

Culture, Innovation and Entrepreneurship: connecting the knowledge dots



***Culture, Innovation and
Entrepreneurship: connecting
the knowledge dots***

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Decision factors in buying smartphones in the segment of Mexican students

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Structured Abstract

Purpose - This study aims to analyze planned behavior theory (PBT) of in the female segment of students to identify variables that influence the decision to acquire an intelligent telephone.

Methodology - The study was applied to 384 students of the University of Guadalajara, performing statistical analysis using SPSS, and to determine the feasibility of the Cronbach' s Alpha. The questionnaire was validated with Exploratory Factor Analysis with the factorization method and maximum likelihood method Rotation is using the Varimax. Bartlett's Sphericity Test and Kaiser Meyer Olkin's (KMO) Measure were performed. Structural equation model with EQS was chosen to test the reliability of planned behavior models and model values. The questionnaire is based on two previous studies; the first one was developed by Linan and Chen (2009) and adjusted with the second tool to contrast, by Cornelius, Gallani, Godin, Rodrigues, and Nadruz (2009).

Originality/value – PBT, Ajzen (1985) defines intention in terms of trying to engage in a particular behavior in relation to the current behavior. Is that when trying to modify a behavior is experiencing another intention. (PBT), (Schifter and Ajzen, 1985) contains several variables that influence behavioral intention, and these are: attitude, subjective norm and perceived control.

Practical implications – In Mexico there are no studies that have applied PBT, so that the results can be very valuable for the development of business strategies. Being able to identify factors that influence the final decision making, provides a tool for reducing both costs and effort and makes accurate decisions. A good application of the PBT favors business competitiveness.

Keywords – Planed Behavior Theory, Smartphone, buying decision

Paper type – Academic Research Paper

1 Introduction

Globalization has led consumers to a generalization procurement experiences hindering specific knowledge about product consumption processes that can be performed in Mexico, which results in the lack of knowledge about what consumers are really seeking, how companies are able to focus their efforts on their products in a suitable manner.

Human behavior has been studied by disciplines such as psychology, sociology, anthropology, criminology and its different areas (Figueroa, Rebolledo, Diaz & Mejía, 2014).

In Mexico and the world the way that women and men consume differs significantly, since "Their attitudes, priorities, communication patterns, and styles of decision are different" (Barletta, 2007, P.13) due to their environment.

Fernandez (2007) mentions that society and culture generate and reproduce traditional patterns of roles and relationships between men and women; Showing inequality and asymmetry of power between genders and tend to act on detriment of women's possibilities.

Cultural patterns are deeply projected as models that are perceived through values, principles and attitudes that sustain the lifestyle and culture of society. In the case of women, particularly, vulnerability is increased because this structure is governed by traditional parameters of distribution of activities between genders, disposition which imposes profound restrictions on the opportunities for women to be inserted in economic activity.

This is the reason why women invest more time and recurring visits to stores to make the purchase decision, being better observers than men, because time plays an essential role in both the buying process and their everyday life. This being the cause why women tend to invest more time and experience more difficulties to get what they want. (Lamb, Hair, and McDaniel, 2008, Wolf, 2013).

2 Theoretical framework

2.1 Behavior

IUPUEBLA, (2012) mentions that it is the grouping of behaviors exhibited by humans and influenced by culture, attitudes, emotions, people's values and cultural values, ethics, exercise of authority, relationship and genetics.

However, marketing studies human behavior while consuming, called consumer behavior, focusing on identifying factors that influence their behavior, which highlights the psychological, social, cultural and personal aspects, proposing models to understand what happens in the buyer's consciousness while taking the decision to purchase a product or service (Kotler, Armstrong, Ayala, & Felix, 2007).

Consumer behavior has been defined by many researchers, among which stand Fisher (1997), Blackwell (2001), Stanton (2004), Hawkins (2004), Solomon (2008), Schiffman (2010) as well as Kotler and Armstrong (2003).

