THE MEDIATING EFFECT OF THE BRAND ON THE RELATIONSHIP BETWEEN SOCIAL NETWORK MARKETING AND CONSUMER BEHAVIOR

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Abstract: : In this paper, we investigate the relationship between social network marketing and consumer behaviors. It is a descriptive study with primary focus on practical aspects. To do the task, we conduct a survey based on our proposed questionnaire. The Structural Equation Modelling (SEM) and Smart PLS software are used to evaluate the obtained dataset including more than 384 samples. The results indicate that the brand value has more impact on consumer response as compared to social networks marketing.

Keywords: *social media marketing, consumer behavior, Telegram, Instagram, SEM, PLS.*

I. INTRODUCTION

Today, telecommunication networks have been widely developed all over the world [1, 2]. Emerging new technologies such as Cognitive Radio [3, 4], LiFi, and Software Defined Networks in 5G as well as developing the concepts such as the Internet of Things (IoT) draw a broad and unpredictable expansion of data networks in the near future. This implicitly means that worldwide and more available data networks may be provided with the highest Quality of Service (QoS) and also Quality of experience (QoE) to share varies data types such as image, video, voice, text, and interactive multimedia in large scales [5, 6]. This can lead to sharp changes in the Internet user population and their desirous behaviors to access media networks [3,4,7].

With the advent of virtual social networks, human relations on the Internet have taken a new form. Social media have merged into other forms of computer-based communications and consequently, have transformed the media prospects, interpersonal interaction practices, and meeting the user needs [8]. Both small and huge organizations have joined to social media and are trying to discover its benefits. Awareness of the components and dimensions affecting business success in cyberspace may help authorities both in right policy-making of the laws and infrastructure and providing a clear view for business owners about the attitudes, preferences, and concerns of the customers. That can eventually assist to improve the prosperity of domestic virtual markets and get the maximum benefit out of the available potentials in this area.

II. RELATED WORKS

In [9], they argued that despite the growing importance of social media in the business world, researchers have not yet paid the deserved attention to this theoretical field. Therefore, managers direct content marketing strategies only by relying on speculations, trial and error without any scientific basis. Consequently, researchers have designed and presented a comprehensive framework for content marketing initiatives on social media in their research [10] in which all the effective dimensions including supportive measures as well as interactive and communicative marketing have been considered. Finally, there are some tips to increase the effectiveness of such content marketing.

In [11], they examined the content strategy role in social networks on the quality of brand communities in Indian higher education institutions. Their results showed that the agility and type of content had a significant effect on the frequency of comments and likes, which reflect the level of users' engagement. Finally, this research provides marketing managers with practical guidelines to implement the content strategy effectively.

In [12], the researchers deployed the structural equation modeling in their work examining the role of "habit" and "website quality." The results show that the user intention for continuous use is determined by three key factors of perceived usefulness, trust, and habit. Furthermore, the qualitative dimensions of a website have a noticeable and significant impact on perceived usefulness and trust. In some researches, the impact of website qualitative dimensions of direct electronic sales on customer satisfaction was investigated. For example, in [13] they divided the system quality into two parts of web design and interactivity, the information quality into two parts of information capability and security, and also service quality into three parts of accountability, reliability, and empathy.

Furthermore, some researches defined different system quality categories. They [14] categorized the qualitative dimensions of websites into three categories of system, information, and service qualities. They concluded that all qualitative dimensions are correlated with customer satisfaction except for empathy, while others concentrated on perceived usefulness, trust, and habit [15]. Their results show that the user intention for continuous use is determined by three key factors of perceived usefulness, trust, and habit.

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Also, the qualitative dimensions of the website have a noticeable and significant impact on perceived usefulness and trust.

Guerrero et al. [16] introduced the dimensions of website design, reliability, accountability, assurance, and personalization, based on the traditional SERVQUAL model [18], in order to clarify the relative factors of the online service quality. They also examined the relationship between the dimensions of the electronic service quality, the overall quality of service with customer satisfaction. According to it, confidence is the most central factor in the quality of service and customer satisfaction, and the next important factors are reliability and accountability. The website design lies after these dimensions. Finally, the matter surprised them is that personalization lies at the bottom of the list as the least effective dimension.

III. RESEARCH MODEL AND ASSUMPSIONS

A conceptual model is considered as an important step in the research process. The model is based on the research work of Godi et al. [20], which has been depicted in Figure 1. Furthermore, some important hypotheses are listed below Equations, tables and figures will be included in the text in the order of reference.

