Empirical Validation of the Relationship between Sustainable Involvement and Family Purchase Behavior

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Abstract The present research aims to explain how sustainable involvement can influence the behavior of Algerian families for the purchase of a new car. The main hypothesis of this study was tested on a sample of 210 families. The data obtained were analyzed using structural equation models. The principal results that emerged from this investigation show that the identification of the cognitive and/or emotional purchase process, adopted by family members, could be a relevant avenue for companies to develop and enhance their products. The findings obtained could offer an opportunity to create strong and durable brands.

Keywords: Family structure; Decision-making process; Sustainable involvement.

Introduction

Understanding and explaining the actions of family members in buying or consuming situations represent some of the most fruitful areas of marketing, as previously reported by numerous theoretical and empirical studies. The ever-increasing interest expressed by researchers around the world in explaining this theme is due to the centrality of the family in the marketing strategy of any company. This is also the view of Bree (1992) who considers the family as the main unit of consumption. Other authors, such as Davis & Rigaux (1974) and Sherfi (2010), pointed out that accurate, in-depth and exhaustive studies on family purchase are rare; some were only conducted under a single, essentially individual angle. Yet buying and consuming decisions are usually made by a group of people, particularly members of the family unit. In addition, research conducted by the Credoc (an institution that specializes in statistical, economic and sociological studies) indicates that families today tend to manage their resources in time, money and physical effort in a rigorous and effective manner. It is therefore easy to understand the interest of manufacturers and car dealers in knowing the family buying process so that they can invest in strategies that help them control and manipulate the behavior of family members in a way that is favorable to them. It is therefore essential to study the process of family purchasing, knowing that there is no typical decision-making approach by which each family member must pass before buying a product; there is a multitude. Indeed, some members go through a lengthy decision-making process, involving many steps; while others need only two or even three steps in the decision-purchase procedure. It is worth

noting that family decision-making involves several steps that depend on the type of products to be purchased, the buying habits of those products, and the circumstances of purchase. All this justifies our choice for this fundamental subject who, in our opinion, has not been sufficiently explored (the Algerian academic literature relative to the subject of family purchase is very poor and almost absent) (Bessouh et al, 2017; bessouh and Omar Belkhir, 2018a). This is one of the reasons that led us to clarify the gray areas related to the complex behavior of family purchase. The family purchase approach that is adopted in the present study is based on three types of behavior that can illustrate and clarify the buying process, namely:

Cognitive behavior that relates to product knowledge; it involves information seeking (Cooper, 1983);

Affective behavior which represents all positive and negative feelings about the product (Lekoff - Hagius and Mason, 1993);

Conative behavior that lies in intention, decision-making and the act of purchase (Filser, 1994).

The present study takes into account sustainable involvement, and attempts to adapt the P.I.A scale, proposed by Strazzieri (1994), to the Algerian context. It provides an efficient tool to analyze and better understand the purchasing behavior of members within the Algerian family. An attempt is therefore made, through this research, to answer the following problematic:

How does sustainable involvement influence the buying behavior of members of the Algerian family to buy a new car?

To study this problematic, it was decided to consider a hypothesis that can be subdivided into three other sub-hypotheses. This presentation stems from the fact that our issue deals with the subject of purchase behavior within the family triad (father, mother and child) for the purchase of a new car. The research hypothesis may therefore be stated as follows:

H1: Sustainable involvement of one of the family members in the purchase of a car has an impact on his behavior.

H1.1: A causal link exists between the sustainable involvement of the father and one of the cognitive, affective and conative behaviors when buying a car.

H1.2: A causal link exists between the sustainable involvement of the mother and one of the cognitive, affective and conative behaviors when buying a car.

H1.3: A causal link exists between the sustainable involvement of the child and one of the cognitive, affective and conative behaviors when buying a car.

The figure below illustrates the path adopted in this study.