Mexican consumers tend to be influenced by their immediate families, in the opposite case, American consumers give little importance to the comments of their families, the facts above are mentioned by Gwin, Roberts and Martinez (2004), emphasizing in their study that Mexican culture provides several differences compared to the US and Canada while assessing the impact of the variables of family influence on compulsive shopping originating a decision-taking process influenced by their environment.

The differences above represent a gap in the perception of consumption which is characterized by economic, social and cultural factors, therefore it is important to obtain characteristic patterns being the basis for identifying a planned pattern of behavior that can provide support to entrepreneurs, as well as marketing professionals to perform specific strategies to focus on Mexican market, anticipating the response of consumers through a variable represented by teams of smart phone industry, focusing on the students of the University of Guadalajara.

2.2 Planned behavior

Researches on consumer behavior have conceptualized sequences such as the hierarchy of beliefs, attitude and intention, made by Madrigal (2001) and Ogle, Hyllegard and Dunbar (2004).

The most notable models are the theory of reasoned action (Ajzen and Fishbein, 1973, 1980; Fishbein, 1967a; Fishbein and Ajzen, 1975) and the theory of planned behavior (Ajzen, 1988, 1991).

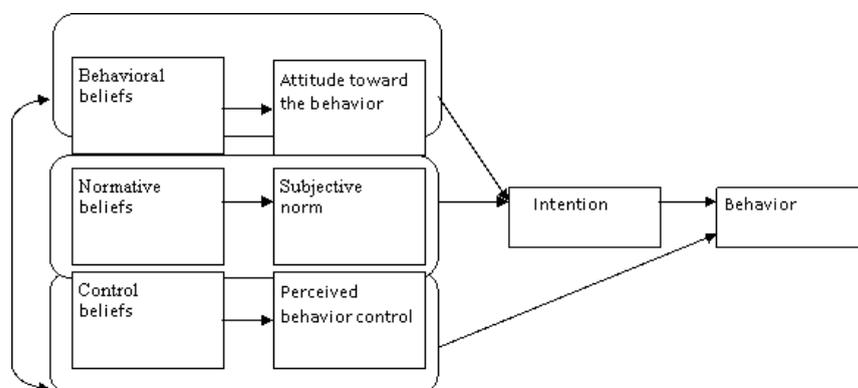
The publication by Ajzen (2012) under the name "The theory of planned behavior" addresses the issue of Model of Hope Value (Fishbein & Ajzen, 1975) in which adjustments and improvements to its structure transform it into the Theory of Reasoned Action (Ajzen & Fishbein, 1980) better known as TRA.

The study model of reasoned action proposed by Ajzen and Fishbein (1980) tried to explain behaviors on which the individual has complete control of their behavior, but these behaviors pose implementation difficulties, this is the reason why the model of reasoned action (TRA) had to be extended.

To cover all the objects exposed by the model of reasoned action, planned behavior theory (PBT) (; 2005; Ajzen, 1991, 2005a) was designed, it proposes the following structure:

- a) Control of conduct
- b) Perceived behavioral control
- c) Cognitive basis of perceived behavioral control
- d) Prediction of intentions and behavior

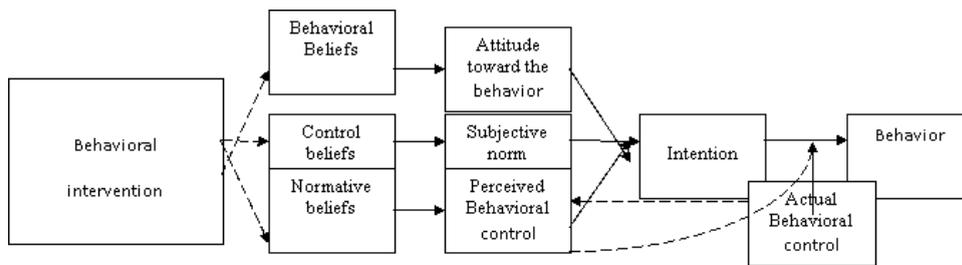
Ajzen, (2012) mentions that there are also ample evidence to show that, in accordance with the intentions (PBT) can be predicted from attitudes, subjective norms and perceptions of behavioral control. As a general rule the more favorable the attitude and subjective norm and the greater perceived control, the stronger the intention of the person to perform the behavior in question.



