Exploring the Effect of Wordmark in E-Commerce Website Interface Design

Yao Song
School of Design
The Hong Kong Polytechnic University
Hung Hom, Hong Kong SAR
e-mail: yao.song@connect.polyu.hk

Yan Luximon*
School of Design
The Hong Kong Polytechnic University
Hung Hom, Hong Kong SAR
e-mail: yan.luximon@polyu.edu.hk

Abstract—**Interface design plays a key role for many companies, promoting their business metrics to consumers since it could help companies to enjoy greater benefits by communicating their products or services in a more effective way. Wordmark is one of the most important components in interface design since it is the basic component helping to communicate specific information to consumers. However, the effect of wordmark on consumer's perception in e-commerce website interface appeal has not been studied in detail. This study tries to validate the effect of wordmark on online shopper's perception from interface appeal perspective. An online experiment was conducted to explore and test the perceived edge using three different types of wordmark with a given product. Results indicated that all capital letters and initial capital letter could create a higher level of the perceived edge than the small letters for the given product and website interface design. However, there is no significant difference between initial capital letter and all capital letters scenarios. From the managerial perspective, our research offers implications for marketers and designers to choose the appropriate wordmark for their interface design, improving online shopper's experience.**

Keywords-wordmark; letter; website design; interface; e-commerce

I. INTRODUCTION

Internet, especially website interface design, plays a key role for many companies when promoting their business metrics to consumers since it could help companies enjoy greater benefits through communication of their products or services in a more effective way [1]. However, many of the commercial websites do not communicate and promote as they wish. According to Kearney's research [2], over 80% of people met some problems and did not finish online shopping because the website design did not meet their online-shopping satisfaction and expectation [3]. Although previous research has a long history focusing on the relationship between store's atmosphere and consumer experience, little research has addressed the relationship between web's atmosphere and online shopper's experience [4]. Specifically, the way to improve online shopper's experience through optimizing appropriate website attributes remains ambiguous [5] since it would be inappropriate to directly apply the guidelines of store's atmosphere to interface design [3]. Wordmark, as one of the most

commonly used elements in website interface design, plays an important role in influencing users' perception [5]. However, the effect of wordmark has rarely been discussed in previous literature.

In order to address this phenomenon, this study tries to use an experimental method to check whether wordmark could influence people's perception. The rest of the paper is organized as following. Section II discusses the literature review on e-commerce website design and latest trends on interface design research. Section III introduces the experiment-based approach to analyze the effect of wordmark on users' perception. Section IV shows the results of the statistical analysis. Section V discusses the results and limitations of current research, and future research direction.

II. LITERATURE REVIEW

Prior research has long focused on the role of e-commerce website design in IT system building. Even within traditional IT system, e-commerce website design is different from other systems. It highlights the attributes in information exchange (computer factors) and consumer communication (human factors), containing both computer and human interaction from an interface design perspective [6].

While computer factors are task-specific, improving functionality from the technical perspectives, such as website navigation and information presentation, human factors are focused on aesthetic components, meeting consumer's expectation and improving consumer experience [7]. To be more specific, human factors contain six elements of website interface design: consumer satisfaction, cognition attributes, consumer empowerment, trustworthiness, interface appeal and information content [7].

An efficient interface design should be human-oriented and should rely on its framework and aesthetic attributes because the interface design works as the design communication element immediately perceived by consumers [1][8]. An effective interface design could influence consumer behavior, such as perception, decision-making procedure and post-buy evaluation [8] [9]. For example, Carlson and Cass [9] inferred the significant role of consumer perceived comfortability, usability, time-spend and

purchase intention in the interface design of e-commerce website. However, this study did not determine the suitability of any particular interface design components.

Compared with the content of the website, the majority of online shoppers would pay more attention to the aesthetic part of the interface that helped to make an efficient interface design [10]. Particularly, online shoppers could have a more positive attitude with human factors than computer factors since it would place them in a user-friendly atmosphere [10]. Actually, the aesthetic part of interface design is a fundamental element in influencing initial perception [11] which contains the arrangement of color, graphics and image selection, wordmark, layout, etc [12].

Several studies have explored the effect of the aesthetic part of interface design on website usability and website evaluation [8][13][14]. The study mentioned color would be more suitable for expressing specific emotion, while shape of different elements in interface design played an important role in recall and memory [8]. Schrott and Gluckler [13] suggested that aesthetic design components, such as main color of interface, photographs themes, wordmark, design harmony and general layout, had a great effect on the usability of a website. In addition, the perceived aesthetics of the website helped to improve interface experience [14]. In other words, better website interface appeal, such as colors, graphics and wordmark, could improve online shoppers' evaluation of website design. However, the inappropriate interface design could have negative effect on users' evaluation. Head and Ivanov [14] suggested that crowed layout and low color saturation might not be helpful in interface design and communicating specific information to users since user would form the initial attitude and perception at the very beginning when they browsed the website.