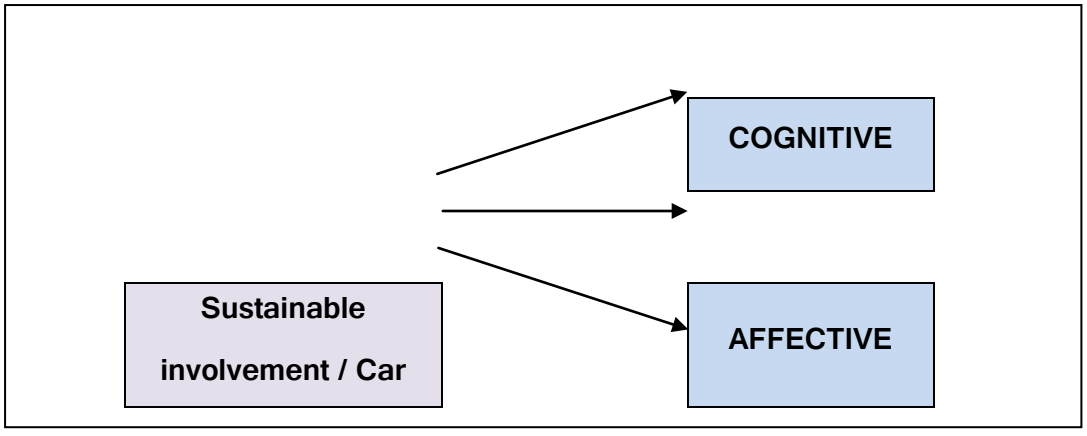

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Figure 1: Conceptual model of research

This study begins with a review of the literature that identifies the variables driving family purchases. Next, the methodology used in collecting and processing the data is presented; the interpretation of the results obtained is given at the end.

I. Review of the literature on family purchasing behavior and sustainable involvement

1.1. Family buying behavior

The decision-making theory within the family has significantly evolved (Riley, 2012; Bessouh et al, 2016). It has shifted from unilateral decision-making to a more hybrid, more collective and complex decision that involves both individual and collective decisions. Indeed, before 1950, the perspective that prevailed in research on the purchase behavior was that the husband, as head of the family, unilaterally took all decisions concerning his family (Tissier-Desbordes, 1982; Putman & Davidson, 1987, Bessouh et omar Belkhir, 2018b). Over time, this attitude has been superseded by the popular concept of the woman as "the buying agent" of the family (Davis, 1976). This concept, which may obviously be verified through the observation of this new characteristic, associates, perhaps incorrectly, the act of purchase with the responsibility and authority to make purchasing decisions within the family. These two approaches are based on the belief that

one, and only one person, is responsible for making all decisions in the family. Moreover, the family unit has become the focus of many purchase decisions as each spouse tries to adapt as much as possible to the buying and consuming customs and habits of the other. In addition, the purchases made by children are directly or indirectly influenced by the parents. It therefore seems rather artificial to analyze the purchase and consumption decisions independently of the context that created them. It is urgent to understand the two actions of buying and consuming because they are part of the lifestyle of households. To be understood, these activities require a good knowledge of how tasks are identified and responsibilities are assigned within the family.

1.2. Impact of involvement on the purchase decision

Involvement was initially developed in several social psychology studies, particularly with the founding works of Sherif and Cantril (1947), as well as those of Sherif and Hovland (1961), within the framework of social judgment theory. For these authors, involvement is "*the perceived importance with which an individual establishes a relationship with some aspects of his world*". Later, in 1967, Krugman introduced this concept into marketing. For him, involvement is primarily a way of reacting to advertising. In addition, involvement expresses the level of interest that the consumer puts on a product or service. The degree of involvement depends on the consumer's profile, as well as on the type of product or service, perceived situation and level of perceived risk. On the other hand, Mitchell (1992) believes that involvement is the main element that influences the level of stimulation,

interest, or impulse. Bloch (1982) defined involvement as a personal and determining variable in the consumer's affective relationship with the product. It significantly affects the consumer's behavior and purchase decision. It is important to distinguish between sustainable involvement and situational implication, and between cognitive implication and emotional implication, in order to better understand the purchase behavior of the consumer. Therefore, motivation and involvement level are very important factors; the efforts made by the consumer through his decision-making process depend on these factors. This research work attempts to examine the temporal aspect of involvement. Sustainable involvement is thus studied due to its importance. Moreover, a great number of researchers in the field of marketing give it considerable importance when studying the consumer's behavior.