Source: Ajzen, I. (2008). Consumer attitudes and behavior. In C. P. Haugtvedt, P. M. Herr & F. R. Cardes (Eds.), Handbook of Consumer Psychology (525- 548). New York: Lawrence Erlbaum Associates.

Figure 1.- Behavior Prediction PBT Model

PBT focuses on behavior, which goes beyond the attitudes considered influences such as social norms and self-efficacy beliefs. (Ajzen, 2005a). The three predictors and determinants of behavioral intentions may vary from population to population, however, having a profound knowledge of the behavior, it is expected that people carry out the intent of purchasing, as long as there is an opportunity, where expected effects on behavioral intervention are reflected (Figure 2).



Source: Ajzen, I. (2011). Behavioral interventions: Design and evaluation guided by the theory of planned behavior. In M. M. Mark, S. I. Donaldson, & B. C. Campbell (Eds.), *Social psychology for program and policy evaluation* (pp. 74-100). New York: Guilford

Figure 2.- Intention effects

2.3 Values

From the point of view of their psychological significance, values are assessments of events and election of courses of action determined by what people want, this serves as the basis determining the attitudes and behaviors of individuals and groups (Cayon & Pérez, 2008).

From a sociological aspect Kornblit (1994) mentions that values are cognitive and complex structures that also involve evaluative and behavioral dimensions, so as to allow the subject to interpret reality, providing it culturally shared meanings.

With a philosophical standpoint, Tunnermanh (1999) defines the values and beliefs which life is heading towards and decisions are taken based on this.

Schwartz (2001) proposed the classification of values showing each type of security with its definition in terms of motivational goal, and relating examples of specific values and universal human needs deriving from each type of value.

Schwartz (1994a) also provides a transcultural theory that addresses personal values, it is based on the application and development of a system called "Schwartz Values Survey", based on a circular figure structured by ten motivational types, structured in two bipolar dimensions, including settings such as power, achievement, benevolence and universalism; self-direction, stimulation and hedonism versus conservation values comprising safety, tradition and conformity.

2.4 Female market

The concept of gender has been studied by authors like Lamas (1986) and De Barbieri (1992) from social sciences to feminist discourses, defining the term of Gender in Latin America, both in academics and public policy.

As Garrido (2004) mentions from the time the gender concept was incorporated, studies began to emerge, which allowed great progress in the knowledge of the various generic and sex differences while analyzing its symbolic function, construction and representations on society it produces.

Martinez (2012) argues that gender is an objective condition limiting objective potentialities, a likely future which has its own characteristics and scope as it is male or female placing the social agent on a horizon definition of normal, the expected and the unthinkable .

2.5 Females and their way to consume

Another key factor in distinguishing consumption behavior between men and women occurs due to family income doubles growth, which translates into greater purchasing power (Lamb, Hair, and McDaniel, 2008). This is due to the fact that in many households, women are providing 50% of family income, not to mention that sometimes they are heads of household, single mothers, contributing 100% of income (Johnson and Learned, 2004).

Due to its conditions and physiological processes she has characteristics of strong feelings of protection and care, Moir and Jessel (1991) and exaltation of emotions, Pease and Pease (2009). Consequently, it is assumed that women rely on their emotions mixed with other factors to make their decisions while buying, very different situation occurs in men, which is a decision based on more tangible aspects.

2.6 Gender marketing

The marketing of gender has studied marketing efforts by gender showing the differences between men and women, on the way to express wishes of consumer purchase intentions or product evaluations, however when it developed in the United States, it did not involve diversity (Wolf, 2007).

