

Importance and effects of the color on attitudinal reactions of the user: *the case of a website on Tunisian travel agency*

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Abstract: *This study aims to understand how website dominant color (blue vs red) can impact purchase intention through website involvement. To collect data we conducted an online experiment followed by a questionnaire. Specifically, we conducted a sample of 300 Tunisian Internet users who use the internet to book their holidays. Results indicate that websites color lead to cognitive involvement and affective involvement Websites. Responses from the participants also reveal that website involvement leads to purchase intention.*

I. Introduction

Consumers interact with merchant websites through various atmospheric elements and interactive features found on the website. These website features are essential components of the online business environment. They may affect users' psychological processes and may encourage consumers to buy. Atmospheric features and elements of websites are believed to be stimuli that invoke the systematic development of purchasing intentions induced by the information contained on the website (Ariely, 2000; Liu and Shrum, 2009).

In recent years, the issues of websites atmospheric elements have raised a growing interest of both academic researchers and practitioners. The research problem of this study is exploring the sensory variables of a tourist website that may significantly affect the internal behavior and reactions of internet users during their navigation. In particular, this study explores the effect of colour of tourist merchant websites on users' reactions. The choice of the colors variable is motivated by the influence this variable may have on users' responses to a website. Specifically, the effects of dominant colors in advertising stimuli, in particular, the impact that the dominant colour of merchant websites on users' reactions (Wu et al, 2008; Gnambs et al, 2010). Colour is a visual dimension of the physical environment and is a tool of nonverbal communication used to transmit a message about the products (Bellizzi, Crowley and Hasty, 1983). It is through this system of non-verbal communication that consumers receive signals on the products and the business environment (Markin, Lillis and Narayana, 1976). Similarly, colour is considered as a component of the physical offer with persuasive arguments and to which consumers are becoming increasingly sensitive.

Above raised problems have made it therefore important to investigate such questions as:

- 1- What's the importance of color of the tourism website in Tunisia?
- 2- What's the effect of the colour on the users' affective and cognitive involvement?
- 3- Is the affective and cognitive involvement determine the purchase intention of the user?

II. The theoretical framework:

Stimulus-Organism-Response Model

Because website atmospheric elements are important environmental stimuli for the online purchase process, environmental psychology is the appropriate theoretical ground for studying the effects of atmospheric elements on users' reactions (Koufaris et al . 2002). More specifically, several studies have been based on the stimulus - organism -response (SOR) paradigm as a theoretical framework to explain how atmospheric features and components of the website affect user behavior (Eroglu et al, 2003; Parboteeah et al, 2009).

1. Website Color

Colour is one of the visual dimensions of physical environment and a tool for non-verbal communication used to transmit a message about the products (Bellizzi, Crowley and Hasty, 1983). It is through this system of non-verbal communication that consumers receive signals on products and business environment. Similarly, color is considered a component of physical offers with persuasive arguments to which consumers are becoming increasingly sensitive. In general, used colours are bright and warm in order to attract users' eyes and influence their behavior. According to Mandel and Johnson (1999) the background colour of Web pages and design influence consumers' purchasing decisions.

2. Affective and cognitive reactions to merchant web sites atmospherics:

The aim is to identify the nature of the relationship between individuals and the object in terms of the needs, values, personal interests and involvement and to determine its impact on individuals' behavior. Two aspects of involvement with websites are studied: cognitive involvement and affective involvement (Park and Young, 1986). The simultaneous study of cognitive and affective measures of involvement provides valuable information on consumers' various internal processes from two important psychological aspects.

Implication is defined as a person's perception of the relevance of an object to inherent needs, values and interests (Zaichkowsky, 1985). Recently, researchers have begun to extend the applicability of the involvement concept to websites (McMillan et al, 2003). This study focuses on the characteristics of a stimulation site and examines how stimuli (color of web sites) may affect consumers' cognitive and affective involvement to the Web site in a purchase scenario. To this end, this study defines involvement with a website as the perceived relevance of a website to inherent needs, values and interests of the consumer.