II. Methodology of empirical research

The test used to validate the research hypotheses leads us to adopt a research method that makes better use of the data collected. The relevance of this method depends on the choice of the sample, the measurement scales used, and the processing of the questionnaire. The results obtained are then analyzed in order to confirm or refute the hypotheses. To better understand the purchase decision within the family when buying a car, a questionnaire was sent to 210 nuclear families.

2.1. Choice of the sample

Our survey was conducted with a sample of 210 families, consisting of both parents and at least one teenager between 12 and 19 years old, residing in the Wilaya of Tlemcen. The constitution of the sample was one of the key stages of the present research. It was decided that the data collection instrument is a self-administered questionnaire, which was distributed to all three family members in November of the year 2016.

2.2. Scales of measurement

The objective of this study is to empirically test the measurement scales and then compare their psychometric qualities in order to determine which of them is capable of keeping the factor structure validated in the theory (Akremi, 2005). The questionnaire, whose purpose is to measure the latent variables constituting our theoretical model, consists of two parts; the first one covers the following four nominal variables, namely sustainable involvement (IMPL), cognitive behavior (COG), affective behavior (AFF) and conative behavior (CON), and the second one is composed of the items that make up the measurement variables. The distribution of items is presented in Appendix 1.

Through this questionnaire, the respondents were asked to give their opinion on the progress of the purchase process of a new car and to specify their degree of agreement or disagreement on a scale of Likert which consists of 5 points. It is important to note that the items selected in this study were taken from the literature review on family purchase, while the others were developed specifically for analysis. For the processing of collected data, the English variant of SPSS version 20.0 and STATISTICA version 12.0 were used.

III. Results of the study

3.1. Exploratory data analysis

The assessment of scale reliability makes it possible to statistically determine the parameters that should be released in order to appreciably improve the adjustment quality of the measurement model. The number of dimensions can be determined using two separate and complementary tools, namely the Principal Component Analysis and Cronbach's Alpha coefficient, which allow checking the reliability of the dimensions identified. However, this complementarity finds its own limits during the successive iterations of these two tools.

Table 1: Internal consistency of measurement scales for the purchase of a car

	FATHER			MOTHER			CHILD			HOUSEHOLD
Variables	KMO	A	Total Variance	KMO	α	Total Variance	KMO	A	Total Variance	Bartlett Spherit
VIMP	0.838	0.933	75.069	0.816	0.926	73.469	0.864	0.956	82.009	0.000
VCOG	0.888	0.945	75.274	0.852	0.912	65.124	0.907	0.950	77.140	
VAFF	0.739	0.834	60.700	0.719	0.819	60.224	0.841	0.889	69.390	
VCON	0.750	0.814	55.150	0.834	0.878	64.157	0.859	0.929	74.205	

Source: Developed by the authors using the software SPSS20.0 Software (sample of 210 families)

The Cronbach's alpha of the long-term commitment scale is excellent (> 0.9), which reveals good internal consistency. The alphas for each factor are also good (they range from 0.830 to 0.939). The KMO values are all greater than 0.7, confirming the results

obtained with Cronbach's alpha. Bartlett's sphericity test is significant, and communities are high (> 0.5), except for Item VCON7, in the mother and adolescent measurement scales, for which there is a weak community rate.

3.2. Confirmatory factor analysis

To test our theoretical model, a confirmatory factor analysis was carried out using the structural equation model. The questionnaire data were processed using the software Statistica 12.0. The purpose sought is to verify and validate the unidimensionality, reliability and factorial contributions of the constructs by means of the confirmatory factor analysis. The results of adjustment of the measurement model and structural model are summarized in Table 2. Note that sequential chi-square difference tests were carried out to ensure the discriminant validity of each variable, and to check the degree of freedom.