Although several aesthetic design components have been discussed, previous research has not examined the effect of wordmark on consumer's perception regarding the e-commerce website interface appeal in detail. Wordmark design is tremendously important for interface design [15]. For example, Benchmade [16] and Otario [17] knife companies are using different wordmarks on their websites. While Benchmade knife company uses almost every word or sentence with the capital letters, Otario knife company uses only the initial capital letter in its website design. Prior research on wordmark has discussed how appropriate wordmark influenced consumers' brand perception [18]. For example, the congruence between font and brand perception could improve brand identity building [18]. While the small letter tends to be associated with perceived friendliness, the capital letter tends to be associated with perceived authorities [19]. In addition, compared with the capital letter, the small letter is more frequently used in everyday life [20]. In New York Times, the capital letter was far less utilized than the small letter. Actually in the most common cases, the capital letter is only used in the first letter of a whole sentence, logo design or advertisement [19]. Although there were

discussion about sharp cornered font could create tension and represented the attributes of heavy metal [21], this has not been validated with online shoppers' perception from interface appeal perspective.

To sum up, previous research has rarely discussed and emphasized the effect of wordmark on users' perception of the products in interface design of e-commerce website. Regarding the existing theoretical research gap, it is necessary to empirically examine the role of wordmark on users' interface perception. Among all wordmark design elements, the current study tries to focus on improving user interface experience from letter case perspective. Specifically, we would like to investigate whether capital letter would significantly increase people's perceived edge of a given product in a commercial website. Particularly, the research questions are:

Do the different types of wordmark have an impact on interface perception?

What kind of wordmark would increase people's perceived edge?

In order to address the research questions above, an online experiment was conducted to explore and investigate the perceived edge using different types of wordmark with a given product.

III. METHOD

In this section, an online experiment was conducted to empirically analyze the effect of wordmark on people's perceived edge under three scenarios: all capital letters, initial capital letter and all small letters.

A. Participants

In order to analyze the relationship, a sample (from Amazon Mechanical Turk) participated in the experiments online. To avoid self-selection and professional survey takers, Qualtrics utilizes by-invitation-only online panel recruitment, thus attracting a cross-section that better generalize the population to a large extent. In total, 139 people were recruited from this online platform (63 males and 76 females; the average age is around 38 years).

B. Procedure

There were three wordmark scenarios: all capital letters, initial capital letter and all small letters. One professional interface designer made all scenarios with the same interface layout, a "knife" image at left side and a word description at right side. In order to control the cofounding effect of the position and the size of the knife, all three knives were controlled to be the same size. The length and font size of the description wordmark were also controlled for the same. The first scenario was composed with all capital letters and a knife ("xxx PRODUCT"). The second scenario was composed with the initial capital letter and a knife ("xxx Product"). The third scenario was composed with all small letters and a knife ("xxx product"). All participants were divided into three groups where each group was exposed to

one scenario only. In other words, a between-subject experiment was designed in this study. After consenting to participants in this experiment, they were required to look at the product image for 5 seconds and then report their perceived edge of the given product according to a 7-point Likert scale (1 = blunt; 7 = sharp).

IV. DATA ANALYSIS AND RESULT

We conducted a one-way ANOVA (Analysis of variance) on the perceived edge with different wordmark scenarios as independent variables. ANOVA is a collection of statistical models and the associated estimation procedures for analyzing the differences among group means in a sample, which is widely used in social science research. Details of the perceived edge for different types of wordmark are shown in Table I.

TABLE I. DESCRIPTIVES OF THE PERCEIVED EDGE FOR DIFFERENT TYPES OF WORDMARK

Perceived edge	Different Types of Wordmarks		
	All Capital letters	*Initial Capital letter*	*All Small letters*
Mean	5.5	5.4	4.7
S.D.	1.1	1.1	1.7
Maximum	7	7	7
Minimum	1	1	1

The result of ANOVA showed a significant difference of the perceived edge among these three scenarios ($F_{(2, 136)}=5.5$, $p < 0.05$). The post-hoc Tukey HSD results showed that people in all capital letters scenario gave significant higher perceived edge than those in all small letters scenario (Mean=5.5 vs. 4.7; Tukey HSD, $p < 0.05$). People in initial capital letter scenario perceived also significant higher level of sharpness than those in all small letters (Mean=5.4 vs. 4.7; Tukey HSD, $p < 0.05$). However, there was no significant difference between initial capital letter and all capital letters scenario in terms of the perceived edge (Mean=5.4 vs. 5.5; Tukey HSD, p=0.98).

V. CONCLUSION AND DISCUSSION

Interface design is very important for companies to promote their products and services in e-commerce website. This study tries to contribute to interface appeal design literature through investigating the effect of various types of wordmark design on users' perception. The results of the current study showed that wordmark with capital letter (including all capital letters and initial capital letter scenarios) achieved a significantly higher level of the perceived edge than all small letters scenario for an online knife shopping experience. The results were consistent with previous literature that capital letter would be easy to attract

people's attention [19]. These results indicated that it would be more appropriate to use all capital letters or initial capital letter wordmark in website interface design when the context is associated with something related with sharpness. However, there is no significant difference between all capital letters and initial capital letter which suggests that merely exposing to the capital letter would be sufficient enough to elicit the perceived edge regardless of all capital letters or only initial capital letter.

