

2018

SERVSIG PROCEEDINGS



Opportunities for Services in a Challenging World

June 14 – June 16, 2018

Paris

Organized by



Hosted by



SERVSIG CONFERENCE PROCEEDINGS 2018

PARIS

Opportunities for Services in a Challenging World

ISBN : 978-2-9516606-3-2

>>

EAN : 9782951660632

The importance of colors on trust: how colors influence on service mobile applications?

Mellina Terres, *Federal University of Health Sciences of Porto Alegre, Brazil (Chair)*

Leonardo Nicolao, *Universidade Federal do Rio Grande do Sul, Brazil*

Márcia Herter, *Escola Superior de Propaganda e Marketing – ESPM, Brazil*

Diego Costa Pinto, *Universidade Nova de Lisboa, Portugal*

Introduction

Smart phones, tablets, mobile and wearable devices (e.g. glasses and watches) are bridging the gap between the physical and digital worlds, providing new opportunities for organizations to interact with customers (Adobe Digital Insights, 2016). For the first time, in 2016, consumers were expected to visit mobile sites more than desktop sites as they browse for gift ideas and places that best serve their needs (Adobe Digital Insights, 2016).

Although previous research regarded the effects of marketing in the online environment, Magrath and McCornick (2013) emphasize that there are still few studies focusing on mobile applications and consumer interactions such as different screens sizes and different forms of use and interaction. One key factor influencing consumer interaction with mobile applications is the graphic design and, more specifically, the colors used by the brand in its e-store (Magrath, McCornick, 2013).

This paper aims to fill some gaps in the service marketing literature. This research extends previous studies on the understanding of the influence of colors on consumer behavior (Labrecque, Milne, 2012; Wexner, 1954; Murray, Deabler, 1957; Bellizzi *et al.*, 1983, Babin *et al.*, 2003). For instance, Labrecque and Milne (2012) show the impact of saturation (i.e. amount of pigment in one color, from more grayish - low - to more vivid - high) and color value (i.e. whether the color is lighter (near white)=high value or darker (near black)=low value) on brand personality. Research revealed a strong relationship between value, saturation and color whereas saturation strongly connected with excitement and value with robustness (Labrecque, Milne, 2012). More interesting the findings show that when considering two identical condom packages besides the color, consumers evaluated the red packaging (with high saturation and low value) as "robust" and the purple packaging (with low saturation and high value) as "sophisticated".

Thus, a question that arises is could color influence other dimensions of a consumer-brand relationship as trust? Trust in the context of online services can be conceptualized as the belief that the service provider will have competence (ability to meet needs), benevolence (motivation to serve the client's interests), and integrity (honesty and fulfillment) to perform as expected by the consumer (McKnight *et al.*, 2002). Although some authors claim that trust is only achieved through the building of relationships over time (Lewicki, Bunker, 1995, Zand, 1972), others have found higher levels of initial consumer trust (e.g. Kramer, 1994; McKnight, *et al.*, 2002). Trust can occur even before consumption. Oliveira *et al.* (2014) revealed that, in the case of Internet banking transactions, one of the major constructs that predates the consumer intention to adopt a technology is initial trust. Since color influences consumer perceptions and

behavioral intentions (Lebreque; Milne, 2012), we investigate whether color could reduce the perceived risk and raise consumer trust levels when choosing mobile applications.

Pilot Study. The main of the pilot study was test the overall associations between color hue (blue vs. red) and value (low=darker vs. high=lighter) and consumer trust. Blue has been a color hue traditionally associated with trusted brands while red has not (Chattopadhyay *et al.*, 2002; Babin *et al.*, 2003; Lebreque and Milne, 2012). Thus, we wanted to investigate whether lighter or darker shades (i.e., value) of red could bridge or, at least, reduce the gap between trust levels in these two colors.

Two hundred twenty-five participants (52% male; $M = 34.94$, $SD = 10.34$ years old) took part in the study. Participants were randomly assigned to one of 2 (color hue: red vs. blue) x 2 (color value: lighter vs. darker) between-subjects conditions. Participants were exposed to a color sample that was either light red (R255G0B0), dark red (R128G0B0), light blue (R0G0B255), or dark blue (R0G0B128). After that, participants evaluated how they felt about the color, using a trust scale adapted from Jarvenpaa *et al.* (1999); and perceived risk about the app adapted from Dowling and Staelin (1994).

Results. Two-way ANOVA revealed the interaction between color (red and blue) and value (lighter and darker) on consumers' trust ($F_{(1,221)} = 3.65$, $p = 0.057$). Spotlight analysis revealed that, although trust levels were the same for both values of blue ($M_{lightblue} = 5.15$, $M_{darkblue} = 5.02$; $t(221) < 1$, *ns*) it was significantly different for values of red ($M_{lightred} = 3.62$, $M_{darkred} = 4.09$; $t(221) = 2.08$, $p < .05$). Results show that different red in terms of value (i.e. dark red) can approach to similar levels of trust as in blue values. In our main study, we take this evidence further and investigate under which circumstances light and darker shades of red can be trusted in the context of high (vs. low) risk financial mobile apps.