3.3. Model fit evaluation

The adjustment indices are generally good, whether they are classical statistics that are calculated on the values of the sample (GFI, AGFI, CFI, NFI, RMR) or even model adjustment indices, such as the Population Gamma Index (PGI), Adjustment Population Gamma Index (APGI) and RMSEA. These indicators make it possible to evaluate only the quality of the model in absolute terms, but do not stipulate, in any case, the rejection of the model. Therefore it becomes possible to confirm that the fit is good, and that the estimated values and those observed empirically are close to each other. Therefore, one can say that the studied constructs of the measurement and structural models have

acceptable results.

Tableau 2: The Adjustment Indices from Theoretical Model to Empirical Data

Absolute adjustment indices				Absolute adjustment indices			
Indices	Value father	Value mother	Value child	Indices	Value father	Value mother	Value child
Chi_2	1228.29	1153.64	1667.2	Bentler-Bonett Normed Fit Index	0.760	0.804	0.650
Degree of freedom DF	272	272	272	Bentler-Bonett Non-Normed Fit Index	0.781	0.825	0.655
Level p	0000	0000	0000	Bentler Comparative Fit Index	0.801	0.842	0.688
RMS Standardized residues	0.0999	0.0927	0.143	Bollen's Rho	0.735	0.784	0.614
(GFI). Joreskog	0.651	0.671	0.561	Bollen's Delta	0.802	0.843	0.689
(AGFI). Joreskog	0.583	0.607	0.475	Parsimonious Fit Indices			
Population Noncentrality Parameter	5.398	5.385	8.480	James-Mulaik-Brett Parsimonious Fit Index	0.689	0.729	0.589
Mc Donald Noncentrality Index	0.067	0.089	0.014	Ch2 /DF	4.515	4.24	6.129
RMSEA Index Steiger-Lind	0.141	0.133	0.177				
Gamma Population Index	0.720	0.744	0.616				
Adjusted Population	0.666	0.694	0.541				

Gamma Index.				

Source: Elaborated by the authors using the software Statistica 12.0 (Sample of 210 families).

Despite the existence of some values lower than the ones recommended by a number of researchers in the field (Fox, 2006, Hu & Bentler, 1999), one can say that the adjustment indices are rather satisfactory. According to Ping (1995), the results obtained do not preclude performing the advanced hypothesis testing.

Table 3: Form indices of the structural model for the purchase of a car

Car	Father		Mother		Adolescent	
Variables	S	K	S	K	S	K
VIMP 1	- 2.564	0.235	-0.112	-1.257	-0.499	-0.988
VIMP 2	-2.151	0.075	0.075	-1.222	-0.210	-1.306
VIMP 3	-2.127	0.153	0.153	-1.272	-0.240	-1.438
VIMP 4	-2.091	0.260	0.260	-1.112	-0.305	-1.222
VIMP 5	-1.629	0.261	0.261	-1.221	-0.244	-1.396
VIMP 6	-1.244	-0.030	-0.030	-1.016	-0.481	-0.781
VCOG 1	-1.797	-0.063	-0.063	-0.574	-0.158	-0.996
VCOG 2	-2.576	-0.394	-0.394	-0.906	-0.769	-0.691
VCOG 3	-1.676	0.643	0.643	-0.848	-0.197	-1.469
VCOG 4	-1.644	0.690	0.690	-0.636	-0.231	-1.405
VCOG 5	-1.721	0.447	0.447	-0.648	-0.034	-1.419
VCOG 6	-1.522	0.596	0.596	-0.795	-0.073	-1.485
VCOG 7	-1.930	-0.203	-0.203	-0.825	0.609	-0.634

Car	Father		Mother		Adolescent	
Variables	S	K	S	K	S	K
VAFF 1	-2.456	0.253	-0.488	-0.794	-0.824	-0.348
VAFF 2	-1.155	0.777	0.697	-0.390	-0.188	-1.233
VAFF 3	-0.612	-0.478	0.880	-0.358	0.270	-1.267
VAFF 4	-1.211	0.900	0.027	-1.175	-0.285	-1.133