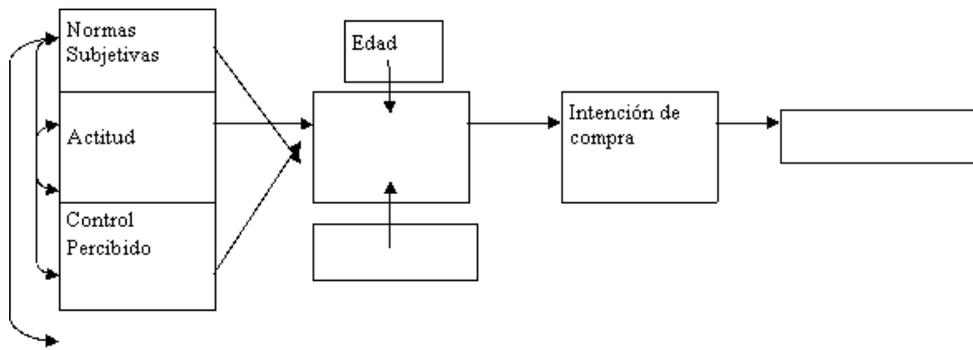
Its main objective is the implementation of men and women's needs for the optimization of distribution, price and communication products and services, which requires prior understanding of men and women's consumer desires, evaluations and purchase intentions (Vergara & Pozo, 2012).

2.7 Smartphone

The mobile phone has been considered an ally and essential component for modern life, which based on continuous technological evolution of mobile telephony, has significantly changed the world (Jung, 2014), almost 7 billion people, have hired or signed some sort of mobile phone service in late 2013 (ITU, 2014).

IAB (2013) conducted a study in Mexico showing how mobile devices are transforming the way in which Mexicans relate to the world, reporting that 84% of Mexicans over 13 years of age have at least one mobile device and of these, 6 out of 10 use them to surf the internet.

Figure 3 explains the construct of research where Attitude, Standard opinion, Control and Intent are the dependent variables and, as the independent variable, student behavior which is related to factors such as age and smartphones (product).



Source: Own elaboration

Figure 3.- Model of Planned Behavior in the acquisition of smartphones..

3 Hypothesis

With the Literature analysis and revised concepts, the following hypotheses are proposed:

Hypothesis 1. Female gender has a positive relationship to the values set by the collectivist dimension in young university female students while reflecting the intention of buying a smartphone.

Hypothesis 2. The greater the influence on the factors that comprise the model of planned behavior, the greater the intention to purchase smartphones within the young students of the University of Guadalajara.

Hypothesis 2a. The greater the influence on the Subjective Norm on students while making their choice of consumption, the greater the intention to purchase smartphones within the young students of the University of Guadalajara.

- Hypothesis 2b. The greater the influence of Perceived Control on students while making their consumption choice, the greater the intention to purchase smartphones within the young students of the University of Guadalajara.

- Hypothesis 2c. The greater the influence on students' attitudes while making their consumption choice, the greater the intention to purchase smartphones within the young students of the University of Guadalajara.

Hypothesis 3. Personal values towards Attitude are positively related to intention to purchase smartphones

- Hypothesis 3a. As influence on the Attitude Self-Transcendence factor decreases, the intention to purchase smartphones increases.

- Hypothesis 3b. As influence on the attitude Conservation factor decreases, the intention to purchase smartphones increases.

- Hypothesis 3c. As influence factor of Opening to Change Stance on increases, the intention to purchase smartphones also increases.

- Hypothesis 3d. As influence on the attitude Self- factor increases, the intention to purchase smartphones also increases.

4 Methodology

The study was applied to 384 students of the University of Guadalajara, performing statistical analysis using SPSS, and to determine the feasibility of the Cronbach' s Alpha. the questionnaire was validated with Exploratory Factor Analysis with the factorization method and maximum likelihood

method Rotation is using the Varimax. Bartlett's Sphericity Test and Kaiser Meyer Olkin's (KMO) Measure were performed. Structural equation model with EQS was chosen to test the reliability of planned behavior models and model values. The questionnaire is based on two previous studies, the first one was developed by Linan and Chen (2009) and adjusted with the second tool to contrast, by Cornelius, Gallani, Godin, Rodrigues, and Nadruz (2009).

Regarding the issue of values, the instrument consisting of 56 values was developed, adapted from the study by Ros and Grad (1991), which uses the value scale developed by Schwartz (1987).

