fact, after the COVID-19 pandemic the social media innovations acceptance **(SMA)** increased the number of active users being the most popular in Jul-2021 (in millions. Statista 2021b), for instance: Facebook (2,853); Youtube (2,291); WhatsApp (2,000); Instagram (1,386); Facebook Messenger (1,300); WeChat (1,242); Tok-tok (732); QQ (606); Doujin (600); Telegram (550); Kuai Shu (481); Pinterest (478); Reddit (430); Twitter (397); Quora (300).

In Mexico, for instance, 115 million smartphones are using social media as the main reason to use among other different devices like tablets, laptops, or smart TVs, being the most popular social media using: Facebook, WhatsApp, YouTube, Instagram, Twitter, Tok-tok, Telegram, Snapchat, Skype, Pinterest, Tinder and LinkedIn (AIMX, 2021).

Unfortunately, after the prolonged COVID-19 pandemic lockdown during 2020, two symptoms or syndromes considered as problematic digital media use in mental health have emerged with the assumption of have been reinforced: the *"nomophobia"* (NOM) and the *"fear of missing out"* (FOM). Both syndromes are still out and do not appear in the current Diagnostic and Statistical Manual of Mental Disorders (DSM-A), Fifth Edition (APA, 2013). Nowadays, there is not exist a social media health interaction theory (SMT) that fulfills the requirements here described. Therefore, we introduced the NOMOFOMO-HRP framework that involves the social media innovations acceptance (SMA), *"nomophobia"* (NMF), and *"fear of missing out"* (FOM) to undertake an analysis of how they are interacting on smartphone health user repercussions (HRP).

1.1.The Social Media Health Interaction Theory (SMT)

Social influences are a primary factor in the adoption of health behaviors; there are important studies and advances in our understanding of how social networks influence the collective dynamics of health behavior (Centola, 2013). Research has shown that social media influences can affect collective health outcomes ranging from epidemic obesity to smoking behaviors, which have important consequences both for theoretical models of social epidemiology and for the practical design of interventions and treatment strategies (Luke & Harris, 2007).

Very few platforms in our lives affect us more than social media for communication. This is since mediated messages and images surround us, providing us with information and entertainment and ways to connect with others for several purposes like getting an education, doing our job, or doing business (West and Turner 2018). However, despite all the advantages explained above, there is a lack of an integral theory describing how the intensive interaction with SMA affects smartphone users' health. In this context, there are very few works now, about description of a SMT like Ramos (2017) describing a framework that explain:

> *"What stable social media interactions legitimatize particular thoughts and practices regarding issues such as health and illness and help to transform individuals through effective transfer of knowledge through social media*."

This framework involves four underlying assumptions: 1. Social media is a means of accessing and gaining information; 2. Social media creates a virtual community where interaction occurs; 3. Different groups may have diverse cultural practices regarding the acquisition and dissemination

of information and 4. People who engage in interaction are rationally seeking to maximize their health. Our contribution is based on this framework.

1.2.The Social Media Innovations Acceptance (SMA)

During the last years, the technology based on social media has been a notorious rise, and massive spread and usage (El-Hadadeh et al., 2012). Several social media sites (e.g., Twitter, Facebook, LinkedIn) have employed dynamic social contexts in which online communities can be made and continued easily by facilitating communications and social connections among smartphone users. Such networking opportunities help make groups, communities, and people with shared interests remain more associated (Gupta & Bashir, 2018). The total number of active smartphones users and social communities has increased 9.6% in only nine months (Jul-2020 to Apr-2021). For such platforms to be accepted by smartphones users, several questions are posed: how do they keep the social media audience engaged? what content is appropriate for the new normal environment? The innovative social media platforms should evolve from promotional and entertainment channels to collaborative social media channels for users (Wright, 2021).

For such reasons, we have decided to use the Gupta & Bashir (2018) framework studies previously implemented on 420 university students, describing the smartphone user profile that implies items on several dimensions, such as *"socialization"* (items SMA1, SMA2), *"education"* (items SMA3, SMA4), *"job issues"* (items SMA5, SMA6), *"informativeness or how to get news"* (items SMA7, SMA8), *"entertainment"* (items SMA9, SMA10), and *"sell-buy business activities*" (items SMA11, SMA12).See **Table 2**.

Unfortunately, there is evidence that the social media innovations influence the mental health of smartphone users, especially in students (Rajesh & Priya, 2020), provoking depression, anxiety, and psychological distress mainly in adolescents with a prevalence increased by 70% in the past 25 years in young people before the **COVID-19** pandemic times (Keles et al., 2019). Furthermore, the growing psychological morbidity in young people was not known conclusively before 2020 (*Ibídem*).

1.2. Nomophobia (NOM).

The term, an abbreviation for *"no-mobile-phone phobia,"* was coined during a 2008 study by the UK Post Office who commissioned YouGov (a British international Internet-based market research

and data analytics firm), a UK-based research organization, to evaluate anxieties suffered by mobile phone users. The first works about psychological factors involved in the overuse of a mobile phone were started from Bianchi & Philips (2005). They described symptoms as low self-esteem (when individuals looking for reassurance use the mobile phone in inappropriate ways) and extroverted personality (when naturally social individuals use the mobile phone to excess). It is possible that nomophobia symptoms may be caused by other underlying and preexisting mental disorders, with likely candidates including social phobia or social anxiety disorder, social anxiety (King et al., 2013) and panic disorder (King et al., 2010). In this context we have several works that have tried to propose solid constructs to determine the main factors of this problematic digital media use in mental health, for instance in the last five years, such as Dasgupta (et al., 2017), Lee (et al., 2018), Daei (et al., 2019), Majeur (et al., 2020), Lin (et al., 2021); these studies were based on Yildrim & Correia (2015) nomophobia questionnaire. According to SCOPUS (Sep-2021), published papers with word: *"nomophobia"* has been increased in the last 10 years, for instance: 2012 (1); 2013 (2); 2014 (3); 20015 (2); 2016 (4); 2017 (20); 2018 (21); 2019 (29); 2020 (54); 2021 (49). In our case, we selected the framework of Yildrim & Correia (2015), composed by four factors with 12 items adapted to the Mexican smartphone users', involving several dimensions such as *"not being able to access information"* (items NMF1, NMF2. NMF3 is included by Mejía-Trejo, 2019 about the use of Apps); the *"giving up convenience"* dimension (items NMF4, NMF5, NMF6, NMF7, NMF8); *"not being able to communicate"* (items NMF9, NMF10) and *"loss off connection"* dimension (items NMF11, NMF12). See **Table 2**.

Hence, we proposed the following hypothesis:

H1: "SMA *contributes to generating more* NMF."

1.3.The Fear of Missing Out (FOM)

Social media utilities have made it easier than ever to know about the range of online or offline social activities one could be engaging in as a duality. For instance, the variety of social media resources provide a broad interaction opportunity; on the other side, more options than can be pursued produce practical restrictions and limited time. The *"fear of missing out"* (FOMO, here FOM) is a social anxiety caused by worries that others may have more satisfying lives than themselves (Dossey, 2014). The JWT (2012) report defines it as:

"*It is the uneasy and sometimes all-consuming feeling that you're missing out—that your peers are doing, in the know about or in possession of more or something better than you"*

It is characterized by a desire to stay continually connected with what others are doing. It is defined as a pervasive apprehension that others might be behaving rewarding experiences from which one is absent (Przybylski et al., 2013). According to SCOPUS (Sep-2021), published papers with word: *"fomo"* has been increased in the last 10 years, for instance: 2012 (1); 2013 (2); 2014 (1); 2015 (5); 2016 (13); 2017 (15); 2018 (35); 2019 (52); 2020 (83); 2021 (79).

Some works have tried to measure it, for instance in the last five years, the work of Ragusa (2017), Syahniar (et al., 2018), Can & Satici (2019), Kim (et al., 2020), Tandon (et al., 2021). These works are based on a previous study of Przybylski (et al., 2013) supported thoroughly on three studies (one to operationalize the construct, study 2 aimed to determine a nationally representative cohort of how demographic, motivational, and well-being factors relate to FOM and study 3 to examine the behavioral and emotional correlations to FOM) to get a framework composed by only ten items (FOM1 to FOM10). See **Table 2**.

Therefore, we proposed the following hypothesis:

H2: *"*SMA *contributes to generating more* FOM.*"*

H3: "FOM *contributes to generating more* NMF."

1.4.The Smartphone Health User Repercussions (HRP)

As far as all there are a few studies that have tried to explain the NOM and FOM relationship; for instance, and according to SCOPUS (Sep-2021), published papers with the words: *"nomophobia and fomo"* have only appeared since 2017: 2017 (1); 2018 (1); 2019 (4); 2020 (3); 2021 (2). Some works have tried to measure it, such as Kuss & Griffiths (2017), Gezgin (et al., 2018); Gezgin (et al., 2019), Shiva (et al., 2020), Yilmaz and Bekaroglu (2021) but not based on the health of a smartphone user after a prolonged COVID-19 pandemic lockdown like this study offers.

By another hand, to get a measurement of how NOMOFOMO is related to smartphone health user repercussions (HRP), we proposed to use the PROMIS (Patient-Reported Outcomes Measurement Information System ®) predictors. PROMIS (2021) is a set of person-centered measures that evaluate and monitor adults' and children's physical, mental, and social health. It can be used with the general population and with individuals living with chronic conditions. Here are proposed 9 items as HRP predictors describing anger (HRP1), anxiety (HRP2), depression (HRP3), excessive

fatigue (HRP4), two pains (Pain1 and Pain2): pain with extremely slowly and appearance in individuals' faces as upset or sad (HRP5), pain that interferes the social and household activities (HRP6), inability to exercise hard (HRP7), with two satisfactions (Satisfaction1 and Satisfaction2), satisfaction on abilities to perform the daily routines in work (HRP8), and finally, with satisfaction on abilities to do leisure activities (HRP9). See **Table 2**.

In this form, we proposed the following hypotheses:

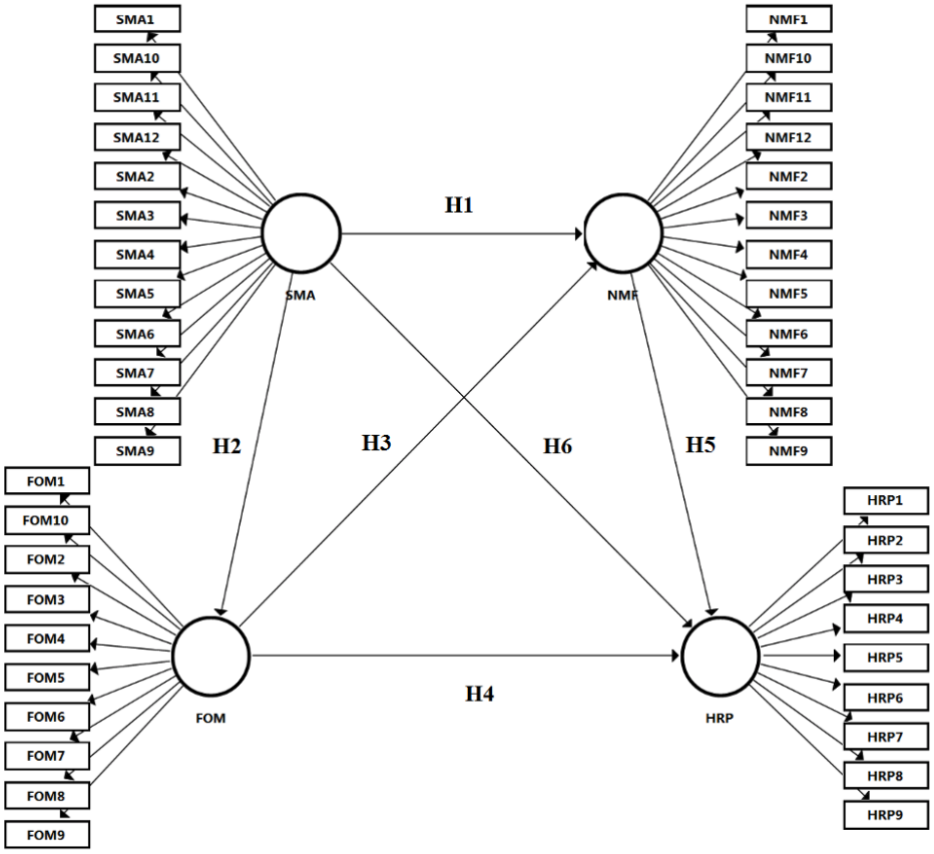
H4: *"*FOM *contributes to generating more* HRP.*"*

H5: *"*NMF *contributes to generating more* HRP.*"*

H6: "SMA *contributes to generating more* HRP."