VAFF 5	-0.305	-1.335	0.654	-0.751	0.469	-1.113
VCON 1	-1.578	2.569	-0.238	-1.009	-0.585	-0.774
VCON 2	-0.897	0.213	0.303	-0.879	0.154	-1.211
VCON 3	-1.003	0.749	0.327	-0.783	0.154	-1.082
VCON 4	-0.826	0.260	0.311	-0.922	0.159	-1.196
VCON 5	-0.152	-1.458	-0.100	-1.202	-0.297	-1.304
VCON 6	-1.211	0.394	0.006	-1.233	-0.085	-1.301
VCON 7	-0.147	-1.403	.....	.....	.....	.....
.....						

Source: Elaborated by the authors using the software Statistica 12.0 (Sample of 210 families).

3.4. Factorial contributions of measurement scales

The factorial contribution allows measuring the factorial weight of manifest variables (indicators or items) on the latent variables of a theoretical model. Thus, the Student's t-test must statistically be greater than 1.96, with a 5% significance level for each factorial contribution of indicators related to a construct in order to check if the relation between items is positive. The contributions of each item are around the value 0.6, except for VCON 5-6-7 of the father.

The values of λ are satisfactory and important, which means that a significant link exists between each indicator and its construct.

3.5. Correlations and modeling of structural equations

Table 4 - Regression coefficients of the structural relations for the purchase of a car

Relations	βi	Ei	T>1.96	βi	Ei	T>1.96	βi	Ei	T>1.96	P<0.05
(VIMP)-->(VCOG)	0.892	0.205	50.350	0.718	0.484	19.533	0.758	0.425	23.889	0.000
(VIMP)-->(VAFF)	0.867	0.248	34.614	0.825	0.319	26.657	0.823	0.323	29.522	

(VIMP)--->(VCON)	**0.602**	**0.638**	**12.120**	**0.731**	**0.466**	**19.773**	**0.629**	**0.604**	**14.167**	

Source: Elaborated by the authors using the software Statistica 20.0 (Sample of 210 families).

Factor analysis indicates that there is a strong correlation between the explanatory variable and the explained variables of the structural model. It is therefore possible to say that sustainable father involvement has a positive influence on his behavior for buying a car. The hierarchy of effects for the father's buying process for this product category follows a thoughtful process (βcog = 0.892). These results are in good agreement with those reported by Cooper (1983) and Kaplan (2000). The factorial correlations between the latent variables of the structural model show satisfactory scores, which means that the mother is also involved in the car purchase process. She has a rather emotional behavior (βi = 0.825). Since the factorial weight of the conative behavior (βi = 0.731) and that of the cognitive behavior (βi = 0.718) are quite close to each other, it is difficult to decide on the hierarchy of effects for the mother's buying process. The adolescent's purchasing process for such products is divided between a positive feeling vis-à-vis the products considered and a rigorous search for information before proceeding to the act of purchase (βi > 0.50).

Conclusion

Family buying behavior remains a poorly explored topic in Algeria. As part of this research, we have drawn from several studies that highlight the leading role of sustainable

involvement to explain the hierarchy of effects of individuals in the same household during the family purchase decision-making process. Involvement certainly has consequences, for all the cognitive, affective and conative behaviors mentioned above, on each member of the household. According to the results obtained in this study, it is easy to see that the analysis of the role structure in Algerian families reveals divergences in the decision-making process. It is on this basis that we can, therefore, make two recommendations:

- Companies must continually seek out new and better ways of offering their products or services. This is the only way they can successfully maintain their competitive edge and remain at the forefront of business innovation.

- Companies need to carry out a new kind of family studies, which should not be limited only to understanding or measuring the consumer's post-purchase satisfaction; it must also aim to satisfy the consumer's pleasure during the consumer experience.