5 Results

Before performing the testing of the hypotheses, verification of scales designed to measure the model of planned behavior and model values was considered, by a factor reduction and thus prove its reliability by Cronbach's Alpha.

This check is performed in a total sample of the population to which the questionnaire considering only the female gender was applied. A total of 74 items were proposed to determine the factors of the general model proposed, where, based on the discrimination that took place, the factors that make up the model of planned behavior are: 18 items for 4 factors and values, as well as a model composed of 29 items for the 4 dimensions proposed.

The valuation of the various items of the questionnaire was conducted after the completion of the factorial reduction in SPSS, 47 variables were taken into account to build the final model in EQS. Eight factors were obtained from the confirmatory factor analysis, accounting for 44.72% of total variance: Attitude, Subjective Norm and Perceived Control; and 61.23% of the total variance: Openness to Change, Auto transcendence, Conservation and Self.

Tables 1 and 2 show final count of each of the factor's values.

Table 1.- Factor Analysis Model of Planned Behavior

Items	Component 1	Component 2	Component 3	Component 4
INTENTION 1	.903	.235	.155	.064
INTENTION 2	.895	.188	.184	.045
INTENTION 3	.891	.167	.178	.037
INTENTION 4	.861	.218	.139	.043
INTENTION 5	.761	.185	.197	.056
ATTITUDE 1	.183	.795	.244	.150
ATTITUDE 2	.165	.776	.185	.128
ATTITUDE 3	.150	.741	.175	.098
ATTITUDE 4	.216	.711	.276	.178
ATTITUDE 5	.335	.696	.152	.168
PERCEIVED CONTROL 1	.112	.214	.840	.124
PERCEIVED CONTROL 2	.165	.236	.836	-.018
PERCEIVED CONTROL 3	.234	.229	.751	.093
PERCEIVED CONTROL 4	.164	.335	.645	.121
SUBJECTIVE NORM 1	.025	.159	.020	.974

SUBJECTIVE NORM 2	.001	.147	.047	.896
SUBJECTIVE NORM 3	.275	.169	.104	.395

Source: own elaboration

Table 2.- Factor analysis model Values

Items	Component 1	Component 2	Component 3	Component 4
Self transcendence 1	.658	.172	.117	.059
Self transcendence 2	.640	.160	.149	.183
Self transcendence 3	.565	.196	.067	.116
Self transcendence 4	.562	.170	.199	.104
Self transcendence 5	.553	.156	.145	.161
Self transcendence 6	.550	.148	.179	.240
Self transcendence 7	.517	.221	.113	.308
Self transcendence 8	.478	.298	-.007	.281
Self transcendence 9	.428	.242	-.029	.287
Self transcendence 10	.331	.395	-.057	.348
Conservation 1	.354	.613	.198	-.136
Conservation 2	.065	.543	.316	.124
Conservation 3	.202	.537	.107	.350
Conservation 4	.192	.513	.127	.097
Conservation 5	.380	.506	.043	.067
Conservation 6	.091	.504	.111	.175
Conservation 7	.225	.427	-.048	.179
Openness to change 1	.288	.073	.723	.116
Openness to change 2	-.068	.008	.697	.084
Openness to change 3	.104	.416	.512	-.031
Openness to change 4	.285	.303	.446	.238
Openness to change 5	.168	.143	.425	.198
Openness to change 6	.362	.368	.374	.032
Self realization 1	.357	.054	.190	.560
Self realization 2	.155	.289	.156	.502
Self realization 3	.193	.029	.349	.464
Self realization 4	.440	.260	.063	.442
Self realization 5	.390	.173	.156	.396
Self realization 6	.208	.340	.123	.387

Source: own elaboration

Table 3.- Reliability coefficients (Cronbach's Alfa)

Factor	Cronbach's Alfa
Attitude	.90
Subjective norm	.94
Perceived control	.89

Intention	.95
Self transcendence	.85
Conservation	.78
Openness to change	.77
Self realization	.77

Source: own elaboration

Table 5 shows the relationships between factors: Attitude, Perceived Control, Subjective Norm, Auto transcendence, Conservation, Self-Empowerment, Openness to Change and Intention.