See **Figure 1.**

Figure 1. The NOMOFOMO-HRP Framework proposal



Notes:
Social Media Innovations Acceptance (SMA); Nomophobia (NMF); Fear of Missing Out (FOM); Smartphone Health User Repercussions (HRP)

Source: Own

2. Designing the final NOMOFOMO-HRP framework

Because we considered that the items are interchangeable, we posed reflective specification since they (hypothetically) represent the construct equally (as against related to the formative constructs, when dropping an indicator may change the meaning of that construct) (Hair et al., 2019b).

Finally, **Table 2** shows how are displayed 43 indicators that describe the **3** factors of the NOMOFOMO construct related to the smartphone health user repercussions (HRP) as fourth construct and the authors that support them.

3. Methodology

It is designed in **5** steps, described as follows:

Stage 1. It was based on a literature review to determine state of the art about NOMOFOMO -HRP framework and SMT. This is in terms of the social media innovations acceptance (SMA) interact with *"nomophobia"* (NMF) and *"fear of missing out"* (FOM) determining the smartphone health user repercussions (HRP) level as the main constructs, considering the consequences of the prolonged emergency closure due to the COVID-19 pandemic. The final framework is composed by the social media innovations acceptance (SMA) factor described with 12 indicators, the nomophobia (NOM) factor based on 12 items, the *"fear of missing out"* (FOM) with 10 indicators and finally, the smartphone health user repercussions (HRP) containing 9 descriptors. All the framework totalizes 43 indicators. See **Table 2**.

Stage 2. The survey data was applied to 431 smartphone users (Jul-Aug-2021) according to age, gender, marital status, education, monthly income (Mexican pesos), (see Table 1), and the period considered as the next normal times (period after COVID-19 pandemic in Mexico).

Stage 3. We contribute with an entire solid empirical reflective framework proposal analyzed with Partial Leased Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.3.3 software. This PLS-SEM determines the outer loading and tests the framework's reliability with convergent and discriminant validities (see **Tables 2 and 3**). Here, only one combination of underlying factors and indicators (items) are obtained according to their outer loading obtained through the NOMOFOMO framework on the smartphone health user repercussions (HRP).

Stage 4. Once the outer loadings prove and test the framework's reliability with convergent and discriminant validities, the datasets are analyzed to explain the interrelated factors and indicators to determine the structural measurement model and the hypotheses tests. This is helpful to assess the NOMOFOMO construct explanatory capabilities on the smartphone health user repercussions (HRP) (see **Table 4**).

Stage 5. Results analyses, discussion, and conclusions.

3.1.Demographic data

According to the results obtained from the frequency analysis of 431 Mexican consumers (Jun-Aug-2021), the most important data of the participants were: 306/18-29 years old (71%); 260 females and 171 males (60.3% /39.7%), 353 singles (81.9%), 313 college students (72.6%), 283 with monthly income less than 9,000 Mexican pesos (65.7%).

About the social media use, we had social media to become more sociable: WhatsApp (256/59.4%); social media used to get news of the world through the smartphone: Facebook (200/46.4%); social media used to get education through the smartphone: YouTube (265/61.5%);

social media used to do the job through the smartphone: WhatsApp (286/66.4%); social media used to get entertainment through the smartphone: Tik-Tok (126/29.2%); social media used to sell-buy through the smartphone: Facebook (259/60%).

Participants were invited to answer the questionnaire via e-mail google forms (see **Table 2),** explaining the scope to encourage them and collect their opinions. Participation was voluntary, confidential; no rewards were provided. Therefore, the sample is considered representative of smartphone users in Mexico. See **Table 1.**

Table 1. Research sample demographic profile

Measure	Items	Frequency	Percentage (%)
Age	<18	22	5.1
	18-29	**306**	**71**
	30-39	38	8.8
	40-49	24	5.6
	50-59	16	3.7
	60-69	21	4.9
	>70	4	0.9
	Total	431	100
Gender	**Female**	**260**	**60.3**
	Male	171	39.7

	Total	431	100
Marital Status	Single	**353**	**81.9**
	Married	66	15.3
	Divorced	9	2.1
	Widow	3	0.7
	Total	**431**	**100**
Education Level	Middle-School	3	0.7
	High-School	64	14.8
	College	**313**	**72.6**
	Master	36	8.4
	Doctor	15	3.5
	Total	**431**	**100**
Monthly Income (pesos)	**< =10000**	**283**	**65.7**
	10000-15000	45	10.4
	15000-20000	45	10.4
	20000-25000	21	4.9
	25000-30000	10	2.3
	30000-35000	14	3.2
	35000-40000	4	0.9
	40000-45000	4	0.9
	>45000	5	1.2
Social Media to become more sociable	Facebook	67	15.5
	Twitter	6	1.4
	Instagram	97	22.5
	WhatsApp	**256**	**59.4**
	LinkedIn	0	0
	YouTube	3	0.7
	Tik-Tok	2	0.5
	Total	431	100
Social Media that I use to get education through my smartphone	Facebook	41	9.5
	Twitter	33	7.7
	Instagram	25	5.8
	WhatsApp	33	7.7
	LinkedIn	20	4.6
	YouTube	**265**	**61.5**
	Tik-Tok	14	3.2
	Total	431	100
Social Media that I use to do my job through my smartphone	Facebook	48	11.1
	Twitter	6	1.4
	Instagram	34	7.9
	WhatsApp	**286**	**66.4**
	LinkedIn	23	5.3
	YouTube	31	7.2
	Tik-Tok	3	0.7
	Total	431	100
Social Media that I use to get news of the world through my smartphone	**Facebook**	**200**	**46.4**
	Twitter	119	27.6
	Instagram	32	7.4
	WhatsApp	12	2.8
	LinkedIn	4	0.9
	YouTube	52	12.1
	Tik-Tok	12	2.8
	Total	431	100
	Facebook	89	20.6

Social Media that I use to get entertainment through my smartphone	Twitter	6	1.4
	Instagram	106	24.6
	WhatsApp	9	2.1
	LinkedIn	6	1.4
	YouTube	89	20.6
	Tik-Tok	**126**	**29.2**
	Total	431	100
Social Media that I use to sell-buy through my smartphone	**Facebook**	**259**	**60**
	Twitter	0	0
	Instagram	98	22.7
	WhatsApp	68	15.8
	LinkedIn	1	0.2
	YouTube	5	1.2
	Tik-Tok	0	0
	Total	431	100

Source: Own

3.2.Sampling

The critical discussion of applications sample size technique involves how large a sample is needed to produce reliable results. Although PLS-SEM is not affected by the sample size (Kock & Hadaya, 2018), here we adopt the basic criterion of covariance-based structural equation modeling (CB-SEM), the rule of thumb for sample size (Hair et al., 2019a). This is 10 times the number of arrows pointing at a construct, whether a formative indicator or a structural path to an endogenous construct. In our case 43 indicators x 10 times= 430. The 431 Mexican smartphone users' sample (Jun-Aug-2021) fulfill this condition widely.

3.3.PLS-SEM analysis technique

PLS-SEM is a component-based approach estimation differing from the CB-SEM to structural equation modeling. PLS-SEM fits a composite model, maximizing the variance explained on how this goal might be accomplished. The PLS-SEM is composed of the *"measurement model"* representing the observed data and the underlying factor relationships, and *the "structural model"* showings the relationships between the underlying factors (Henseler et al., 2012; Hair et al., 2017a). The *"structural equation"* model is solved by an iterative algorithm estimating the underlying factors through *"measurement model"* and *"structural model"* in alternating steps or partial. The *"measurement model"* calculates the underlying factors as a weighted sum of its manifest factors. Through simple or multiple linear regression between the underlying factors estimated by the *"measurement model"* is how the *"structural model"* computes the underlying factors. Until convergence is achieved, this algorithm repeats itself. PLS-SEM analyzes, explores,

and tests the established and underlying conceptual models and theory being preferable over CB-SEM when it is unknown whether the data's nature is a common factor or composite-based (Henseler et al., 2012; Hair et al., 2017a).

4. Results.

We have reflective constructs (mode A) (Hair et al., 2017b) into the framework that are assessed, as follows:

4.1. The measurement model internal consistency reliability, significance, and variance assessment as convergent validity

They were computed according to SmartPLS 3.3.3 software, with values per factor, of Cronbach´s alpha (>=0.7) (Hair et al., 2017a), of rho_A index (>=0.7) (Dijkstra & Hanseler, 2015a), of composite reliability index (CRI) (>=0.7), and average extracted variance index (AVE) (>=0.5) (Hair et al., 2017a). For internal consistency reliability, Cronbach's alpha is referred as the lower bound being the composite reliability the upper bound. The indicator's outer loadings should be > 0.70. The indicators between 0.40-0.70 as outer loadings are for removal only such action leads to an increase in composite reliability and AVE above the suggested threshold value (Hair et al., 2017a). Convergent validity is measured AVE, which is the grand mean value of the squared loadings of the indicators associated with the construct (Fornell & Larcker, 1981).

Therefore, we had to remove FOM2 due to the problems with collinearity; SMA5 and SMA8 to SMA 12, HRP8 and HRP9 to adjust AVE and the measurement model achieving all the indexes mentioned above. Hence, the framework fulfills the reliability and convergence validity required. See **Table 2.**

Table 2. The NOMOFOMO-HRP measurement model internal consistency reliability, significance, and variance assessment as convergent validity.

Factor: Social Media Innovations Acceptance (SMA) Cronbach's alpha (>=0.7): **0.821**; Dijkstra–Henseler's rho (>=0.7): **0.828**; CRI (>=0.7): **0.868**; AVE>0.5: **0.522**				**Outer Loadings (p-value)**	**Author**
No.	**Dimension**	**Item**	**Indicators**		
1	Socialization	**SMA1**	I use social media to become more sociable through my smartphone.	0.733 (0.000)	Gupta & Bashir (2018)
2		**SMA2**	I use social media to attending social gathering through my smartphone.	0.750 (0.000)	

3	Education	**SMA3**	I use social media for collaborative learning through my smartphone.	0.693 (0.000)	
4		**SMA4**	I use social media for online academic group discussion through my smartphone.	0.766 (0.000)	
5	Job Issues	**SMA5**	I use social media to do better my job through my smartphone.	Removed. Problems with AVE and the measurement model	
6		**SMA6**	I use social media to improve my curricular aspect through my smartphone.	0.692 (0.000)	
7	Informativeness	**SMA7**	I use social media as a source of news because they are more credible through my smartphone.	0.699 (0.000)	
8		**SMA8**	I use social media because it is easy to search and find any kind of information through my smartphone.	Removed. Problems with AVE and the measurement model	
9	Entertainment	**SMA9**	I use social media to get relief my stress through my smartphone.		
10		**SMA10**	I use social media for watching pictures, movies, and videos, through my smartphone.		
11	Business Activities	**SMA11**	I use social media to search opportunities to sell-buy products/services through my smartphone		
12		**SMA12**	I use social media because it is easy to do business through my smartphone.		
Factor: Nomophobia (NMF) Cronbach's alpha (>=0.7): **0.928**; Dijkstra–Henseler's rho (>=0.7): **0.934;** CRI (>=0.7):**0.938**; AVE (>=05): **0.556**				**Outer Loading (p-value)**	**Author**
No.	**Dimension**	**Item**	**Indicators**		
13	*Not being able to access information*	**NMF1**	I would feel uncomfortable without constant access to information through my smartphone.	0.717 (0.000)	Yildrim & Correia (2015)
14		**NMF2**	I would be annoyed if I could not look information up on my smartphone when I wanted to do so.	0.700 (0.000)	
15		**NMF3**	I would be annoyed if I could not use my social media Apps on my smartphone when I wanted to do so.	0.757 (0.000)	Mejía-Trejo (2019)
16	*Giving up convenience*	**NMF4**	Running out of battery in my smartphone would scare me.	0.764 (0.000)	Yildrim & Correia (2015)
17		**NMF5**	If I were to run out of smartphone credits or hit my monthly data limit, I would panic.	0.713 (0.000)	
18		**NMF6**	If I did not have a data signal or could not connect to Wi-Fi, then I would constantly check to see if I had a signal or could find a Wi-Fi network.	0.768 (0.000)	
19		**NMF7**	If I could not use my smartphone, I would be afraid of getting stranded somewhere.	0.706 (0.000)	
20		**NMF8**	If I could not check my smartphone for a while, I would feel a desire to check it.	0.806 (0.000)	
21	*Not being able to communicate*	**NMF9**	I would feel anxious because I could not instantly communicate with my family and/or friends.	0.731 (0.000)	
22		**NMF10**	I would be worried because my family and/or friends could not reach me.	0.681 (0.000)	
23	*Loss off connection*	**NMF11**	I would be nervous because I would be disconnected from my online identity.	0.797 (0.000)	
24		**NMF12**	I would be uncomfortable because I could not stay up-to-date with social media and online networks.	0.799 (0.000)	
Factor: Fear of Missing Out (FOM)				**Outer**	**Author**