Main Study. The main study goal is investigate the effects of color value (light red vs. dark red) for mobile applications with different levels of risk (low risk= budget-tracker vs. high risk= banking) on trust and behavioral intentions. Two hundred forty-nine participants (50% male; $M = 34.35$, $SD = 11.78$ years old) were randomly assigned to one of 2 (dark vs. light red) x 2 (banking vs. budget app) between-subjects conditions. Twenty-four individuals failed to meet the sampling criteria (being born in the US, to control for country-of-origin and language variables, and not being colorblind), and were eliminated from the sample.

Results. The interactive effect of color value (dark and light) and type of app (banking vs. budget) on trust is marginal ($F_{(1,221)} = 3.20$, $p = 0.07$). However, a higher-order interaction among these constructs and gender (male vs. female) is significant ($F_{(1,217)} = 5.62$, $p < .05$), as figure 1 illustrates. A spotlight analysis reveals that trust in the budget app is the same, regardless of gender or color value ($t(217) < 1$, *ns*). However, for banking the same interaction is significant ($t(217) = -3.21$, $p < .05$). Further spotlight contrasts clarify this relationship, revealing that, for the baking app, men perceive the dark red as riskier than the light red interface ($t(217) = -3.21$, $p < .05$). Women, however, seem insensitive to color value ($t(217) = 1.48$, *ns*) for either bank or budget app ($t(217) < 1$, *ns*).

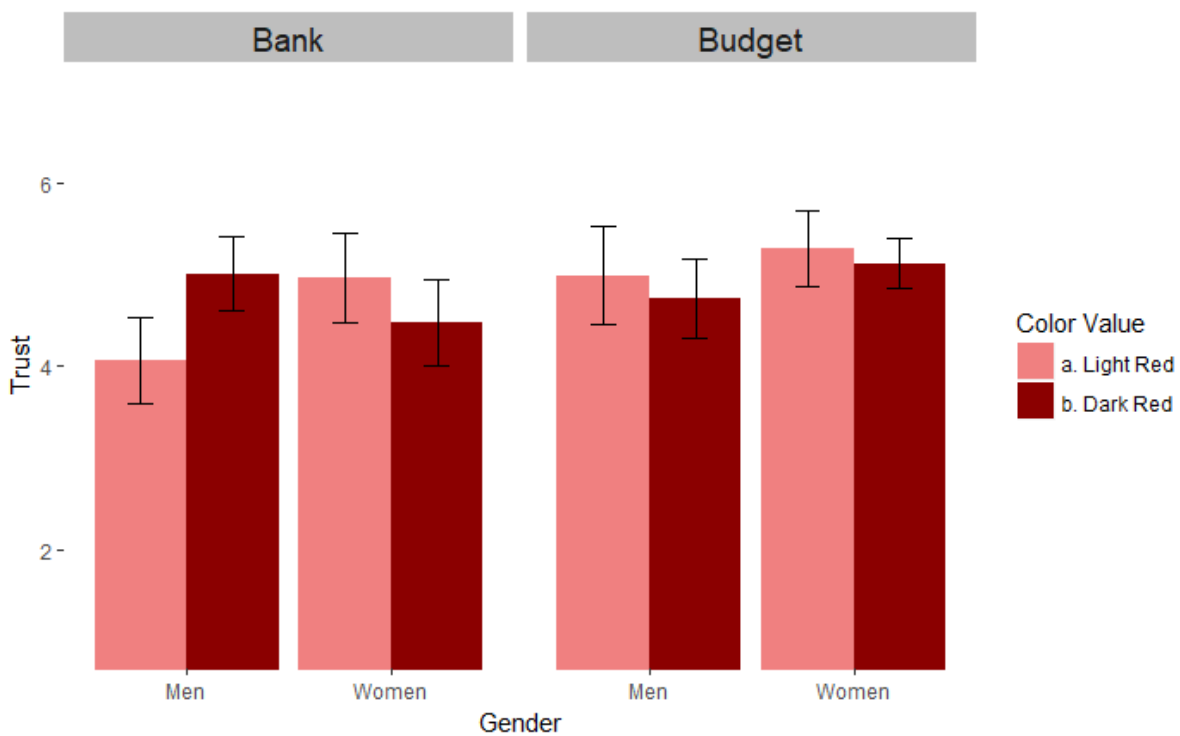


Figure 1: Interaction between Color Value, Type of App and Gender on Trust

In our design, type of app was intended to represent options at different risk levels. Indeed, the banking app is considered to be riskier ($M = 3.74$) than the budget app ($M = 3.31$; $F_{(1,223)} = 4.09$, $p < .05$). With that in mind, we investigated whether risk mediates the relationship between type of app (banking vs. budget) and trust and, further, if this mediation is moderated by color value (light red vs. dark red). To test this path, we ran a conditional model using Process (Hayes, 2013, Model 7). We have found that, moderated by color value, risk mediates the relationship between type of app and trust. More specifically, this mediation happens only one the app is presented in a light red interface ($b = -0.12$, $CI = -.2638, -.0024$).