3. The Approach Behavior

The approach behavior is the desire to remain at the place of sale (Meharabian and Russel, 174). Consumers' approach behavior is an important and practical indicator of the success of a merchant website. Some authors (Eroglu et al, 2003; Wu et al, 2008) were interested in studying the approach or avoidance behavior in its entirety in order to explain the effect of atmospheric variables. They showed that these variables have a significant effect on approach behavior through affective reactions (Eroglu et al , 2003). Other researchers have examined the distinctive consumer reactions like purchase intention, intention to revisit the site, length of visit and number of pages viewed (Skandrani et al, 2011; Koo et al, 2010)

Research Model

This paper attempts to understand the effects of website colour on website involvement, which further influences consumers' purchase intention. With respect to Figure 1, the research model depicts how website colour can cause different types of website involvement (cognitive involvement and affective involvement) which lead to purchase intention.

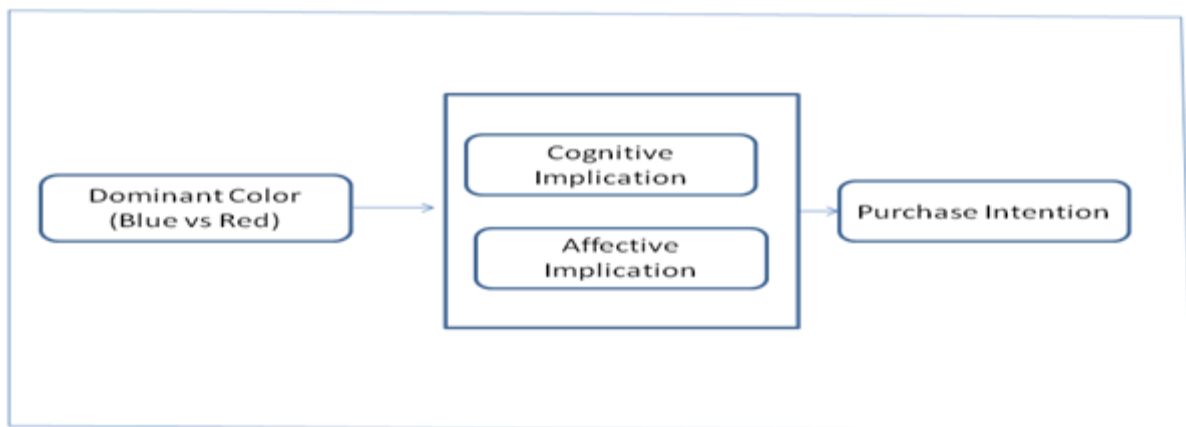


Figure 1: Research Model

III. Methodology

Experimental Design

1. The factorial plan

To measure the effect of the dominant color of the site and the cognitive and emotional involvement of the user in browsing the website, we manipulated the color of the site in two versions: either the Blue or red. The following table summarizes the manipulations of atmospheric variables of the website on which door the experiment:

Tables 1: Measurement of atmospheric variables Built Web Site

Variables	Measures
dominant color	Warm color manipulation (red) vs cold color (blue).

Experience in field with a full factorial design with atmospheric factor (dominant color) was conducted in accordance with the factorial plan outlining the two versions of the manipulation of the dominant color of the

website object of the experiment to test our research model. The table 2 shows two factorial design of the experiment.

Tables 2: Factorial experimental manipulation of the dominant color of the site

version of the site	dominant color
1	Blue
2	Red

The independent variable is website colour (blue and red). Cognitive and affective involvement are measured and studied as mediating variables. Purchase intention is measured as a dependent variable.

2. Participants

To collect data we conducted an online experiment followed by a questionnaire. Specifically, we conducted a sample of 300 Tunisian Internet users who use the internet to book their holidays.

IV. Data Analysis

→ Direct effect of the dominant color of the site on the cognitive and emotional involvement of the user

A multivariate analysis of variance is performed on all of the dependent variables. To this end certain conditions have been previously vetted for accuracy. These conditions relate to the fulfillment of the normality of variables and independence of observations.