Cronbach's alpha (>=0.7): **0.903**; Dijkstra–Henseler's rho (>=0.7): **0.907**; CRI (>=0.7): **0.922**; AVE (>=0.5): **0.570**			**Loading (p-value)**	
No.	**Item**	**Indicators**		
25	**FOM1**	I fear others have more rewarding experiences than me when I noticed through my smartphone.	0.820 (0.000)	Przybyiski (et al., 2013)
26	**FOM2**	I fear my friends have more rewarding experiences than me when I noticed through my smartphone.	Removed. Problems with collinearity	
27	**FOM3**	I get worried when I find out my friends are having fun without me when I noticed through my smartphone.	0.853 (0.000)	
28	**FOM4**	I get anxious when I don´t know why my friends are up to when I noticed through my smartphone.	0.856 (0.000)	
29	**FOM5**	It is important that I understand my friend in "jokes" when I noticed through my smartphone.	0.731 (0.000)	
30	**FOM6**	Sometimes, I wonder if I spend too much keeping up with what is going on when I use my smartphone.	0.617 (0.000)	
31	**FOM7**	It bothers me when I miss an opportunity to meet up with my friends when I use my smartphone.	0.788 (0.000)	
32	**FOM8**	When I have a good time it is important for me to share the details online (e.g., updating status) using my smartphone.	0.716 (0.000)	
33	**FOM9**	When I miss out on a planned get-together through my smartphone, it bothers me	0.639 (0.000)	
34	**FOM10**	When I go on vacation, I continue to keep tabs on what my friends are doing using my smartphone.	0.734 (0.000)	
Factor: Health User Repercussion (HRP) Cronbach's alpha (>=0.7): **0.888**; Dijkstra–Henseler's rho (>=0.7): **0.900**; CRI (>=0.7): **0.913**; AVE (>=0.5): **0.602**			**Outer Loading (p-value)**	**Author**
No.	**Dimension**	**Item**	**Indicators** *"In the past 7 days…"*	
35	Anger	**HRP1**	I felt angry.	0.789 (0.000)	PROMIS (2021)
36	Anxiety	**HRP2**	I felt anxiety.	0.824 (0.000)	
37	Depression	**HRP3**	I felt depressed.	0.789 (0.000)	
38	Excessive Fatigue	**HRP4**	I feel excessive fatigue.	0.788 (0.000)	
39	Pain1	**HRP5**	I was in pain. I moved extremely slowly appearing my face like upset or sad	0.841 (0.000)	
40	Pain2	**HRP6**	I was in pain that interfered my daily social and household activities.	0.771 (0.000)	
41	Inhability	**HRP7**	I am not able to exercise hard like running, swimming, etc.	0.604 (0.000)	
42	Satisfaction1	**HRP8**	I am satisfied with my ability to perform my daily routines and my work.	Removed. Problems with AVE	
43	Satisfaction2	**HRP9**	I am satisfied with my ability to do leisure activities.		

Notes:

- **CRI.** Composite Reliability Index. Values 0-1.
- **rho_A.** Values between 0.6-0.7 are acceptable in exploratory research, 0.7-0.9 reflect satisfactory to good results (Hair et al., 2019a). Values >0.95 suggest that the indicators could be measuring the same phenomenon and they are semantically redundant (Hair et al., 2019a; Drolet & Morrison, 2001) with a potential common bias, this is, the variation is from the instrument not by respondents (Straub et al., 2004).
- **AVE**. Average Variance Extracted Index. >0.5 suggests that more than 50% of the construct represents the items variance (Fornell & Larcker, 1981).
- Indicators are according to Likert Scale 1-7: using Likert Scale 1-7 (1. Strongly disagree; 2. Disagree; 3. Somewhat disagree; 4. Neither agree or disagree; 5. Somewhat agree; 6. Agree; 7. Strongly agree). This type of

scale provides a balance between the respondents' complexity and the ease of analysis of the information (Hair et al., 2019a).

Source: Own adaptation and using SmartPLS 3.3.3. software

4.2. The NOMOFOMO measurement model discriminant validity

It was computed with SmartPLS 3.3.3 software. It points to if an underlying factor is measuring a different construct and the degree to which indicators show an example of the target construct. It was calculated according to the traditional discriminant validity assessment method, which requires all relationships between constructs to be less than the lowest of the AVE's square root values. (Fornell & Larcker, 1981). See **Table 3.**

Table 3. NOMOFOMO-HRP measurement model discriminant validity

Fornell-Larcker Criteria (Diagonal= Root Square -AVE-) for discriminant validity				
Factors	**FOM**	**HRP**	**NMF**	**SMA**
FOM	**0.755**	-	-	-
HRP	0.479	**0.776**	-	-
NMF	0.661	0.428	**0.746**	-
SMA	0.427	0.256	0.437	**0.723**
HTMT Ratio<= 0.85<=0.90 for convergent validity				
Factors	**FOM**	**HRP**	**NMF**	**SMA**
FOM	-	-	-	-
HRP	0.526	-	-	-
NMF	0.706	0.454	-	-
SMA	0.465	0.274	0.459	-

Note:

HTMT. It ensures that different constructs capture different concepts. The cut-off value is 0.90 if the constructs are conceptually similar); a more conservative cut-off value is 0.85 (Henseler, et al., 2015). Bootstrapping ensures that HTMT results are statistically significantly different from 1.0 because cut-off values have a high likelihood of falsely rejecting discriminant validity and are very conservative (i.e., Type II error) (Franke & Sarstedt, 2019)

Source: Own using SmartPLS 3.3.3 software

It includes the heterotrait-monotrait **(**HTMT) of the relationship criterion as a complement to evaluate discriminant validity. An estimate of what the true correlation between two constructs would be if they were perfectly measured is represented through the HTMT approach is (i.e., when they are perfectly reliable HTMT <=0.85<=0.90) (Henseler et al., 2015; Hair et al., 2017a). Hence, the framework fulfills the discriminant validity.

4.3.The significance of the structural model relationships.

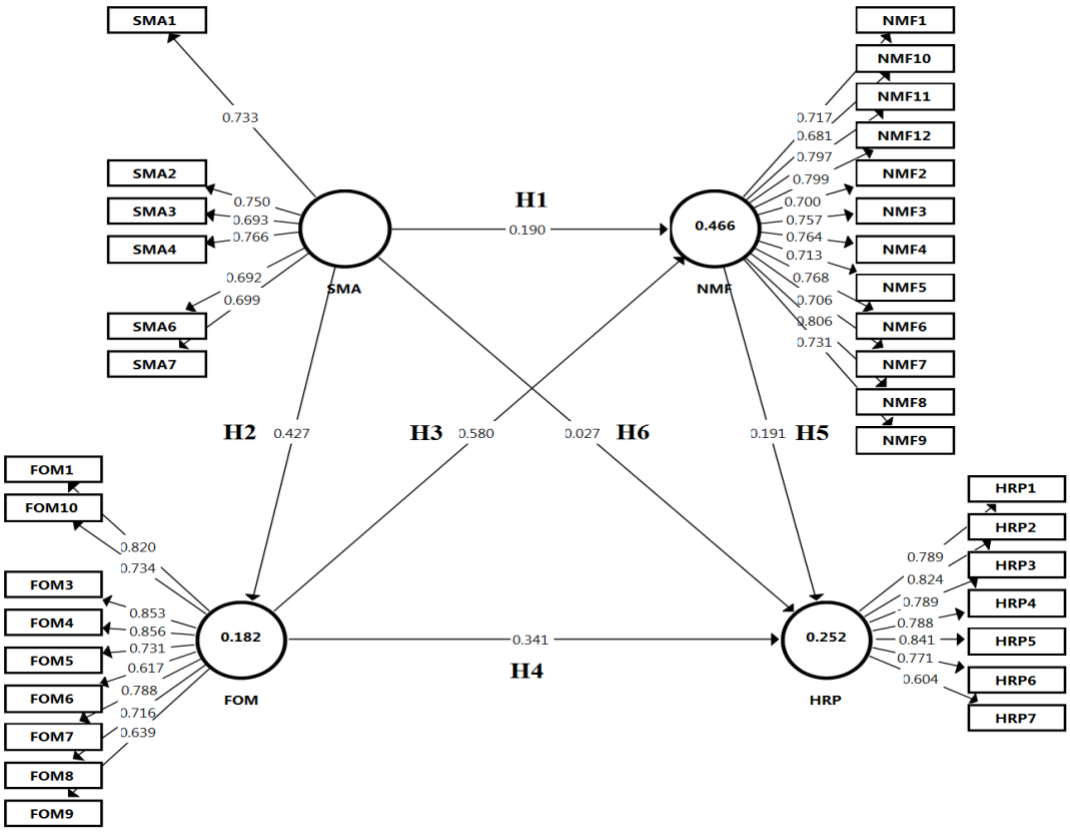
Path coefficients are the hypothesized relationship among the constructs. They are ranged in standardized values between −1 and 1 (strongly negative or strongly positive). Values close to 0 are weak relationships. The *p*-values and the *f2* effect sizes dictate the significance of path coefficients used on bootstrapping. It produces a sample distribution approaching the normal distribution; the result is used to establish critical t-*values* (Hair et al., 2017b), and subsequently the *p*-values to discuss the clinical or practical significance (Kraemer et al., 2003).

Besides, to modify research conclusions, practical significance involves the magnitude of the observed effect and if it is enough. Therefore, a statistically significant relationship may not be practically significant. Also, some path coefficients might be very small effect size but significant; hence, they are essential to draw appropriate conclusions. There is no consensus, so judgments on the practical significance rely on experts' considerations about measuring practical significance (Kraemer et al., 2003). In this way, the significance of the structural model relationships is proved according to the hypotheses following **Figure 2.**

4.4.NOMOFOMO-HRP Model´s explanatory power

The coefficient of determination explained variance, or R^2 value, is an essential critical measure in PLS-SEM because it measures the model's explanatory power. By each endogenous construct, R^2 measures the proportion of variance explained. In our case, the factor HRP with an R^2 of 0.252 (see **Table 4**) means that 25.2% of HRP variation, is explained by all the constructs that point to HRP. Threshold values are not provided because they depend on the model's complexity and the subject matter. Thereby, adjusted R^2 criterion, is a good practice to consider because it adjusts the R^2value based on the model size (James et al., 2013). A specific exogenous underlying factor can be assessed if it has a substantial impact on the endogenous ones, using the f^2 effect size (Cohen, 1988). It measures if the exogenous construct has a substantial impact on the endogenous one. Thresholds values: <0.02 represents no effect; 0.02–0.15 for small effect size; 0.15-0.35 for a medium-sized effect;>0.35 a large effect size was proposed by Cohen (1988).