Taken together, the results show that color value (low=darker vs high=lighter) influences consumer trust. In particular, our findings indicate a moderating effect of gender in the relationship between color value and type of app. That is, in a high-risk context, men seem to feel more secure (higher trust) with darker red-colored apps. Previous studies found some evidence for male preference for dark colors (Ellis, Ficek, 2001; Uysal, 2016). This finding extend previous research that found gender influences on color perceptions (Hoyenga, Wallace, 1979; Vanston, Strother, 2017) and color preferences (Moss, Colman, 2001; Porter *et al.*, 2012). Specifically, women were less likely to prefer darker shades of red (Ellis and Ficek, 2001). Our findings indicate that, in a light red interface, moderated by color value, risk mediates the relationship between type of app and trust. In doing so, this research extends the effects of sensory marketing on consumer evaluations (Wexner, 1954; Murray, Deabler, 1957; Bellizzi *et al.*, 1983, Babin *et al.*, 2003; Lebreque and Milne, 2012; Magrath, McCornick,

2013). These findings provide important implications for the management of sensorial cues for mobile service.

References

- Adobe Digital Insights. 2016 Published in *New Your Times*. Available on: <https://paidpost.nytimes.com/adobe/retails-tech-revolution.html>
- Babin, Barry J.; Hardesty, David M.; Suter, Tracy A., *Color and shopping intentions*. 2003.
- Bellizzi, Joseph A.; Crowley, Ayn E.; HASTY, Ronald W. *The effects of color in store design*. 1983.
- Chattopadhyay, Amitava and Darke, Peter R. and Gorn, Gerald J., *Roses are Red and Violets are Blue - Everywhere? Cultural Differences and Universals in Color Preference and Choice Among Consumers and Marketing Managers* (April 2002). *Sauder School of Business Working Paper*. Available at SSRN: <https://ssrn.com/abstract=340501> or <http://dx.doi.org/10.2139/ssrn.340501>
- Dowling, G. R., & Staelin, R. (1994). A model of perceived risk and intended risk-handling activity. *Journal of consumer research*, 21(1), 119-134.
- Ellis, L., & Ficek, C. (2001). Color preferences according to gender and sexual orientation. *Personality and Individual Differences*, 31(8), 1375-1379.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Hoyenga, K. B., & Wallace, B. (1979). Sex differences in the perception of autokinetic movement of an afterimage. *The Journal of general psychology*, 100(1), 93-101.
- Jarvenpaa, S. L., Tractinsky, N., & Saarinen, L. Consumer trust in an internet store: a cross-cultural validation. *Journal of Computer-Mediated Communication*, 5(2), 1999.
- Kramer, R. M. (1994). The sinister attribution error: Paranoid cognition and collective distrust in organizations. *Motivation and emotion*, 18(2), 199-230.
- Labrecque, L. I., & Milne, G. R. (2012). Exciting red and competent blue: the importance of color in marketing. *Journal of the Academy of Marketing Science*, 40(5), 711-727.
- Lewicki, R. J., & Bunker, B. B. (1995). Trust in relationships. *Administrative Science Quarterly*, 5, 583-601.
- Magrath, V., & McCormick, H. (2013). Branding design elements of mobile fashion retail apps. *Journal of Fashion Marketing and Management: An International Journal*, 17(1), 98-114.
- McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, 13(3), 334-359.
- Moss, G., & Colman, A. M. (2001). Choices and preferences: Experiments on gender differences. *Journal of Brand Management*, 9,89-98.

- Murray, David C.; Deabler, Herdis L. Colors and Mood-Tones. 1957.*
- Oliveira, T., Faria, M., Thomas, M. A., & Popovič, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. International Journal of Information Management, 34(5), 689-703.*
- Pinder Junior, Aly. Service mobility: The right technology for the tech. July, 2014. Aberdeen Group.*
- Porter, C. E., Donthu, N., & Baker, A. (2012). Gender differences in trust formation in virtual communities. Journal of Marketing Theory and Practice, 20(1), 39-58.*
- Uysal, H. (2016). Determination of the colour preferences of 5th grade students in relation to gender. Educational Research and Reviews, 11(8), 842.*
- Vanston, J. E., & Strother, L. (2017). Sex differences in the human visual system. Journal of Neuroscience Research, 95(1-2), 617-625.*
- Wexner, L. B. The degree to which colors (hues) are associated with mood-tones. Journal of Applied Psychology, 38(6), 432, 1954.*
- Zand, D. E. (1972). Trust and managerial problem solving. Administrative Science Quarterly, 229-239.*