Table 5.- Correlation Matrix

	Attitude	Perceived control	Subjective norm	Self transcendence	Conservation	Self realization	Openness to change	Intention
Attitude	1 391							
Perceived control	.510** .000 391	1 391						
Subjective norm	.317** .000 391	.141** .005 391	1 391					
Self transcendence	.080 .117 391	.190** .000 391	.025 .623 391	1 391				
Conservation	.242** .000 390	.231** .000 390	.056 .271 390	.596* .000 390	1 390			
Self realization	.334** .000 391	.338** .000 391	.091 .071 391	.492** .000 391	.501** .000 390	1 391		
Attitude	.197** .000 391	.320** .000 391	-.005 .917 391	.695** .000 391	.540** .000 390	.504** .000 391	1 391	
Intention	.466** .000 391	.394** .000 391	.114* .025 391	.066 .190 391	.162** .001 390	.307** .000 391	.214** .000 391	1 391

Source: own elaboration

Results are supported by the valuations of the linear regressions shown in Table 6, which show the attitude factor with significance .000 and .369 standardized Beta, which is confirmed as the one that best describes the relationship between Intention purchase of smartphones and model of planned behavior.

Table 6.- Lineal Regression of the Female Planned Behavior's Intention

Factor	Standardized beta	Robust value T	Significance
Attitude	.369	6.916	.000
Subjective norm	-.033	-.715	.475
Perceived control	.211	4.120	.000

R² = 0.251; R² tight = 0.246; F= 43.304 (Significant F= 0.000)

Source: own elaboration

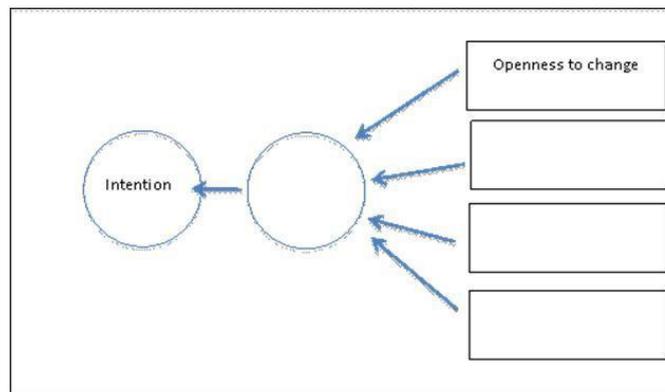
Variables converge towards the factors set forth in the confirmatory factor analysis successfully obtaining X2 Satorra-Bentler of 183.91 with 66 degrees of freedom and a P value of .000; regarding the value obtained from the division of Satorra-Bentler value and the degrees of freedom (X^2 / Df) a value of 2.78 which is less than the maximum acceptable limit of 5 as the common denominator for the studies was obtained applying structural- model equations. (Hair, Anderson, Tatham and Black 1998).

Table 7.- Robust independence and fit indices

SB X	183.91	CFI	.954
DF	66	IFI	.954
NFI	.930	MFI	.860
NNFI	.936	RMSA	.068

Source: own elaboration

Results obtained on the IFC indices 954, NFI of .936 and .068 RMSA according to studies by Hoe (2008) which quotes Garver and Mentzer (1999) are valid, since it shows that the minimum values CFI and NNFI to go from 0-1, with 90 or more being an acceptable value.



Source: own elaboration

Diagram 1 Standardized solution for the model proposed

Once the results are obtained and compared with various publications and observing the results shown by the Robust model and X2 obtained, it is concluded that the overall model is acceptable, as shown in Table 7 and on diagram 1.

Likewise, the equation for the proposed model was obtained, as shown in Table 8.