Figure 2. NOMOFOMO-HRP path coefficients, coefficient of determination (R^2) and hypotheses tests



Source: Own using SmartPLS 3.3.3 software

Therefore, the framework fulfills the required conditions except for the model fit (SRMR, dULS, dG). In this case, the framework cannot confirm the results, only to explain them. (Hair et al., 2017a, Hanseler et al., 2015). See **Table 4.**

Table 4. NOMOFOMO-HRP Structural Measurement Model and Hypotheses tests

Hypotheses	Paths	Path (t-value; p-value)	Result Approved Rejected/	5%-95% confidence interval	Interval Result (Crossing 0?)	f^2 Effect Size (0.02<=0.15<=0.35)
H1: "SMA contributes to generating more **NMF"**	**SMA → NMF**	0.190 [3.671; 0.000]	Approved	[0.105, 0.271]	No	**0.437**
H2: "SMA *contributes to generating more* **FOM"**	**SMA → FOM**	0.427 [11.770; 0.000]	Approved	[0.370, 0.487]	No	**0.427**
H3: *"***FOM** *contributes to generating more* **NMF***"*	**FOM → NMF**	0.580 [13.993; 0.000]	Approved	[0.514, 0.647]	No	**0.580**

H4: *"***FOM** *contributes to generating more* **HRP***"*	**FOM → HRP**	0.341 [5.086; 0.000]	Approved	[0.089, 0.292]	No	**0.452**
H5: *"***NMF** *contributes to generating more* **HRP***"*	**NMF → HRP**	0.191 [3.040; 0.000]	Approved	[0.417, 0.585]	No	**0.191**
H6: *"***SMA** *contributes positively on* **HRP***"*	**SMA → HRP**	0.027 [0.569; 0.285]	**Rejected**	[-0.055, 0.103]	**Yes**	**0.256**

Endogenous Factor	**Adjusted R^2**	**Model Fit**	**Value**	**HI99**
FOM	0.180	SRMR	NA	NA
HRP	0.247	dULS	NA	NA
NMF	0.467	dG	NA	NA

Notes:

- **NA**. Not Applicable
- One-tailed t-values and p-values in parentheses; bootstrapping 95% confidence intervals (based on n= 5000 subsamples) SRMR: standardized root mean squared residual; dULS: unweighted least squares discrepancy; dG: geodesic discrepancy; HI99: bootstrap-based 99% percentiles.
- f^2 **.** Effect size**.** 0.02, 0.15, and 0.35 are interpreted as small, medium, and large (Hair et al. 2017a)
- R^2 . Coefficients of determination represent the amount of explained variance of the endogenous constructs in the structural model. Therefore, values of 0.25, 0.50, 0.75 for target constructs are considered as weak, medium, and substantial, respectively (Hair et al. 2017a)
- **SRMR.** The Standardized Root Mean Square Residual is a common fit measure for CB-SEM (Henseler et al., 2015). For misspecification of PLS-SEM models detection is also used (Henseler et al., 2014). Besides, it is included the following fit measures: squared Euclidean distance (dULS) and the geodesic distance (dG) (Dijkstra & Henseler, 2015b)

Source: Own using SmartPLS 3.3.3 software

5. Discussion

Nowadays, mobile technology based on laptops, tablets, and smartphones presents incredible comforts and opportunities. At the same time, this facilitates accomplishing tasks with generalized popularity in the present for society (Bartwal & Nath, 2019) thanks to their communicative power and people's engagement with those devices (Prasad et al., 2017). As a result of the COVID-19 pandemic times, 2020 thus far has seen an unprecedented year of mobile growth. According to Briskman (2020), mobile downloads and revenue in Q2 both spiked more than one-third compared to the same quarter last year, netting 33.2 billion installs and more than USD 14.5 billion in total consumer spend (excluding the Chinese app market). It seems that mobile is the new normal (Hokenson, 2020). Therefore, mobile technology has become an integral part of human activities in the first part of the XXI century, producing important behavioral changes in human habits and actions (King et al., 2010; Bragazzi et al., 2019).

Nonetheless, since the first decade of this century, there is evidence about behavioral syndromes, mainly in the use of smartphones that has noticeably increased (Lin et al., 2017) and characterized

as highly addictive, antisocial, and dangerous phenomena (Pivetta et al., 2019). Therefore, it must be considered a public health issue due to the excessive and massive use of smartphones (Basu et al., 2018; Aboujaoude, 2019). These devices produce high dependence on the users (Tams et al., 2018) and pathologies that are recognized until now, such as the *"nomophobia"* and the *"fear of missing out,"* that they are necessary to be included in the Diagnostic and Statistical Manual of Mental Disorders (APA, 2013).

5.1.Theoretical implications

To achieve all the mentioned above, it requires the confirmation of a body of knowledge based on literature review about the social media interaction theory (SMT) proposed by Ramos (2017). In the first instance, the SMT could establish parameters to analyze the consequences on human behavior, the use of mobile devices, and the services associated with them. This paper aims to highlight the importance of the SMT design with the introduction of the NOMOFOMO-HRP framework. This framework is based on three proved constructs, like Gupta & Bashir (2018) as social media innovations acceptance (SMA), *"nomophobia"* (NOM) by Przybyiski (2013), and *"fear of missing out"* (FOM) proposed by Yildrim and Correia (2015) (2015). The framework describes how to interact NOMOFOMO with a well-recognized scale that measures and report several mental disorders as smartphone health user repercussions (HRP). In this sense, it is included mental disorders like anger, anxiety, depression, fatigue, excessive fatigue, pain with extremely slowly and appearing in individuals face as upset or sad, pain that interferes the social and household activities, inability to exercise hard, with satisfaction on abilities to perform the daily routines in work, and finally, with satisfaction on abilities to do leisure activities. All of them are described in PROMIS (2021) (Patient-Reported Outcomes Measurement Information System®).

5.1.1. The PLS-SEM NOMOFOMO-HRP measurement model

Based on PLS-SEM with SmartPLS 3.3.3. software, Table 2 results show that the NOMOFOMO-HRP measurement model internal consistency reliability, significance, and variance assessment as convergent validity are fitted into the parameters required for each indicator. Such of parameters required were Cronbach's alpha (>=0.7); Dijkstra–Henseler's rho (>=0.7); CRI (>=0.7); AVE (>=0.5); outer loading (>=0.7) and p values (<=0.05).

However, some items were removed due to problems with:

a. Collinearity in factor *"fear of missing out"* **(**FOM), in the items: FOM2 (*"I fear my friends have more rewarding experiences than me when I noticed through my smartphone."*). This item was very similar to answer for the respondent's perception with (FOM1) *"I fear others have more rewarding experiences than me when I noticed through my smartphone."* This situation apparently evolves the perception of "*others"* and *"friends"* as one conglomerate as *"friends";* a suggestion is to analyze this kind of perception as a consequence of the long lockdown by COVID-19 pandemic (Brito, 2021; Thomas, 2021).

b. AVE to assure the convergent value's index required in:

1. For factor social media innovations acceptance (SMA), in the items:
SMA5 (*"I use social media to do better my job better through my smartphone."*) of "*job issues"* dimension; SMA8 (*"I use social media because it is easy to search and find any kind of information through my smartphone."*) of *"informativeness"* dimension*;* SMA9 (*"I use social media to get relief my stress through my smartphone."*); SMA10 ("*I use social media for watching pictures, movies, and videos, through my smartphone."*) of *"entertainment"* dimension; SMA11 (*"I use social media to search opportunities to sell-buy products/services through my smartphone"*) and SMA12 *("I use social media because it is easy to do business through my smartphone."*) of the *"business activities"* dimension.

2. For factor smartphone health user repercussions (HRP**),** in the item:
HRP8 (*"I am satisfied with my ability to perform my daily routines and my work."*) of *"satisfaction1"* dimension and HRP9 (*"I am satisfied with my ability to do leisure activities."*) of *"satisfaction2" dimension.*

On the **NOMOFOMO-HRP** framework, it is necessary to design the improvement of the result of items with an outer loading of 0.40 – 0.70 and (p-value <0.05) to be more descriptive. It may be to make the data from demographic groups more proportional, decreasing the bias or adapting better the items around the cultural values, especially all in the range of outer loading >0.6<0.7 before being removed (Hair et al. 2017a). If dropping the item that loads poorly increases the AVE significantly (or from an unacceptable level to an acceptable level, i.e., >0.50), it should be discarded (ibidem), being in this case (see **Table 2**):

The suppression of items SMA5, SMA8, SMA9, SMA10, SMA11, SMA12, HRP8, and HRP9 obeys to the fact of the kind of the respondents almost mainly youngers 71% (18-29 years old), 60.3% females, 81.9% singles, 72.6% college students with 65.7% monthly income less than 9,000

Mexican pesos, surely still supported by family income. The evidence shows that kind of demographic sample is very susceptible to the effects of NOM and FOM concerning social and education dimensions related to HRP.

Indeed, following **Table 2** we have the subsequent findings more relevant according to loading factor/p value. These are SMA4 0.766 (0.000), (*"I use social media for online academic group discussion through my smartphone."*) followed by SMA2 0.750 (0.000), *("I use social media to attending social gathering through my smartphone."*) being the next SMA1 0.733 (0.000), (*"I use social media to become more sociable through my smartphone."*) with SMA7 0.699 (0.000), (*"I use social media as a source of news because they are more credible through my smartphone."*) after SMA3 0.693 (0.000), (*"I use social media for collaborative learning through my smartphone."*) and finally, SMA6 0.692 (0.000) (*"I use social media to improve my curricular aspect through my smartphone.*").

These dimensions are evident, closely, and understandable if we consider that our sample based on students are interested in encouraging their studies and socialization due to the impact of social distancing on social connection and well-being through the influence of smartphone use (David & Roberts, 2021). Radical change in the way content is produced and consumed, and interactions occur in online spaces where most youngers socialize, learn, and communicate during the unprecedented lockdown due to the COVID-19 pandemic (Tejedor et al. 2020).

About *"nomophobia"* (NMF), no item was removed being the most relevant items according to loading factor/p value, NMF8 0.806 (0.000), ("*If I could not check my smartphone for a while, I would feel a desire to check it."*); NMF12 0.799 (0.000) (*"I would be uncomfortable because I could not stay up-to-date with social media and online networks."*); NMF11 0.797 (0.000) (*"I would be nervous because I would be disconnected from my online identity.*"); NMF6 0.768 (0.000) (*"If I did not have a data signal or could not connect to Wi-Fi, then I would constantly check to see if I had a signal or could find a Wi-Fi network."*) followed by NMF4 0.764 (0.000), (*"Running out of battery in my smartphone would scare me."*); NMF3 0.757 (0.000); (*"I would be annoyed if I could not use my social media Apps on my smartphone when I wanted to do so."*); NMF9 0.731 (0.000), *("I would feel anxious because I could not instantly communicate with my family and/or friends."*; NMF1 0.717 (0.000), *("I would feel uncomfortable without constant access to information through my smartphone.*"); NMF5 0.713 (0.000), (*"If I were to run out of smartphone credits or hit my monthly data limit, I would panic."* NMF7 0.706 (0.000), (*"If I could not use my*

smartphone, I would be afraid of getting stranded somewhere."; NMF2 0.700 (0.000), (*"I would be annoyed if I could not look information up on my smartphone when I wanted to do so."*) NMF10 0.681 (0.000)., (*"I would be worried because my family and/or friends could not reach me."*).

The dimensions involved in the order of importance by the users fear to be threatened are *"giving up convenience"* (NMF8, NMF6, NMF4, NMF5, NMF7), *"loss of connection"* (NMF12, NMF11), *"not being able to communicate"* (NMF9, NMF10) *"not being able to access information*" (NMF3, NMF1, NMF2).

These results confirm the source of chronic anxiety, discomfort, even pain that the users suffer. People having *"nomophobia"* can be identified by certain characteristics such as *'never switching off the phone," "repeatedly checking for missed texts and calls," "taking their phone everywhere," "indulging in it at inappropriate times,"* and *"deliberately missing face-to-face interaction.'* In some severe cases, *"nomophobics"* may also face physical side effects such as *"panic attacks," "shortness of breath," "trembling," "sweating", "accelerated heart rate," "pain in the hand joints, neck, and back pain," etc.* when their phone connection dies or is otherwise unusable (Kaur et al., 2021; Kanmani et al. 2017).

If we analyze the construct *"fear of missing out"* (FOM) the most relevant items according to loading factor/p value (excluding FOM2), are FOM1 0.820 (0.000), (*"I fear others have more rewarding experiences than me when I noticed through my smartphone."*) FOM4 0.856 (0.000), (*"I get anxious when I don´t know why my friends are up to when I noticed through my smartphone."*); FOM3 0.853 (0.000), (*"I get worried when I find out my friends are having fun without me when I noticed through my smartphone."*) FOM7 0.788 (0.000), (*"It bothers me when I miss an opportunity to meet up with my friends when I use my smartphone."*) FOM10 0.734 (0.000), (*"When I go on vacation, I continue to keep tabs on what my friends are doing using my smartphone."*); FOM5 0.731 (0.000), (*"It is important that I understand my friend in "jokes" when I noticed through my smartphone."*) FOM8 0.716 (0.000). (*"When I have a good time it is important for me to share the details online (e.g., updating status) using my smartphone."* FOM9 0.639 (0.000), (*"When I miss out on a planned get-together through my smartphone, it bothers me."*) ; FOM6 0.617 (0.000), (*"Sometimes, I wonder if I spend too much keeping up with what is going on when I use my smartphone."*).

