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# Website Congruity and User Satisfaction – An Initial Study

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## ABSTRACT

Based on the schema-congruity theory, this paper examines the impact of schemas in influencing user satisfaction in e-commerce websites. An experimental study was conducted using employees of a mid-sized organization. Results indicate that a schema-congruent website design in which product-line, color, and typeface were consistent with an existing schema engendered greater satisfaction in the user than a schema-incongruent design. The results emphasize the need for website designers to identify prior user schemas and ensure schema-congruence in their design.

## Keywords

Schema-congruity, E-Commerce, Website design, User satisfaction.

## INTRODUCTION

Drawing on past experiences of events, humans develop “schemas” or “mental-models” as to what is appropriate or correct about an event (Goodman, 1980; Stayman, Alden and Smith, 1992). Such schemas affect our perceptions, emotions, and feelings when faced with a new episode of an event. Drawing upon existing schemas to formulate attitudes about the new episode relieves the need to cognitively re-asses the episode. Schemas may not be rooted in reality, it is the perception formed in our subconscious when faced with initial episodes of an event and the conclusions we draw from those experiences.

## SCHEMA-CONGRUITY THEORY

Humans strive for accord, harmony, and constancy in their actions, beliefs, and perceptions (Osgood and Tannenbaum, 1955). When faced with an episode of an event that radically deviates from an existing schema, we experience frustration and dissatisfaction with the episode. However, if the episode is consistent with an existing schema, it reinforces our belief in the schema and we experience contentment and satisfaction with the episode. We derive satisfaction from the vindication of existing beliefs and feel relieved at not having to re-evaluate belief systems as it can lead to psychological distress. This phenomenon is referred to as the schema-congruity theory (Baker, 2001; Dacko, 2008).

## COLOR AND HUMAN PERCEPTIONS

Color psychology suggests that color impacts our perception of the world and influences our psychological wellbeing. Our attitude towards color is a product of childhood conditioning and societal conventions (Walker 1991). For example, consider the colors red and blue. Children are taught to associate red with danger; this is later reinforced by societal rules such as a red traffic light representing a “stop” signal. Likewise, blue has a close association with calm, stability, and trust as evinced by the phrase “true blue”, indicative of loyalty and faithfulness (Wagner, 1991; Walker, 1991).

The subconscious linking of color and perception has been widely utilized in corporate marketing (Grossman and Wisenblit, 1999). For example, the color blue with its associated connotations of trust and stability has been used extensively to represent corporate America, particularly the banking and financial sectors (e.g., IBM, Microsoft, Chase Bank, Citibank). Likewise, the color green has been utilized by businesses seeking to promote a youthful, healthy, environment-friendly image (e.g., The Body Shop, Wal-Mart Neighborhood Markets, Whole Foods, Greenpeace). The omnipresent nature of these product-color marketing schemas has led to their being schema-congruent in our subconscious mind. Thus, a billboard in green advertising an organic health-food (schema-congruence) is acceptable; the same billboard in blue (schema-incongruence) can lead to confusion and negative evaluations about the health-food.

## TYPEFACE AND HUMAN PERCEPTIONS

Humans attribute personality and character to typefaces (Brumberger, 2003; Shaikh, Chaparro and Fox, 2006). Serif and sans-serif typeface fonts such as Times New Roman (TNR) and Arial are viewed as signifying stability, maturity, and

trustworthiness (Shaikh et al., 2006). This is reflected in TNR being the traditional font for legal and financial paperwork and both TNR and Arial being the preferred font for official correspondence. At the other extreme, script typeface fonts such as Comic-Sans are viewed as being casual, youthful, and rebellious, and monospace typeface fonts such as Courier are viewed as boring and unappealing.

## **WEBSITE DESIGN, SCHEMA-CONGRUITY, AND USER SATISFACTION**

While interacting with e-commerce websites, it can be expected that users will apply existing schemas to the online environment. Schemas that are consistent with the design of the website (i.e., schema-congruent) can engender satisfaction in the user. For example, consider banking. Traditionally, brick-and-mortar banking establishments have used blue as their signature color due to its association with trust and stability and TNR as their preferred print-font for legal and official correspondence. Hence, there exists schema-congruence between banking, the color blue, and the TNR font. As the bank establishes an online presence, a schema-congruent website would be one having blue as the dominant design color and TNR as the dominant text-font. Such a website can be expected to engender satisfaction in the user. However, if a different color and/or font combination is used, it results in a schema-incongruent website that can lead to user dissatisfaction.

## **RESEARCH FRAMEWORK**

This study examines the impact of schemas on the website design elements of product-line, color, and text-typeface. A website that has all three elements consistent with an existing schema is considered completely schema-congruent (CSC). If two elements are consistent with an existing schema, it is considered partially schema-congruent (PSC) and if none of the elements are consistent with an existing schema, then it is considered completely schema-incongruent (CSI). Extending the earlier example of the banking website, the use of blue as the dominant design color and TNR as the dominant text-font would be a CSC design; the use of green as the dominant design color and TNR as the dominant-text font would be a PSC design, and the use of green as the dominant design color and Comic-Sans as the dominant text-font would be a CSI design.

Schema-congruence engenders satisfaction and positive affect whereas schema-incongruence leads to dissatisfaction and negative evaluations, hence:

*P1: A CSC website will engender greater satisfaction than a PSC website.*

*P2: A CSC website will engender greater satisfaction than a CSI website.*

*P3: A PSC website will engender greater satisfaction than a CSI website.*

A pilot study was conducted to test these propositions.

## **EXPERIMENTAL PROCEDURES**

The experimental design consisted of three simulated banking websites: (1) a CSC website with blue as the dominant design color and TNR as the dominant text-font (2) a PSC website with green as the dominant design color and TNR as the dominant text-font, and (3) a CSI website having green as the dominant design color and Comic-Sans as the dominant text-font. The experimental websites were modeled after that of a popular commercial bank; all three were identical in all respects (except for the color/font as mandated by the experimental condition).

Participants were employees of a mid-sized organization. They were randomly allocated to one of the three experimental websites and were asked to browse their allotted website for approximately twenty minutes after which they were provided with a questionnaire that collected data on the study variables. User satisfaction was measured using the satisfaction dimension of the USE questionnaire that is used for measuring interface usability (Lund, 2001).

## **PRELIMINARY DATA ANALYSIS AND RESULTS**

Of the thirty-four participants, eleven each were allotted to the CSC and CSI websites and twelve to the PSC website. There were no significant differences between the demographic and individual difference variables between the three experimental groups. The user satisfaction scores were highest for the CSC website (Mean = 4.5; SD = 1.3), followed by the PSC (Mean = 4.1; SD = 1.2) and CSI (Mean = 2.4; SD = 0.9) websites. A simultaneous comparison of means indicated a statistically significant difference between the user satisfaction scores for the CSC and CSI websites ( $p < .01$ ), and between the PSC and CSI websites ( $p < .01$ ), but not between the CSC and PSC websites. Thus, there is support for P2 and P3, but none for P1.

## CONCLUSION

There is initial support for the contention that that schema-congruence influences user satisfaction. A more detailed study is being conducted, the results of which will be presented at the conference.

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