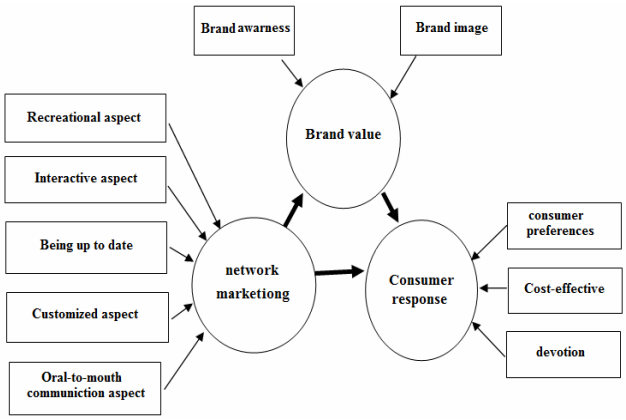

Figure 1. The conceptual model of the research.

Hypothesis 1: Social network marketing has a significant impact on brand value.

Hypothesis 2: Social network marketing has a significant influence on consumer response.

Hypothesis 3: Brand value has a significant effect on consumer response.

Hypothesis 4: Social network marketing through brand value has a significant impact on consumer response

IV. RESEARCH METHODOLOGY

Cronbach's alpha [21] is used in the present study to measure reliability. This method is applied to estimate the internal consistency of the instruments such as questionnaires and tests that measure different traits. The standard deviation of each subset scores of the questions in the questionnaire should be first appraised to estimate Cronbach's alpha; then, the alphabe obtained through the following equation:

$$r_\alpha = \frac{j}{\left\{(i-1)\times\left[\sum S_i / S_j\right]\right\}} \quad (1)$$

Validity is also used to evaluate content validity based on the opinion of experts and university professors. Both convergent and discriminant validities should be calculated to assess validity in the partial least squares (PLS) models [22]. These two types of validity are explained.

Convergent validity

In the partial least squares (PLS) method, the average variance extracted (AVE) is used in order to estimate the convergent validity of the constructs. The minimum acceptable value for convergent validity is 0.5 for each construct. The results of this test are presented in table 1.

Table 1. Discriminant validity

Variables	(AVE)
social networks marketing	0.7894
entertainment	0.8126
interactional dimension	0.8293
Timeliness	0.5611
Customization	07434
word-of-mouth marketing	0.7842
brand equity	0.6334
brand awareness	0.7064
brand image	0.7129
consumer response	0.6984
consumer preferences	0.6340
cost-effectiveness	0.6639
Loyalty	0.5940

In table1, the average variance extracted (AVE) value for the research variables is between 0.5611 and 0.8293. This value is higher than the minimum value of 0.5, indicating the acceptable convergent validity of the constructs.

Discriminant validity

The correlation test was used to examine the discriminant validity of the constructs. For this purpose, the square root of the average variance extracted (AVE) for each construct should be higher than the correlation of that with other constructs. Table2 shows the appropriate discriminant validity of the constructs.

Table 2. Extracted mean square variance

variables	1	2	3	4	5	6	7	8	9	10	11	12	13
social networks marketing	0.7894												
Entertainment	0.659	0.8126											
interactional dimension	0.789	0.538	0.8293										
Timeliness	0.644	0.554	0.711	0.5611									
Customization	0.479	0.567	0.665	0.528	0.7434								
word-of-mouth marketing	0.685	0.457	0.526	0.533	0.491	0.7842							
brand equity	0.357	0.526	0.580	0.493	0.484	0.394	0.6334						
brand awareness	0.497	0.488	0.520	0.533	0.629	0.694	0.529	0.7064					
brand image	0.357	0.56	0.581	0.497	0.483	0.394	0.357	0.526	0.7129				
consumer response	0.497	0.485	0.526	0.537	0.622	0.698	0.492	0.484	0.523	0.6984			
consumer preferences	0.347	0.526	0.580	0.493	0.484	0.395	0.353	0.521	0.357	0.610	0.6340		
cost-effectiveness	0.411	0.466	0.521	0.553	0.656	0.602	0.497	0.488	0.357	0.526	0.580	0.6639	
Loyalty	0.353	0.516	0.587	0.466	0.424	01.351	0.341	0.522	0.357	0.526	0.580	0.493	0.5940

V. RELIABILITY

Descriptive statistics are applied for displaying demographic information using statistical characteristics such as frequency, percentage, graph drawing, and consumer information analysis. The correlation test is used to examine the discriminant validity of the constructs. For this purpose, the square root of the average variance extracted (AVE) for each construct should be higher than the correlation of that construct with other ones. As can be seen, the Cronbach's alpha and the CR index for all structures are higher than 0.729, which means that the structures are reliable. CR is a structural equation model that permits estimation of the reliability index and coefficient of a composite test for congeneric measures. The method is also helpful in exploring the factorial structure of an item set; its use in scale reliability estimation and development is illustrated.