These results confirm the main profile of the FOM, a pervasive apprehension that others might be having rewarding experiences from which one is absent (Kim et al., 2020a). FOMO-driven

consumption is proposed to affect consumption experience for being grounded on extrinsic than intrinsic rewards (Kim et al. 2020b). It can become problematic, leading to anxiety, interrupted sleep, lack of concentration and dependence on social media to generate gratification or a reward (Alutaybi et al. 2020). The results show that individuals reporting high levels of FOMO (FOM) and by consequence, they are more likely to want to stay constantly connected with others and are, therefore, more likely to engage with social media and technology (Przybylski et al., 2013).

Finally, about smartphone health user repercussions (HRP), we have the most relevant items according to loading factor/p value are HRP5 0.841 (0.000), "(*I was in pain. I moved extremely slowly appearing my face like upset or sad."*); HRP2 0.824 (0.000), (*"I felt anxiety".*); HRP1 (*"I felt anger"*) and HRP3 0.789 (.000) (*"I felt depressed"*); HRP4 0.788 (0.000) (*"I feel excessive fatigue"*); HRP6 0.771(0.000),(*"I was in pain that interfered my daily social and household activities."*), and HRP7 0.604 (0.000), (*"I am not able to exercise hard like running, swimming, etc. "*).

The findings of this study are aligned with previous research about how *"nomophobia"* (NOM) and *"fear of missing out"* (FOM). Together produce a serial of physical and mental affections in the social media user, such as depression, neck pain, visual impairment, obesity, carpal tunnel syndrome, behavior disorders, hopelessness, insecurity, alexithymia, lack of tolerance, social isolation, low self-esteem, decreased physical and social activities, sleep disorder and energy lowness, in/out-vehicle traffic accidents and low academic performance (Hosgor & Hosgor, 2019). These kinds of phobias are a type of anxiety. They provoke a significant fear response when the individual thinks of what he is afraid of, often causing emotional and physical symptoms. Existing information about *"nomophobia"* (NOM) and *"fear of missing out"* (FOM) suggests it occurs more frequently in teenagers and young adults; a fact proved here (Raypole, 2019).

5.1.2. The PLS-SEM NOMOFOMO-HRP structural model

Here is discussed all the hypotheses posed, according to **Table 4**, as follows:

At the respect of the H1: *"*SMA *contributes to generating more* NMF*"* and H2: "SMA *contributes to generating more* FOM" both are considered as high f^2 effect size (Hair et al., 2017a) and hence, approved. Therefore, the SMA-NMF relationship is high due to the SMA (Gupta & Bashir, 2018) dimensions of *"socialization"* and *"education"* producing *"nomophobia"* (NMF) (Yildrim & Correia, 2015). On the other hand, the SMA-FOM relationship is high due to the SMA (Gupta &

Bashir 2018) dimensions of *"socialization"* and *"education"* producing *"fear of missing out"* (FOM) (Przybyiski et al., 2013) on the social media users of the sample.

About H3: "FOM *contributes to generating more* NMF" and H4: "FOM *contributes to generating more* HRP" both are considered as high f^2 effect size (Hair et al., 2017a) and hence, approved. Therefore, the FOM-NMF relationship is high due to the FOM (Przybyiski et al., 2013) on (NMF) (Yildrim & Correia, 2015). On the other hand, the FOM-HRP is high due to the FOM (Przybyiski et al., 2013) on HRP (PRISM, 2021).

In the case of H5: "NMF *contributes to generating more* HRP" and H6: "SMA *contributes positively on* HRP" both are considered as medium f^2 effect size (Hair et al., 2017a). However**,** H5 is accepted, and H6 is rejected, proving that it is not the fact only to accept the use of social SMA (Gupta & Bashir 2018) but also the mediation of factors such as NOM or FOM to provoke HRP (PROMIS, 2021). Besides, we hope that NOMOFOMO-HRP framework and its results contribute to make the body of knowledge necessary to conform the social media health interaction theory (SMT).

5.2.Practical implications

The incidence rate of *"nomophobia"* (NOM) and *"fear of missing out"* (FOM) disorders were high on the smartphone health user repercussions (HRP) and almost null between social media innovations acceptance (SMA) and HRP**.** The pain and movement extremely slowly appearing face like upset or sad, the anxiety and anger were the three most representative affections to the demographic majority sample in this study, youngers between 18-29 years old (**71%** of the respondents) in the dimension's *"socialization"* and *"education."* Therefore, the study's findings have important implications for public policymakers, government mental health in first instance to design plans against the consequences of such mental disorders on the demographic subject under study, in our case university students between 18-29 years old.

The NOMOFOMO-HRP practical implications could describe the different affections treated in several protocols more detailed in PROMIS (2021). For instance, if the 9 items of the current HRP were interchanged for all the recognized set of scales of person-centered measures that evaluates and monitors physical, mental, and social health in adults and children contained in PROMIS (2021) or other National Institutes of Health.

NOMOFOMO-HRP framework and its results could contribute to describing the effects of *"nomophobia"* and *"fear of missing out"* with more detail to help in the inclusion of such mental diseases in the new edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5**,** APA, 2013). Mental health experts have not yet decided on formal diagnostic criteria for these conditions, and even more, after a prolonged lockdown such as of COVID-19 pandemic.

6. Limitations and future studies

All empirical studies have certain limitations:

First. Sampling methods may limit survey results due to recruiting respondents' *"snowball self-report"* nature. The survey results are based on the questionnaire's self-reported data to remind them of their opinions.

Second. NOMOFOMO-HRP framework could be proved with several demographic category data like people of different generations (age), gender, education, marital status, monthly income, etc., under several different mental (anxiety, stress, depression, etc.) several physical (slowly, pain, hard movements) and different social roles (people on retirement, active in their jobs, household activities or leisure activities) associated to different levels of satisfaction. This could prove different NOMOFOMO-HRP since chronic diseases or pandemic scenarios (Mejía-Trejo, 2021a). Different scenarios could be used to verify what specific kind of HRP are presented. Suppose these data are extracted from a specific public and disease as data to be precisely collected, categorized, and assessed to refine a final NOMOFOMO-HRP for control disease.

Third. It is suggested the application of fuzzy set Qualitative Comparative Analysis (fsQCA) (Ragin, 2008; Mejía-Trejo, 2021b) to the final NOMOFOMO-HRP framework. This action serves to verify how many different patterns of the underlying factors would be obtained (or not) to the same result about a health care tool against chronic and pandemic diseases, besides the unique results obtained from PLS-SEM.

7. Conclusions

In times of severe chronic or pandemic diseases is essential to take advantage of specific characteristics of the smartphone users like our study 431 smartphone Mexican users' respondents (Jun-Aug-2021), being 306/18-29 years old (71%); 260 females and 171 males (60.3% /39.7%), 353 singles (81.9%), 313 college students (72.6%), 283 with monthly income less than 9,000 Mexican pesos (65.7%). This demographic data was the basis for the empirical proof of the NOMOFOMO-HRP framework with 43 items and 4 proved factors.

The NOMOFOMO-HRP is a potential tool of analysis that allows broadening the scope of how the social media innovations acceptance (SMA), *"nomophobia"* (NOM), and *"fear* of missing out*"* (FOM) are interacting to smartphone health user repercussions (HRP). The health environments analyzed with PLS-SEM were physical, mental, and social. Therefore, we conclude:

First. The main social media innovations acceptance (SMA) affected by *"nomophobia"* (NOM) and *"fear of missing out"* were placed in the dimensions of: *"socialization"* and *"education"* . The SMA-HRP relationship is almost null.

Second. The main smartphone health user repercussions (HRP) to be attended were the pain and movement extremely slowly appearing face like upset or sad, the anxiety and anger.

Third. The NOMOFOMO-HRP framework could be refined with other disease health protocols if the items of HRP are interchanged to be more detailed further mental, physical, social studies and help in the inclusion of such mental diseases in the new edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, APA, 2013)

Fourth. NOMOFOMO-HRP hopes to be a contribution to social media health interaction theory (SMT).

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La Universidad de Guadalajara y la Sinergia de su Red en: CUCEA, CUCBA y CUSUR

The University of Guadalajara and the Synergy of its Network in CUCEA, CUCBA, and CUSUR

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Palabras Clave: intención emprendedora, capacitación, educación y habilidades blandas.
Keywords: entrepreneurial attempt, training, education and soft skills.

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RESUMEN

Propósito. Es necesario que los estudiantes universitarios se capaciten con casos reales para que experimenten el aprendizaje experiencial, en donde posean una experiencia concreta y aprendan de ella, integrando la capacitación, educación y las habilidades blandas, para armarlos de las herramientas necesarias para desarrollar una intención emprendedora.

Metodología. Lo anterior, se realizará mediante la formación del trabajo multidisciplinario utilizando modelos de negocios adaptados a la enseñanza del emprendimiento.

Hallazgos. Evitar dejar a la deriva al talento formado en las universidades, que no encuentra un estímulo al conocimiento para lograr el desarrollo de su emprendimiento

Originalidad. Propiciar a partir de trabajos escolares negocios potenciales, mediante la asociación de diferentes carreras universitarias para generar y potencializar relaciones profesionales multidisciplinarias alumno-alumno.

ABSTRACT

Purpose. University students must be trained with real cases to experience experiential learning, where they have substantial experience and learn from it, integrating training, education, and soft skills, to arm them with the necessary tools to develop an entrepreneurial intention.

Methodology. The mentioned above will be done through the formation of multidisciplinary work using business models adapted to the teaching of entrepreneurship.

Findings. Thus, managing to avoid leaving the talent trained in universities adrift, which does not find a stimulus to knowledge to achieve the development of their entrepreneurship.

Originality. The promotion from schoolwork to potential businesses by associating different university careers to generate and enhance student-student multidisciplinary professional relationships.

1. Introducción

De acuerdo con el INEGI de 3 millones de jóvenes desempleados entre 17 a 25 años, 1 de cada 3 poseen título universitario. La OCDE expone que los jóvenes que tienen más de 22 años tardaran más de 1 año en encontrar un trabajo relacionado con su carrera, y una vez que lo encuentran su salario será menor a lo que pagaban de colegiatura en su universidad. Esto es consecuencia de uno de los aspectos que tienen mayor grado de relevancia en su vida universitaria que es pasar los exámenes, es decir, estas cifras muestran que las universidades los entrenan a corto plazo en lugar de largo plazo, debiendo ser la escuela una preparación para el futuro. Esta formación debe estar integrada por la capacitación, educación y las habilidades blandas (Herrera, 2020).

Estos jóvenes "Millenials" tienen grandes diferencias con los intereses y las necesidades económicos de las generaciones de Baby Boomers y la generación X, porque es considerada como la que tiene un mayor grado de educación en la historia de la humanidad por el acceso han tenido a lo largo de su vida a las Tecnologías de la Información (TICs) (Lara, 2011), impulsan la creación de nuevas tecnologías y buscan nuevas formas para trabajar (Sánchez, 2011). Pero a su vez se enfrentan a un mayor reto porque los trabajos en la actualidad solicitan un mayor grado de preparación académica y profesional, provocando barreras para su desarrollo en la vida laboral (Herrera, 2020). En la actualidad los millenials han modificado el modelo tradicional de su profesionalización al enfocarse en mayor medida al emprendimiento, para su formación se debe de aprender de una forma interactiva y experimental.

Estos jóvenes, de acuerdo a Herrera (2020) deben contar con 3 aspectos fundamentales para la formación de la intención emprendedora:

1. Capacitación o profesionalización. Las técnicas, el entrenamiento y el uso de la información que hace capaz al individuo de iniciar un emprendimiento. La educación no sustituye la capacitación en una empresa por que el cliente interno y externo paga por un resultado especifico no por el mejor esfuerzo.
2. Educación. Es el conocimiento y la información que genera la conducta empresarial.
3. Habilidades blandas. Estas se desarrollan a lo largo de la vida, siendo la actitud que se muestra en el entorno, estas se encuentran integrados por comunicación, liderazgo, solución de conflictos, trabajo en equipo, etc.