The results of the multivariate analysis were used to test the effect of variable color scheme of the site on the cognitive and emotional involvement of the user is presented in the following table:

Tables 3: Effect of the dominant color of the site

Independent Variables	Dependent Variables	MANOVA			
		D	ddl	Eta ²	Sig.
Dominant Color	cognitive Implication	59.778	1	.165	.000
	affective Implication	9.926	1	.032	.000

The result of the multivariate analysis of variance was significant for both dependent variables. Indeed, the relationship between the dominant color of the site and the cognitive involvement (D (1) = 59,778, p <.000) and affective (d (1) = 9926, p <.002) of the Internet proved to be both significant at the 5% level (Table 49). The Wilks' Lambda statistic is equal to 0.825. This therefore suggests that the two dependent variables are only slightly influenced by the color of the site. This is justified by the share of explained variance (= 0.165 and 0.032 Eta²) for the red vs blue site. The average of the cognitive and affective involvement on the two terms of the color variable is quite far (9642 and 50066). This is confirmed by a significant test file. So it would seem that the dominant color of the site can promote cognitive and emotional involvement of the user.

→ Direct effect of cognitive and affective involvement with the website on the purchase intention of the user

The result of the regression analysis was used to test the effect of two variables of cognitive and affective involvement on purchase intention of the user is presented in the following table:

Tables 4: Test results of the influence of cognitive and affective involvement on purchase intention

		□	R	R ²	Sig	T
Cognitive implication	→ purchase intention	0.720	0.720	0.518	0.000	18.016
Affective implication	→ purchase intention	0.583	0.583	0.340	0.000	12.472

After reading the results, we find that the effect of cognitive and affective involvement on purchase intention of the user is significant and positive. On one hand, the correlation coefficient R² regarding the effect of cognitive involvement on purchase intention is equal to 0.518 (Sig 0.00), which allows to explain 51.8% of the variance of the purchase intent. Analysis of the coefficient R shows that this relationship is significantly positive. Standardized beta coefficient is assigned is positive amounting to 0.72. This proves that the cognitive involvement led to the purchase of the user intent.

On the other hand, the correlation coefficient R² of the effect of emotional involvement on purchase intention is equal to 0.340 (Sig 0.00), so it can explain 34% of the variance in intention of purchase. Similarly, the coefficient R shows that the influence of emotional involvement on purchase intention is significantly positive. The standardized beta coefficient is 0.58 This shows that the emotional involvement also led to the purchase intention of the user. However, it appears that the cognitive involvement has a greater effect on purchase intent compared to the emotional involvement. This is confirmed by comparing the R².

V. Discussion and Pedagogical Implications

On statistical test results related to the direct influence of the dominant color of the site on the cognitive and affective involvement, two main conclusions can be drawn and which deserve to be discussed. First, it appears that the dominant color of the site (red vs. blue) can promote cognitive and emotional involvement of the user. Their effects are significant.

These findings are consistent with those of Pearson and Van Schaik (2003) have shown that the blue (cold color) is a color particularly suitable for backgrounds and red (warm color) is better suited to hyperlinks rather than the the background. This is explained by the fact that red is a stimulating color, it should be used to encourage action (including hyperlinks). Blue is a calming color on the contrary, it is more suitable for backgrounds should be soothing to the user (Pearson and Van Schaik, 2003). Similarly Pelet (2008) suggested that people believe that the site navigation easier and more enjoyable by the presence of a background of cool color. However, our results are different compared to those found by Gorn et al (2004), which states that warm colors (yellow) are more challenging than cool colors (blue).

On the other hand, the results of this study shows that cognitive involvement has a greater effect on purchase intent. This effect is more significant than the emotional involvement and a half times. This reinforces the finding Vakratsas and Ambler (1999) suggests that cognitive factors may be more important in making purchasing decisions. These authors assert that the conative responses (such as purchase intent) are the consequences of these cognitive mental effects. This suggests that the association between cognitive engagement and purchase intent exists in the model of advertising persuasion. Similarly Eroglu et al (2003) have shown that cognitive states consumers have an impact on business results. Our results confirm this statement, and we suggest that cognitive involvement is an important concept that acts as an antecedent of purchase intention.

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