$$\mathrm{AVE}=\frac{\sum Y_i^2}{\sum Y_i^2+\sum_i \mathrm{var}(\varepsilon_i)},\quad \mathrm{CR}=\frac{\left(\sum_{i=1}^{n} Y_i\right)^2}{\left(\sum_{i=1}^{n} Y_i\right)^2+\left(\sum_{i=1}^{n} \varepsilon_i\right)} \qquad (2)$$

Table 3. Reliability of research structures

variables	question	Cronbach's alpha	CR
social networks marketing	1-15	0.765	0.769
Entertainment	1-3	0.863	0.861
interactional dimension	4-6	0.729	0.727
Timeliness	7-9	0.786	0.782
Customization	10-12	0.794	0.799
word-of-mouth marketing	13-15	0.765	0.768
brand equity	25-30	0.873	0.870
brand awareness	25-27	0.818	0.823
brand image	28-30	0.839	0.837
consumer response	16-24	0.798	0.800
consumer preferences	16-18	0.799	0.797
cost-effectiveness	19-21	0.890	0.888
Loyalty	22-24	0.824	0.826

Table 4. Descriptive statistics of the social networks marketing

Variables	word-of-mouth marketing	customization	timeliness	interactional dimension	entertainment	social networks marketing
Mean	3.0833	3.1302	3.5911	3.9635	3.7708	3.5077
median	3.0000	3.0000	4.0000	4.0000	4.0000	4.0000
standard deviation	1.22136	1.23851	1.20357	1.14656	1.17839	1.27815
variance	1.492	1.534	1.449	1.315	1.389	1.634
skewness	.073	.016	-.338	-1.130	-.539	-.383
kurtosis	-1.001	-1.049	-1.313	.527	-.922	-1.173
minimum	1.00	1.00	1.00	1.00	1.00	1.00
maximum	5.00	5.00	5.00	5.00	5.00	5.00

Table 5. Descriptive statistics of the brand equity

variables	Brand image	Brand awareness	brand equity
mean	3.7630	3.3516	3.5573
median	4.0000	4.0000	4.0000
standard deviation	1.03141	1.30027	1.14798
variance	1.064	1.691	1.318
skewness	-.675	-.287	-.500
kurtosis	-.017	-1.113	-.603
minimum	1.00	1.00	1.00
maximum	5.00	5.00	5.00

Table 6. Descriptive statistics of the consumer response

variables	consumer response	consumer preferences	cost-effectiveness	loyalty
mean	3.5052	3.7161	3.4297	3.3698
median	4.0000	4.0000	4.0000	3.0000
standard deviation	1.21134	1.45072	1.22219	1.18684
variance	1.467	2.105	1.494	1.409
skewness	-.406	-.760	-.522	-.248
kurtosis	-.754	-.937	-.718	-.901
Minimum	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00

Inferential statistics

Inferential statistics is used for data analysis and hypothesis testing. Cronbach's alpha is used to examine the reliability of the questionnaire, the one sample t-test is applied to examine the status of the research variables, the confirmatory factor analysis is utilized to assess the research validity, and hypothesis testing is done through structural equation [23]. Indeed, the ultimate goal of the inferential statistics is to estimate the characteristics of the population.

Determination of normality or non-normality through Kolmogorov-Smirnov test

Based on [24] the normality of the research variables should be confirmed before hypothesis testing. If the significance level is higher than 5 percent, the variable is normal; otherwise, data are abnormal.

Mann–Whitney U test

Mann–Whitney U test is a nonparametric test, which is used for assessing the difference between samples. It is a nonparametric alternative test for the independent t-test that is applied to compare the data obtained from independent groups. The test is used when the conditions of the variables for the use of parametric tests are not provided, i.e., the variables are not continuous and normal [20]. Partial least squares (PLS) method has been developed for coping with the problems of specific data such as lost data, non-normal data, and collinearity between independent variables.

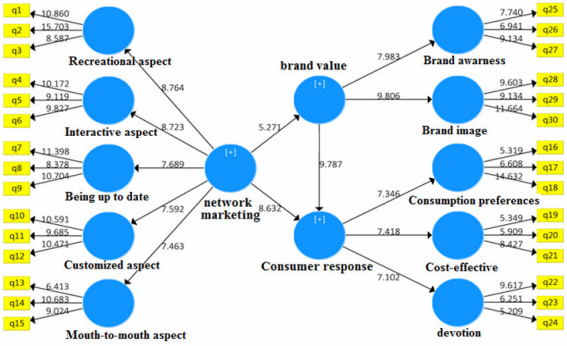

Figure 2. Conceptual model of the research standard numbers of research questions.