1.1.Planteamiento del problema

Funders and Founders (2016) exponen que del 2013 al 2020 de 8,000 millones de personas, solo 3,000 tendrán empleo. En la actualidad 1 de cada 19 personas es emprendedora y de ellos el 57% son desarrollados por jóvenes adultos de 18 a 34 años, esto es, por de acuerdo a Global Entrepreneurship Monitor 2019/2020 los niveles de etapas iniciales de emprendimiento incrementan con los jóvenes y decremento a partir de los 38 años, siendo el 55.6% el resultado del aprovechamiento de oportunidades y el 25.2% por necesidad (Bloomberg, 2016). Estos niveles se han incrementado de forma exponencial a causa de la pandemia.

De acuerdo con Sánchez (2012), afirma que “los emprendedores no solo generan las ideas, también se encargan de hacerlas realidad, porque sin acción no hay emprendimiento” (p. 16). Por lo que para que los estudiantes hagan realidad sus proyectos y los presenten en el mercado, es necesario que la universidad brinde apoyo para su realización. El Banco Mundial (Valerio, et al, 2013) afirma que los programas de emprendimiento son más efectivos para los grupos integrados por jóvenes que en los adultos.

Los profesionistas capaces de enfrentar los retos que conlleva la creación de una empresa, su introducción a mercados nacionales e internacionales, tener proyección social en un contexto globalizado es resultado de los esfuerzos del talento humano comprometido con la generación de desarrollo empresarial (Díaz, 2015).

Es necesario aprender y practicar en un entorno enfocado al desarrollo del conocimiento y las capacidades como lo es la universidad, para que el día de mañana que los jóvenes se enfrenten al

"mundo real" sean capaces de sobrellevar los retos que se enfrenten con su emprendimiento, y no dejen que la falta de conocimientos, capacitaciones y habilidades sean una limitante para lograr sus metas.

1.2.Justificación

Desaparece el INADEM, lo que ocasionó la fractura de una de las columnas vertebrales que incentivaba el emprendimiento en México. Esto provocó que las incubadoras y aceleradoras que contaban con su apoyo cerrarán. Esto obliga que los jóvenes busquen nuevas oportunidades de empleo que el plan del gobierno no incentiva la creación de empresas provocando una desaceleración en las mismas con menores oportunidades. Se deja a la deriva al talento formado en las universidades, que no encuentra un estímulo al conocimiento para lograr el crecimiento en el sector empresarial (Velázquez, 2019). Los alumnos que egresan encuentran dificultades por la falta de oportunidades para ser parte de la Población Económicamente Activa (PEA), además de los derivados de los problemas que enfrentan las PYMES en México por el bajo crecimiento, la poca estabilidad y el crédito limitado (Arana, 2018) que limita las opciones de empleo.

Por lo anterior, es necesario formar una intención emprendedora entre los alumnos, integrando la capacitación, educación y las habilidades blandas, para armarlos de las herramientas que les permitan enfrentar la falta de oportunidades laborales o las limitadas opciones de financiamiento para nuevos proyectos, entre otros. La formación del trabajo multidisciplinario genera mejores resultados, fortaleciendo cada área de un negocio y productos de mejor calidad con sustento. Esto se realizará mediante la formación del trabajo multidisciplinario que genera proyectos de negocios con mejor calidad. Evitando dejar a la deriva al talento formado en las universidades, que no encuentra un estímulo al conocimiento para lograr el desarrollo de su emprendimiento. Propiciándolo partir de trabajos escolares que pueden derivar en negocios potenciales, mediante la asociación de diferentes carreras para generar y potencializar relaciones profesionales multidisciplinarias alumno-alumno. Con ello incentivar la formación de la intención emprendedora en los jóvenes millenials universitarios mediante el desarrollo de la capacitación, la educación y las habilidades blandas.

1.3.Operacionalización de las Variables

A continuación, se presenta a operacionalización de las variables. (Ver **Tabla 1**)

Tabla 1:Operacionalización de las variables

Tema	Objetivo general	Pregunta de investigación general	Objetivos especifico	Preguntas de investigación especifica	Variables	Hipótesis	Análisis metodológica
La vinculación universitaria como impulso al emprendimiento en los jóvenes	Analizar el impacto que tuvo el trabajo multidisciplinario en los jóvenes universitarios en la formación de sus competencias para incentivar el emprendimiento	¿Cuál fue el impacto que tuvo el trabajo multidisciplinario en la formación de sus competencias para incentivar el emprendimiento?	Examinar la capacitación obtenida para incentivar el emprendimiento en los jóvenes universitarios	¿Cómo fue la capación obtenida para incentiva el emprendimiento en los jóvenes universitarios ?	Capacitación	La capacitación tiene una relación positiva con la intención emprendedora	Cuantitativa inferencial
			Analizar la educación obtenida para incentivar el emprendimiento en los jóvenes universitarios	¿Cómo fue la educación obtenida para incentiva el emprendimiento en los jóvenes universitarios ?	Educación	La educación tiene una relación positiva con la intención emprendedora	Cuantitativa inferencial
			Examinar las habilidades blandas obtenida para incentivar el emprendimiento en los jóvenes universitarios	¿Cómo fue las habilidades blandas obtenidas para incentiva el emprendimiento en los jóvenes universitarios ?	Habilidades Blandas	Las habilidades blandas tiene una relación positiva con la intención emprendedora	Cuantitativa inferencial

Fuente: Elaboración propia

2. Revisión de literatura

Se revisa el estado del arte, el cual describmos con las siguientes definiciones:

2.1.Emprendimiento

La esencia del emprendimiento de acuerdo con Nogales (2011) son los procesos de innovación, cooperación y desarrollo, su alcance dependerá de las habilidades de una sociedad para gestionar y transferir el conocimiento de forma estratégica para agregar un valor económico y social.

El emprendedor de acuerdo con Shumpeter (1942) citado por Sledzik, (2013), es el fundador de una nueva empresa, un innovador que rompe con la forma tradicional de hacer las cosas, debe de ser una persona con dotes de liderazgo y con un talento especial para identificar el mejor modo de actuar.

Los emprendedores son agentes de cambio, porque el emprendimiento implica iniciar un nuevo negocio, experimentar con nuevas técnicas, introducir nuevos productos y/o crear nuevos mercados (Wennekers, et al, 2002).

Las características del emprendedor son: determinación, perseverancia, capacidad para alcanzar las metas, iniciativa, persistencia en la solución de problemas, autoconfianza, altos niveles de energía, confiabilidad, tolerancia al cambio, y buscar retroalimentación (Rodríguez, 2011).

Los factores que influyen en el emprendedor, de acuerdo a Rodríguez (2011), son:

- Factores motivacionales. Necesidad de logro, reconocimiento, independencia y desarrollo personal.
- Características personales. Iniciativa personal, capacidad de decisión, orientación hacia la oportunidad y metas, tolerancia a la incertidumbre, perseverancia, constancia y responsabilidad personal.
- Características físicas. Energía y trabajo duro.
- Características intelectuales. Flexibilidad, creatividad, búsqueda de información, planificación sistemática de resultados, capacidad para solucionar problemas y planificación.

2.2.Millenials

Los millennials son caracterizados por ser compradores responsables, debido a que prefieren comprar en menor cantidad dejando a un lado la ostentación de la marca, y la valoran más por la autenticidad y la calidad de los productos. Se enfocan en ser socialmente responsables y dar apoyo al medio ambiente. Como consecuencia le dan un mayor valor a las empresas que tienen como prioridad la importancia a sus políticas y la responsabilidad social corporativa y medio ambiente (Baéz, 2015).

Otra característica importante es que se encuentra a los millennials extremadamente sociales ya que un 88 % en Latinoamérica tiene perfiles en redes sociales. Convirtiéndola no son sólo un medio de comunicación sino una parte fundamental de su vida social. Debido a esto prefieren las redes sociales como medio para interactuar con las empresas, un 65% prefiere las redes sociales para ser

atendidos y se encuentran mucho más críticos y exigentes a la hora de calificar su experiencia (Dimock, 2018).

También se caracterizan por ser autosuficientes, independientes y autónomos, buscando sentirse siempre como protagonistas. Exigen nuevos valores como la transparencia y el compromiso social buscando que las empresas les permitan aportar sus ideas en la creación y el desarrollo de sus productos y/o servicios para así sentirse como parte de la marca (Dimock, 2018).

Uno de los puntos a favor en la generación millennials es la educación, ya que son definidos por ser la generación con la mejor educación, exponiendo a los millennials entre 25 a 29 años tienen una licenciatura que contribuye al 50% de toda la generación. Mientras que el 40% tiene un posgrado y los de 18 a 24 años deciden ir a la universidad para incrementar su preparación profesional. Debido a su enfoque en la preparación profesional y el alcance a estudios avanzados como posgrados, la generación millennial dejan a un lado el matrimonio convirtiéndose en la generación que solo vive con su pareja en lugar de comprometerse de forma legal o religiosa. Hoy en día solo el 26% de los millennials están casados comparado con el 36% de la generación X o el 48% de los baby boomes. En otras generaciones se casaban a los 18 años, hoy en día los millennials lo han regenerado y la edad promedio al matrimonio es de los 24 a30, y en algunas ocasiones con mayor edad (Stevenson, 2014).

Los Millennials son clientes que exigen una personalización, esperando que la empresa se adecue a ellos y no al revés. Es por esto que, para atender sus demandas, las compañías deben desarrollar un conocimiento sobre sus clientes incorporando información social sobre ellos para aportarles más valor y personificación. Con esto se trata de modificar el CRM tradicional hacia el CRM social tomando ventaja de la información digital que se comparte (Dimock, 2018). Esta generación se define por ser una generación que evoluciono de la mano de la tecnología. Esta generación a diferencia de otras generaciones tiene como prioridad en la vida, viajar y ser independientes dejando en segundo o tercer término el matrimonio. Una de las principales características de un millennial es la facilidad al acceso de internet y como este predomina en su vida (Barrios, 2015).

Los millennials son nativamente digitales y se desenvuelven de la mano de la tecnología (teléfono móvil, tableta, todo tipo de dispositivo portátil tecnológico), el estudio realizado por eMarketer revelo que el 96% de los jóvenes mexicanos (20 a 39 años) basan su comunicación en las redes sociales y un 95% en la mensajería instantánea (Barrios, 2015).

2.3.Emprendimiento en los millenials

Los atributos principales de los millenials como líderes en sus emprendimientos, de acuerdo a (Requena & Samos, 2017), son:

- Pasión por el trabajo y la empresa. Los millenials cuando encuentran un proyecto que los apasione, invertirán todo su tiempo y esfuerzo para asegurar el logro de los objetivos esperados.
- Equipos motivados e involucrados. Los equipos de trabajos son tomados en consideración para las decisiones para incentivar a que se sientan involucrados.
- Liderazgo innovador. Uso de herramientas efectivas para el logro de mejores resultados.
- Emprendimientos comprometidos con la sociedad. Buscan contribuir con el desarrollo de la sociedad a través de programas que apoyen a la comunidad.