By showing appropriate wordmark in the website appeal could affect users' perception, our work contributes to the website design theory from wordmark design perspective. Through the empirical experimental process, we identified the positive effect of the capital letter on the perceived edge and its application in the business field. From practical point of view, as one of the major elements in interface design, wordmark design would act as an efficient tool to communicate specific information to website users compared with other interface design elements [8]. Therefore, the current research results provided some fundamental and useful design references to practitioners. In addition, since previous research has examined the effect of color in the interface design on people's specific perception to some extent [8], it would also be interesting to figure out the interaction between wordmark and color selection in future study.

Some limitations in this study are worth noting. The current study was conducted in the context of a given product related interface design that would potentially influence the generalization of the current finding. Actually, different types of product may interact with wordmark to influence people's perception. In future study, we would use different product contexts to figure out the association between wordmark and specific perception. For example, while the capital letter was more compatible with edge-related stuff, the small letter might be more congruence with stuffed animals.

REFERENCES

[1] S. Lee and R. J. Koubek, "The effects of usability and web design attributes on user preference for e-commerce web sites," Computer Industry, 2010 May, vol. 61, no. 4, pp. 329–341.

[2] H. Ben-Shabet and K. Gada, "Beauty and the E-Commerce," A. T. Kearney Report, 2017 May.

[3] W. C. Chiou, C. C. Lin, and C. Perng, "A strategic framework for website evaluation based on a review of the literature from 1995–2006," Information Management, 2010 Aug, vol. 47, no. 5–6, pp. 282–290.

[4] H. L. O'Brien and E. G. Toms, "The development and evaluation of a survey to measure user engagement," Journal of American Social Information Science and Technology, 2010 Jan, vol. 61, no. 1, pp. 50–69.

[5] J. Song and F. Zahedi, "A Theoretical Approach to Web Design in E-Commerce: A Belief Reinforcement Model," Management Science, 2005 Aug, vol. 51, no. 8, pp. 1219–1235.

[6] A. V. Hausman and J. S. Siekpe, "The effect of web interface features on consumer online purchase intentions," Journal of Bussiness Research, 2009 Jan, vol. 62, no. 1, pp. 5–13.

[7] N. Tractinsky, "Toward the Study of Aesthetics in Information Technology," 2004 Jan, proceeding of Association for Information Systems AIS, pp. 11-20

[8] J. Johonson, "Designing with the mind in mind," Engineering Notes, 2011 Sep, vol. 36, no. 5, p. 52.

[9] J. Carlson and A. O'Cass, "Exploring the relationships between e-service quality, satisfaction, attitudes and behaviours," Journal of Service Marketing, 2010 Apr, vol. 24, no. 2, pp. 112–127.

[10] T. Tullis and B. Albert, "Measuring the user experience : collecting, analyzing, and presenting usability metrics." , Elsevier, 2008 Jan.

[11] O. W. Bertelsen, M. G. Petersen, and S. Pold, "Aesthetic Approaches to Human-Computer Interaction," DAIMI Report Series. 2004 Feb, vol. 33, pp572.

[12] G. Chao, "Human-Computer Interaction: Process and Principles of Human-Computer Interface Design," International Conference on Computer and Automation Engineering, 2009 May, vol 32, no. 9, pp. 230–233.

[13] G. Schrott and J. Glückler, "What makes mobile computer supported cooperative work mobile? Towards a better understanding of cooperative mobile interactions," International Journal of Human Compution Study, 2004 May, vol. 60, no. 5–6, pp. 737–752.

[14] D. Cyr, M. Head, and A. Ivanov, "Design aesthetics leading to m-loyalty in mobile commerce," Information Management , 2006 Dec, vol. 43, no. 8, pp. 950–963.

[15] J. Tselentis, "The graphic designer's electronic-media manual : how to apply visual design principles to engage users on desktop, tablet, and mobile websites. " Rockport Publishers, 2012 Sep.

[16] Benchmade Knife Company, "Benchmade Knife Company." [Online]. Available: https://www.benchmade.com/. [Accessed: 01-Jan-2019].

[17] Ontario Knife, "Online Knife Tool Kit | Buy Knives Online | Hunting, Survival amp; Tactical Knives." [Online]. Available: http://ontarioknife.com/. [Accessed: 01-Jan-2019].

[18] J. R. Doyle and P. A. Bottomley, "Font appropriateness and brand choice," Journal of Bussiness Research, 2004 Aug, vol. 57, no. 8, pp. 873–880.

[19] X. Xu, R. Chen, and M. W. Liu, "The effects of uppercase and lowercase wordmarks on brand perceptions," Marketing Letters, 2017 Sep, vol. 28, no. 3, pp. 449–460.

[20] M. Perea and V. Panadero, "Does Viotin Activate Violin More Than Viocin ?," Experimental Psychology, 2014 Jan, vol. 61, no. 1, pp. 23–29.

[21] E Sadko, "Guide to 10 font characteristics and their use in design," Medium, 2017. [Online]. Available: https://medium.com/@eugenesadko/guide-to-10-font-characteristics-and-their-use-in-design-b0a07cc66f7. [Accessed: 31-Dec-2018].