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Appendix 1

Coding	Formulation of items : Sustainable Involvement / Car
VIMP 1	Buying a car is an activity that matters a lot to me
VIMP 2	Purchasing a car is an activity to which I attach exceptional importance
VIMP 3	I particularly like to buy a car
VIMP 4	Purchasing a car is an activity that interests me
VIMP 5	I am particularly attracted by a car purchase
VIMP 6	Seeking information about a car is a pleasure for me

Codage	Formulation of items: Cognitive/Car
VCOG 1	In general, I have enough elements to make a judgment
VCOG 2	Overall, I know what the product looks like
VCOG 3	I have the necessary information about the cars that are on the market
VCOG 4	Generally, I am well informed about all the characteristics of the car
VCOG 5	The information I have about the car gives me a good overall idea
VCOG 6	I get the required information about the car
VCOG 7	I have got an idea about the car

Codage	Formulation of items: Affective/Car
VAFF 1	I am pleased when buying a car
VAFF 2	I prefer the area of automobile
VAFF 3	Buying a car is a passion for me
VAFF 4	I like to be asked to help purchase a car
VAFF 5	I like buying a car even if it is not for me

29.

Codage	Formulation of Items: Conative /Car
VCON 1	I intend to make purchases
VCON 2	There is a 99% chance for me to make purchases
VCON 3	There is a 99% chance that I will make the purchase

VCON 4	I am probably going to carry out the purchase.
VCON 5	There is very little chance that I will not buy a car myself
VCON 6	It is in my interest to buy a car
VCON 7	There is very little chance that someone else in my family decides to buy a car

Appendix 2

Factorial contribution of measurement scales

Les variables	γi	T>1.96	γi	Ti.96	γi	T>1.96	P<0.05
(VIMP)→[vimp1]	0,889	54.483	0.776	26.237	0.840	38.451	0.000
(VIMP)→[vimp2]	0.949	102.53	0.812	31.616	0.920	74.829	
(VIMP)→[vimp3]	0.809	31.659	0.847	38.908	0.905	64.250	
(VIMP)→[vimp4]	0.897	58.483	0.895	55.221	0.920	74.848	
(VIMP)→[vimp5]	0.703	19.179	0.914	64.666	0.910	67.107	
(VIMP)→[vimp6]	0.705	19.317	0.631	14.520	0.809	31.968	
(VCOG)→[vcog1]	0.743	22.708	0.663	16.529	0.802	31.263	
(VCOG)→[vcog2]	0.820	33.568	0.431	7.481	0.640	15.306	
(VCOG)→[vcog3]	0.929	79.862	0.948	101.14	0.961	140.46	
(VCOG)→[vcog4]	0.831	35.870	0.957	112.99	0.949	115.30	
(VCOG)→[vcog5]	0.915	68.752	0.806	31.378	0.937	96.607	
(VCOC)→[vcog6]	0.802	30.384	0.880	51.346	0.922	80.182	
(VCOG)→[vcog7]	0.856	42.363	0.516	9.915	0.711	20.182	
(VAFF)→ [vaff1]	0.825	29.922	0.515	9.280	0.757	23.727	
(VAFF)→ [vaff2]	0.856	34.639	0.837	29.957	0.860	38.026	
(VAFF)→ [vaff3]	0.631	13.691	0.811	26.754	0.798	27.411	
(VAFF)→ [vaff4]	0.666	15.529	0.625	13.275	0.829	32.086	
(VAFF)→ [vaff5]	0.473	8.155	0.604	12.353	0.687	17.167	

(VCON)→ [vcon1]	0.667	15.677	0.991	24.115	0751	23.871	
(VCON)→ [vcon2]	0.844	33.030	0.941	37.980	0.931	84.564	
(VCON)→ [vcon3]	0.899	43.586	01955	55.773	01955	113.12	
(VCON)→ [vcon4]	0.777	24.252	0.980.	50.255	0.946	101.53	
(VCON)→ [vcon5]	0.346	5.337	0.610	7.558	0.642	15.262	
(VCON)→ [vcon6]	0.456	7.765	0.724	9.921	0.698	18.932	
(VCON)→ [vcon7]	0.182	2.570	.....	.....	.....	.....	