2.4.Matriz Metodológica

Se plantea una matriz metodológica. Ver **Tabla 5**

Tabla 5: Resumen de las variables independientes y dependiente

Variable dependiente	Tesis	Variable independiente	Dimensiones	Tesis
Intención Emprendedora	(Oliveras, 2015)	Capacitación	Individuo	(Rado, 2018)
			Entorno	
			Proceso	
			Organización	
		Educación	Curso académico	(Vázquez, 2017)
			Metodología de enseñanza	
			Actividades complementarias	
			Cultura universitaria	
		Habilidades blandas	Iniciativa	(Ramos, 2017)
			Creatividad	
			Aprendizaje	

Fuente: Elaboración propia

3. Proyecto sinergia

El proyecto, se describe a través de una serie de Tablas y sus capturas. Ver **Tabla 6**

Tabla 6. Datos priniples de los vinculados

ANTECEDENTES DE VINCULACIÓN						
Nombre de la Institución de Educación Superior:	Universidad de Guadalajara					
Número de RENIECYT	1702512					
Número de proyectos de investigación o desarrollo realizados en vínculo con empresas	Desarrollo de proyectos	Transf. de tecnología	Incubación de empresas o proyectos	Servicios de consultoría	Capacitación o Educación continua	Prácticas, residencias, estadías, etc.
	17 proyectos			3 proyectos	80 alumnos obtuvieron capacitación	
Número de investigadores o docentes involucrados en proyectos de vinculación con empresas	Desarrollo de proyectos	Transf. de tecnología	Incubación de empresas o proyectos	Servicios de consultoría	Capacitación o Educación continua	Prácticas, residencias, estadías, etc.
	5 docentes		1 docente encargado de la aceleradora		4 docentes tomaron programas de capacitación	1 docente participe en un programa internacional de la Univ. De Oxford
Número de alumnos contratados por la empresa en los proyectos	Desarrollo de proyectos	Transf. de tecnología	Incubación de empresas o proyectos	Servicios de consultoría	Capacitación o Educación continua	Prácticas, residencias, estadías, etc.
	Propuesta a 6 alumnos					Propuesta a 6 alumnos para realizar prácticas profesionales
Monto cobrado a las empresas involucradas en los proyectos	Desarrollo de proyectos	Transf. de tecnología	Incubación de empresas o proyectos	Servicios de consultoría	Capacitación o Educación continua	
				Gratuita		
Enlistar eventos de vinculación realizados	**Nombre de evento**			**Fecha**	**A quién estaba dirigido**	
	Firma de convenio			29 / oct / 2020	Rectores, secretarios académicos, jefes de departamento, encargados de emprendimiento y profesores encargados, de los centros universitarios CUCEA, CUCBA y CUSUR que forma parte de la RED UDG	
	Vinculación con COCULA con los alumnos de CUCEA y CUCBA para la formación de un emprendimiento desde la visión de negocios			14 / dic /2020	Gobierno de COCULA con los centros universitarios CUCEA, CUCBA y CUSUR	
	The Santander X Entrepreneurship Educator´s Programme (Dra. Jovanna Nathalie Cervantes Guzman)			Julio a Septiembre 2020	Oxentia (Oxford Global Innovator Consultancy), Santander X, profesores encargados de emprendimiento de diversas universidades de LATAM, España y Reino Unido	

Fuente: Elaboración propia

Así también, se documentan los representantes de cada campus. Ver **Tabla 7**

Tabla 7. Datos del proyecto

INFORMACIÓN ACERCA DEL PROYECTO PROPUESTO	
Título	Sinergia CUCEA, CUCBA y CUSUR de la RED UDG
Breve presentación	Formación del trabajo multidisciplinario que generan proyectos de negocios con mejor calidad y potencialidad para su desarrollo en el mercado. Evitando dejar a la deriva al talento formado en las universidades, que no encuentra un estímulo al conocimiento para lograr el desarrollo de su emprendimiento. Propiciándolo a partir de trabajos escolares validados que pueden derivar en negocios potenciales, mediante la asociación de diferentes carreras para generar y potencializar relaciones profesionales multidisciplinarias. Generando una triple elipse de vinculación entre los jóvenes emprendedores Universidad de Guadalajara, con el área empresarial (que cuente con enfoque social), con el gobierno (incentivar el desarrollo de los municipios)
Palabras clave	Emprendimiento, Vinculación multidisciplinaria, Educación y Capacitación

Fuente: Elaboración propia

Son planteados criterios de evaluación de la vinculación educación-empresa, como los mostrados en la **Tabla 8.**

Tabla 8. Criterios de Vinculación educación-empresa

Se logra una vinculación de triple elipse: con academia (profesores y empresarios de la Universidad de Guadalajara), empresa (empresa con presencia nacional e internacional con un enfoque social) y gobierno (El gobierno de COCULA requiere apoyo para mitigar los efectos negativos económicos causados por la pandemia). Se forman productos alimenticios orgánicos validados y sustentados por los alumnos universitarios de la licenciatura de ciencia de los alimentos de CUCBA que incentivan el producto mexicano; los proyectos de negocios desarrollados por los alumnos de la licenciatura en mercadotecnia CUCEA apoyan tanto al desarrollo de los productos de la empresa como el sacar al mercado los productos de los alumnos de CUCBA, y ambos centros universitarios apoyan al municipio para incentivar su economía mediante el emprendimiento social. Y junto a los alumnos de la maestría de en derecho de CUSUR se protegen la propiedad intelectual de los productos de la UDG, como se establecen los contratos y acuerdos con las empresas y el gobierno. Finalmente se logra la fórmula del emprendimiento de Stanford: *Captación de ideas + Educación emprendedora + Propiedad intelectual = Incremento del número de Startups.* Logrando su fin común que es incentivar la economía del país. Se realizó una consultoría gratuita a la empresa XICA de maíz ancestral, siendo una empresa que trabaja con los indígenas de Tuxpan

y la sierra de Mazatlán al sur de Jalisco, ellos trabajan la tierra de una manera tradicional y 100% natural sin químicos y fertilizantes.

A causa de la pandemia, la directora expone que han tenido dificultades y requerían de una nueva perspectiva para el desarrollo de sus productos, y así evitar dejar a la deriva a las familias que trabajan en el campo con técnicas de cosecha y creencias milenarias heredadas de sus ancestros.

El trabajo realizado les proporciono una nueva perspectiva de visión hacia sus productos para mejorar y/o cambiar las estrategias de comunicación, la validación del mercado, e introducirse en otros canales de comercialización adaptados a las necesidades actuales del mercado como lo es el e-commerce. Además, expresaron su intención de reclutar a los alumnos para la realización del servicio social y/o prácticas profesionales para la continuación de la experiencia formativa con posibilidad a ser contratados en un futuro por la empresa.

En el futuro inmediato, derivado de la vinculación de la Sinergia UdG-empresa Xica, se pretende por iniciativa de la empresa, seleccionar los productos elaborados a lo largo de su carrera universitaria por los alumnos de CUCBA y que cuentan con la validación, que otorgan los alumnos de CUCEA en su plan de negocios para que la empresa Xica, que ya cuenta con capacidad de producción, los permisos y las certificaciones por las autoridades correspondientes de la industria alimenticia, la capacidad de exportación y experiencia, los integre en conjunto con los productos de XICA a una de las mayores plataformas a nivel mundial de comercio electrónico enfocada al Business to Business (B2B) llamada Alibaba, directamente con su representante en México para incentivar los productos mexicanos a nivel internacional. Y de los ingresos generados por los productos de la UDG el 15% se va a reinvertir en la generación de nuevos productos desarrollados por las nuevas generaciones de alumnos universitarios de los centros que conforman la sinergia.

Fuente: Elaboración propia

Se relacionan cada uno de los líderes estudiantiles de cada campus. Ver **Tabla 9**

Tabla 9. Nombre de los líderes involucrados en el proyecto y sus aportaciones

Nombre	Organización	Aportación
Dra. Jovanna Nathalie Cervantes Guzmán	Universidad de Guadalajara (CUCEA)	Responsable de emprendimiento y mercadotecnia, encargada de generar la vinculación con los centros universitarios, encargada de la vinculación con los programas nacionales e internacionales de emprendimiento.
Dra. Araceli Hernandez Tinoco	Universidad de Guadalajara (CUCBA)	Encargada de vinculación con el área empresarial y con los gobiernos de los distintos municipios
Dra. Mónica Araceli Reyes Rodríguez	Universidad de Guadalajara (CUCBA)	Responsable de ciencia de los alimentos, y encargada de finanzas.
Dr. José Cruz Guzmán Díaz	Universidad de Guadalajara (CUSUR)	Responsable de la parte legal del proyecto y la propiedad intelectual

Mtro. Samuel Iván Cárdenas Rodríguez	Universidad de Guadalajara (CUCEA)	Director de LINE (Laboratorio de innovación y emprendimiento) del CUCEA, y director de CIADEyS (Centro de Innovación para el Aceleramiento al Desarrollo Económico y Social)

Fuente: Elaboración propia

4. Carácter innovador

Es descrito lo principal, mostrado en la **Tabla 10.**

Tabla 10.Carácter innovador

El carácter innovador es el uso de la tecnología para mejorar la calidad de la enseñanza y el aprendizaje ya que permite el adaptar conocimiento obtenido de programas internacionales virtuales para el proyecto, siendo adaptado del "Goldman and Sacks 10000 Women" mismo que la organización le dio el permiso a la Dra. Jovanna Nathalie Cervantes Guzmán exclusivamente para utilizar la estructura del proyecto de negocios con sus alumnos, esta se encuentra validada para el desarrollo de emprendedores en países en vías de desarrollo. También participo la Dra. Cervantes con el programa en Santander X Entrepreneurship Educator's (SEE) Programme by Santader and Oxentia (Oxford University Global Innovation Consultancy) en una de las 20 posiciones otorgadas a nivel de LATAM, España y Portugal para participar con el proyecto de sinergia, en donde nos apoyaron con una mayor estructuración para generar un mayor impacto en los jóvenes universitarios. Además, que el proyecto fue presentado por la Dra. Cervantes en un programa de emprendimiento e innovación desarrollado en Silicon Valley, presentando en la Universidad de Boston en 2019. Finalmente, las personas que forman parte del proyecto cuentan con reconocimiento en sus campos, es el caso de la Dra. Jovanna Nathalie Cervantes Guzmán que fue seleccionada para el programa "Jóvenes Lideres de las Américas (YLAI)" 2020-2021, por el departamento de EUA y IREX, donde seleccionan a los jóvenes emprendedores sociales con mayor potencial en América Latina, el Caribe y Canadá.

Fuente: Elaboración propia

5. Capacidad de transferencia

Este atributo, se describe ampliamnete como se observa en la **Tabla 11.**

Tabla 11. Descripción de la capacidad de transferencia

Se desarrollaron asociaciones para la transferencia de trabajos para la elaboración de los proyectos emprendedores desarrollados por los alumnos de la carrera de Mercadotecnia del Centro Universitario de Ciencias Económico-Administrativas (CUCEA) que resultan en los entregables finales de sus respectivos cursos académicos. Para lo cual parten un producto alimenticio desarrollado por alumnos de la carrera de Ciencia de los Alimentos del Centro Universitario de Ciencias Biológicas y Agropecuarias (CUCBA). Fortaleciendo los vínculos universitarios de la academia con el entorno económico y social. Además de la transferencia de conocimiento al sector empresarial para brindarles nuevas perspectivas de desarrollo y al gobierno para la reactivación de los municipios. Los proyectos de negocios tuvieron como base la estructura del programa de "Goldman and Sachs 10,000 Women". Su trabajo se encontró constituido por un proyecto de negocios integrado por el know how de los fundamentos para introducir y comercializar el producto a nivel nacional e internacional. Participaron 82 alumnos de la licenciatura de mercadotecnia con 17 productos desarrollados por la licenciatura de ingenería de alimentos, que participaron en el proyecto de sinergia, dirigidos por la Dra. Jovanna Nathalie Cervantes Guzmán, siendo ella emprendedora ganadora a nivel internacional, en sus clases de promoción y publicidad, y producto – precio en la Universidad de Guadalajara. Los alumnos de mercadotecnia resolvieron las complicaciones que se fueron presentando, consultando, re diseñando y trabajando con los productos de los alumnos de ciencias de los alimentos. La finalidad del proyecto se enfoca en iniciar con la formación de la intención emprendedora para formar empresas, mediante la intervinculación de los estudiantes de diferentes disciplinas y el apoyo para el desarrollo de las empresas y los gobiernos municipales. La globalización y existencia de nuevos mercados requiere de proyectos, productos y servicios adecuadamente fundamentados para poder comercializar, ofrecer y compartir en los sistemas de e commerce y redes digitales del mercado local y global además requieren ser desarrollados y validados por profesionistas que cubran los requerimientos del mercado meta. Ejerciendo en la universidad y los docentes una función de generación, difusión y transferencia de: capacitación, educación y formación de habilidades blandas. Que se convierta en un actor fundamental en la nueva economía, para generar una ventaja competitiva que permita la diferenciación y el reconocimiento de los emprendimientos desarrollados por los alumnos para generar sostenibilidad en el contexto económico y ambiental, provocando así un mayor crecimiento del entorno local, regional y nacional. Como proyecto futuro, la sinergia será desarrollada a un mayor nivel, incrementando no solo redes universitarias de diferentes ciencias, sino también puede ser con otros centros universitarios públicos y privados, además de integrar a un mayor número de empresas para apoyarlas en su desarrollo, y con ello incentivar el emprendimiento en los jóvenes universitarios para apoyar al crecimiento del país. Como prueba de ello, actualmente se está en proceso de negociación con la Universidad de Chile, para la generación de una vinculación, la UdeG colaboro en una primera etapa con mentores para la asesoría de trabajos emprendedores desarrollados por los estudiantes universitarios, y la UC va a dar mentoria especial para el concurso de emprendimiento que se está organizando en la RED UdeG.