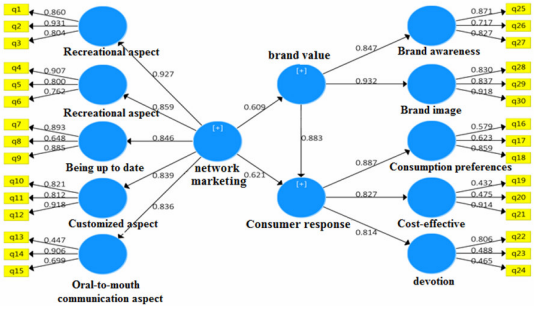

Figure 3. Significant numbers of research questions

Then, the confirmatory factor analysis for the questions of the research variables in the standard estimation mode should be done.

The accuracy of the questions related to the research variables should be confirmed before hypothesis testing. Hence, the confirmatory factor analysis is used in this stage. Factor analysis is applied to report the markers selected for the latent variable; it shows that, to what extent, the selected markers define or fit the latent variable. In PLS software, it is necessary to connect all latent variables to each other for doing factor analysis.The accuracy of the questions related to the research variables should be confirmed before hypothesis testing. Hence, the confirmatory factor analysis is used in this stage. Factor analysis is applied to report the markers selected for the latent variable; it shows that, to what extent, the selected markers define or fit the latent variable. In PLS software, it is necessary to connect all latent variables to each other for doing factor analysis.

The observed variables are turned into the latent mode for displaying the output better; the '+' sign inside the circles indicates this issue. Factor loads are significant for the interpretation of the results of factor analysis. These loads show the correlation between each manifest variable (questions) and the related loads. It means that the questions with factor loads lower than 0.4 are not sufficient to remain in the model and they should be omitted. As the model shows, all numbers are higher than 0.4; therefore, no question is omitted (Figure 2).

In addition, confirmatory factor analysis for the questions of the research variables in the significant number mode. The values in this figure assess the relationships between latent variables in terms of significance. If the t-value is higher than 1.96 in a relationship, it will be considered significant at the level of 5 present, and if it is higher than 2.58, it is significant at the level of 0.01(Figure 3). Besides, investigation of the structural modelling fit by the goodness-of-fit (GOF) criterion should be done. The goodness-of-fit criterion is associated with the general part of the structural equation models. It means that the researcher can use this criterion to control the fit of the general part after examining the measurement and the structural parts. This criterion is calculated according to the following formula:

$$\text{Gof} = \sqrt{\overline{\text{communalities}} \times \overline{R^2}} \qquad (3)$$

Where represents the average common values of each construct and is the average explained variance of the endogenous constructs of the model. The GOF value related to the structural research model has been calculated in table 9. In the recent formula, $\overline{R^2}$ is the average determination coefficient of the endogenous constructs of the model. Three values of 0.01, 0.25, and 0.36 have been introduced as weak, moderate, and strong values for GoF. The GoF value for the present model was 0.603, indicating a solid general fit of the model.

Table 9. Review the GOF criterion

variable	Variance	Communality	GOF
social networks marketing	0.825	0.788	**0.603**
entertainment	0.819	0.815	
interactional dimension	0.837	0.830	
timeliness	0.574	0.564	
customization	0.745	0.741	
word-of-mouth marketing	0.766	0.781	
brand equity	0.833	0.797	
brand awareness	0.854	0.785	
brand image	0.818	0.817	
consumer response	0.835	0.834	
consumer preferences	0.576	0.569	
cost-effectiveness	0.748	0.749	
loyalty	0.751	0.711	
mean	0.794	0.760	

VI. CONCLUSION AND FUTURE WORKS

In this paper, the relationship between social network marketing and consumer behaviors is investigated. It is suggested to carry out future studies by larger samples and in other similar companies in the country in order to extend the work. Experimental and quasi-experimental studies could be useful to investigate this issue. In addition, identification and ranking of the factors affecting instant online shopping by applying multi-criteria decision-making techniques are recommended. It could also be interesting to investigate the relationship between social network marketing and consumer behavior with the mediating role of attitudes to brand. Finally, analyzing the role of social networking in the development of word-of-mouth marketing in (Telegram and Instagram) social networks and presentation of a marketing model through them are essential items that can be targeted.

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