Table 8.- Construction of the equation with loads

Equation	R2
Attitude= .358* Self transcendence + .189* Openness to change + .525* Self realization + .239* Conservation + .710 D1	.496
Intention= .519* Attitude + .855 D2	.269

Source: own elaboration

5.1 Hypothesis testing

Hypothesis 1. Results for the factors that make the dimension throw an assessment of $\beta = .189$ for Openness to change and $\beta = .525$ for the Self-Realization, where it meets the positive relationship hypothesis being tested, proving it right.

Hypothesis 1a.- Valuations $\beta = .358$ for Auto transcendence and $\beta = .239$ for Conservation were obtained on the results, meaning the hypothesis is not fulfilled.

Hypothesis 2.- The model of planned behavior is considered an excellent predictor influencing the purchase decision-taking on a consumer, highlighting the relevance taking the intrinsic values of people to detonate a particular way in consumption, meaning that concerning the hypothesis composed of three sub-hypotheses H2, the following results were found:

- H2a results show a negative impact on the relationship between the Subjective Norm and Purchase Intention of young students, which do not meet the expectations needed to considered the relationship between the two, meaning the hypothesis is rejected.
- H2b results show a negative impact on the relationship between Perceived Control and Purchase Intention smartphone students, rejecting the hypothesis due to the lack of relationship with each other.
- H2c Variable Attitude explains almost 30% of the variable purchase intent ($R^2 = .269$) with a load factor $\beta = .519$ assertion that the hypothesis is positive and supported by previous studies by Moreno (2006) one can assume that if the attitude factor is isolated and taken as the only factor PBT model it can be considered as a good predictor of the intention.

Hypothesis 3.- H3a results show a significant positive impact of these personal values in attitudes toward the purchase intent, where auto-transcendence factor presents a load of $\beta = .358$, so it is checked positively.

H3b the results show a significant positive impact of these personal values in attitudes toward purchase intent, by a factor of Conservation with a load of $\beta = .239$, meaning this hypothesis is positive.

H3c factor Openness to Change presents a load of $\beta = .189$, meaning this hypothesis is positive.

- H3d results show a significant positive impact of these personal values in attitudes toward purchase intent where the factor of Self-Realization presents a load of $\beta = .525$, meaning this hypothesis is accepted.

6 Conclusions

Gender is a key indicator of consumption manner, emphasizing the importance it represents while taking a decision and demonstrating the important role of the intentions, which are considered as the best predictor of behavior.

The role of personal values while predicting human behavior is strong and has an involvement in taking purchasing decisions, having found a positive and narrow result while relating to others.

Personal values not only serve as good predictors of consumption, but help understand that attitudes can be used as an indicator to predict purchase intention, which is determined by gender.

The factors that make up the individualist dimension are Openness to Change and Self-Realization; the factors shaping the dimension of Collectivism are Self-Transcendence and Conservation. These two dimensions of values are antagonistic to each other by definition, due to the more traditional stereotypes it is logical that values such as Hedonism, Stimulation and Self-Direction are positively related to attitudes toward purchase intent for smartphones, while values related to Security, Compliance, Tradition, Universalism and Compassion are inversely related, meaning that the as one dimension's ponderation increases, the other's will decrease significantly.

However, in this study it was found that the four dimensions are positively related to the purchase intention of smartphones in young students.

Finally, it is observed that the Individualism Dimension Values are related positively towards the smartphones' purchasing intention attitudes, however, in this study it is also concluded that the personal values oriented towards Collectivist Dimension are not in conflict with the positive attitude towards the purchase intent of such equipment.

7 Discussion

It is intended in the future to perform a study including the missing components from the Planned Behavior Model, in order to find out the way in which those factors have an effect, as well as the personal values dimensions and to analyze the influence of Collectivist Dimensions on Subjective Norms; and from the factors of Individualist dimensions on Perceived Control; or if Collectivist and Individualist values work together for Subjective Norms and Perceived Control.

As few studies relating to the securities and purchase intent, which consider personal values and attitudes, it is advisable to keep working on this line of research.

8 Limitations

This research did not analyze female students' perceptions about smartphones' brands, aspect that may be included in a future study, to learn how the various brands of smartphones, as well as accessories, services and quality of these, influence their buying decision.

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