Fuente: Elaboración propia

4. Sustentabilidad

Es de especial interés la inequidad de gñenerom la cual se trata conforme a la **Tabla 12**

Tabla 12. Impacto de género

Impacto genero la propuesta
Los estudiantes deben ser vistos como emprendedores para mejorar sus capacidades argumentativas, reflexivas e interpretativas. Siendo la realización de los modelos de negocios un proceso para guiarlo hacia la creación de un emprendimiento. Siendo las metodologías desarrolladas por los académicos universitarios enfocadas a conocer los problemas reales del mundo empresarial para la búsqueda de oportunidades potenciales y con ello tener proyección a nivel local, regional, nacional e internacional. Su enseñanza debe ser efectiva para crear una cultura emprendedora en los alumnos que genere la creación de empresas sólidas, evitando que el emprendimiento solo se enseñe para cumplir un requisito más en sus materias. Como resultado se percibió mejor desempeño de los alumnos de mercadotecnia, mayor motivación y mayor interés por ser parte del proyecto de comercialización del producto al final del estudio, para incentivar la intención emprendedora. En donde exponen los alumnos: "Me parece que es el complemento en conjunto de todos el aprendizaje adquirido, se trabaja más allá de la teoría, poniendo en práctica los conocimientos que sesión tras sesión vamos aprendiendo paso a paso de la mano de la maestra y su experiencia propia, pudimos darnos cuenta de cómo es empezar un negocio en la vida real, llevándolo a una simulación práctica de cómo deben prepararse estos proyectos y cómo deben ser presentados, para no cometer pequeños errores que pueden hacer que un proyecto se derrumbe por haber descuidado esos aspectos, y creo que en un futuro podemos trabajar juntos para que las ideas puedan salir al mercado". Lo que permite la resolución de problemáticas sociales a través de la educación, principalmente con el proyecto "Sinergia" porque incentiva el emprendimiento lo que provoca que una menor deserción escolar ya que en muchas ocasiones deben salirse de la universidad para buscar un trabajo para poder ser el sustento económico en sus hogares, y el proyecto permite que trabajen y estudien al mismo tiempo, adaptándose a sus necesidades de horarios escolares, además que incentiva el desarrollo económico del país. Además de colaborar con el desarrollo del sector empresarial y el desarrollo de los municipios de Jalisco, que actualmente enfrentan dificultades económicas como consecuencia de los efectos negativos de la pandemia.

Fuente: Elaboración propia

5. Metodología

Basada en las necesidades del estudio basada en la información obtenida de archivos de investigación, la metodología empleada en el trabajo fue la siguiente:

- Investigación documental. La investigación es de tipo documental, en función de lo planteado por Pasteur (2013) utiliza documentos, recolecta información, analiza y presenta resultados. Se empleó en el estudio con la finalidad de recabar los documentos que pueden ser fundamentales para comprender y contextualizar el estudio.
- Investigación correlacional. Permite relacionar las variables del problema en un contexto particular (Baptista, et al, 2010). Una de sus principales características es que permite examinar la relación entre las variables buscando su asociación pero no es necesario encontrar sus relaciones causales (Bernal, 2010).
- Enfoque cuantitativo. Es definido por Tamayo (2010) como la medición de las variables y su relación mediante una verificación para comprobar la hipótesis y validar sus teorías, ofreciendo la posibilidad de tener un enfoque más amplio de las mujeres en países en vías de desarrollo.

6. Análisis de datos y resultados

Se realizó con un total de 48 ítems, de dicho análisis se determina que el nivel de consistencia y fiabilidad. De los factores propuestos, se analizó el Apha de Cronbach, el KMO y la Prueba de Bartlett en cada una de las dimensiones. Y para la comprobación de hipótesis se analizó la Regresión simple, regresión múltiple, y la prueba Kruskal Wallis.

Para el análisis de la estadística inferencial se utilizaron las ponderaciones para evaluar la fiabilidad por medio del Alpha de Cronbach. En términos de consistencia interna, existen diversos reportes sobre los valores aceptados de alfa que van de 0.70 a 0.90 (Dennick & Tavakol, 2011). Se calculó el coeficiente de Alpha de Cronbach. en la muestra que fue de 0.811 por tratarse de valores cercanos a la unidad es un instrumento de recolección de datos aceptable. (Ver tabla 7)

Además, se realizó la prueba de Kaiser-Meyer-Olkin (KMO) para el análisis de los componentes con rotación Varimax que entre más cerca de 1 tenga el valor obtenido implica que la relación entre las variables es alta (Benavente, et al, 2011). El valor de KMO es 0.798 el cual se considera notable. Asimismo, se efectuó la prueba de esfericidad de Bartlett, en donde, si es menor a 0.05 se acepta a hipótesis nula por lo que se puede aplicar el análisis factorial (íbid, 2011). Su significancia es de 0.000 por lo que se puede aplicar el análisis factorial. (Ver tabla 7)

Para la evaluación de la aplicabilidad del cuestionario se inicia con el análisis factorial con rotación varimax definida como la simplicidad de un factor por la varianza de los cuadrados de sus cargas

factoriales en las variables observables (Perez, et al, 2004), esto es para la interpretación de los factores de una manera más rápida, debido a que el examinar las características de las variables de un grupo asociado a un determinado factor permite encontrar los rasgos comunes que permiten la identificación del factor y proveer la denominación que responda a los rasgos comunes (Pérez, et al, 2004)

Posteriormente para la evaluación del modelo se empleó la regresión lineal, siendo definida por Pérez (2011) como la determinación explicativa del funcional que relaciona las variables. El r^2 es un índice que describe si los datos se ajustan bien a una línea recta; Pearson r indica la fuerza y la dirección de la relación entre dos variables, varía entre -1 (una relación perfectamente negativa entre las dos variables) y 1 (una relación perfectamente positiva entre las dos variables), una relación negativa, indica que a medida que una variable aumenta y la otra disminuye. Su interpretación descriptiva de acuerdo a Gilford (1954) adaptada de acuerdo a Mejía (2009): (Ver **Tabla 13**)

Tabla 13.Interpretación descriptiva r de Pearson

Valor de	Rango	Interpretación descriptiva de la correlación.
r	<20	Leve casi insignificante
r	0.21 - 0.40	Baja. Definida pero baja
r	0.41 - 0.70	Moderada, sustancial
r	0.71 - 0.90	Marcada, alta
r	0.90 - 1.00	Altisima, muy significativa

Fuente: Guilford (1954). Adaptación Mejía (2009)

Además, se analizó el coeficiente Beta (estandarizados) el cual indica la jerarquía explicativa que posee las variables independientes a partir del peso explicativo en relación a la variable dependiente. Al tener una significancia menor a 0.05 se asume que el 95% de confianza de las variables independientes aportan significativamente al modelo. El coeficiente Beta (no estandarizado) indica por cada unidad que aumente la variable independiente cuanto incrementara la variable dependiente (Santana, s.f).

Finalmente, para analizar la relación entre las diferentes variables para la comprobación de la hipótesis se llevó a cabo un análisis no paramétrico mediante la prueba de Kruskal Wallis. Se utilizó para probar las hipótesis al exponer si existe diferencia entre las medianas, cuando el valor de la probabilidad asociada al estadístico se encuentra por encima del nivel de significancia del 5% o 0,05 se acepta la hipótesis nula cuando el valor teórico supera al estadístico. (Reidl, at el, 2010). (Ver **Tablas 14 -17**).

Tabla 14. Análisis variables independientes

Dimensión	Alfa de Cronbach	KMO	Prueba de Barlett (Significancia)
General	0.957	0804	0.000
Capacitación	0.931	0.844	0.000
Educación	0.838	0.843	0.000
Habilidades Blandas	0.937	0.840	0.000
Intención emprendedora	0.811	0.798	0.000

Fuente: Elaboración propia

Tabla 15. Regresión simple

Regresión simple			
	1	**2**	**3**
Pruebas	**Capacitación**	**Educación**	Habilidades **Blandas**
Constante	- 1.41	- 6.87	- 8.59
B	0.767***	0.802***	0.557***
ANOVA (F)	114.032***	143.755***	36.037***
R2	58.8%	64.2%	31.1%
Pearson r	0.767	0.802	0.557

Fuente: Elaboración propia

Predictores: (Constante), Capacitación$_a$
Variable dependiente: IntenciónEmprendedora$_b$

Variable dependiente: IntenciónEmprendedora$_a$
Predictores: (Constante), Educación$_b$

Predictores: (Constante), Habilidades blandas
Variable dependiente: IntenciónEmprendedora$_b$

Tabla 16. Regresión múltiple

Regresión múltiple			
	1	**2**	**3**
Pruebas	**Capacitación**	**Educación**	Habilidades **Blandas**
Constante	-1.04		
B	0.443***	0.545***	-0.085**
ANOVA (F)	70.038***		
R2	72.9%		
Pearson r	0.854		

Kruskal Wallis	15.5%	36.1%	69.1%

Fuente: Elaboración propia

Predictores: (Constante), Habilidades blandas, Educación, Capacitación[a]
Variable dependiente: Intención Emprendedora[b]

* 0.10 <
** 0.05 – 0.99
*** 0.000 – 0.05
° Comprobación de hipótesis mediante Kruskal Wallis

Los grados de libertad en la dimensión de capacitación fue 3,72, con una significancia asintótica mayor a 0.05 con un resultado de 0.155 por lo que existe homogeneidad.

Los grados de libertad en la dimensión de educación fue 2.038, con una significancia asintótica mayor a 0.05 con un resultado de 0.361 por lo que existe homogeneidad.

Los grados de libertad en la dimensión de habilidades blandas fue 0.739, con una significancia asintótica mayor a 0.05 con un resultado de 0.691 por lo que existe homogeneidad.

7. Conclusión e investigaciones futuras

Los estudiantes deben ser vistos como emprendedores para mejorar sus capacidades argumentativas, reflexivas e interpretativas. Siendo la realización de los modelos de negocios un proceso para guiarlo hacia la creación de un emprendimiento. Siendo las metodologías desarrolladas por los académicos universitarios enfocadas a conocer los problemas reales del mundo empresarial para la búsqueda de oportunidades potenciales y con ello tener proyección a nivel local, regional, nacional e internacional.

Su enseñanza debe ser efectiva para crear una cultura emprendedora en los alumnos que genere la creación de empresas sólidas, evitando que el emprendimiento solo se enseñe para cumplir un requisito más en sus materias.

Como resultado se percibió mejor desempeño de los alumnos de mercadotecnia, mayor motivación y mayor interés por ser parte del proyecto de comercialización del producto al final del estudio, para incentivar la intención emprendedora. En donde exponen los alumnos:

> “Me parece que es el complemento en conjunto de todos el aprendizaje adquirido, se trabaja más allá de la teoría, poniendo en práctica los conocimientos que sesión tras sesión vamos aprendiendo paso a paso de la mano de la maestra y su experiencia

> propia, pudimos darnos cuenta de cómo es empezar un negocio en la vida real, llevándolo a una simulación práctica de cómo deben prepararse estos proyectos y cómo deben ser presentados, para no cometer pequeños errores que pueden hacer que un proyecto se derrumbe por haber descuidado esos aspectos, y creo que en un futuro podemos trabajar juntos para que las ideas puedan salir al mercado".

Los estudiantes perciben con mayor grado de relevancia de acuerdo con al cuantitativo inferencial:

1. Enseñanza
2. Capacitación
3. Habilidades blandas

Como proyecto futuro para la siguiente parte de la investigación, la sinergia será desarrollada a un mayor nivel, incrementando no solo redes universitarias de diferentes ciencias, sino también puede ser con otros centros universitarios públicos y privados, además de integrar a empresas para apoyarlas en su desarrollo, y con ello incentivar el emprendimiento en los jóvenes universitarios para apoyar al crecimiento del país aprovechando también el conocimiento tradicional (Mejía-Trejo, 2021).

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