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Consumers Visual Search Behavior on the Websites: An Eye Tracking Approach

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Key words: eye tracking, consumer visual search, online shopping

Introduction: In recent years the competition for online shopping across the web has increased. Therefore it becomes very important for business owners and web developers to stay abreast with the latest research, and trends relating to understand the behavior of online consumers. The most effective websites provides satisfying user experience, based on how the average consumer tracks and reads information on webpages. In order to know how the user tracks the website and reads the information on webpages, an eye tracking experiment was conducted.

Eye tracking is a system that allows one to track eye movements of people when they visit a website. Eye tracker is a special device that tracks the movement of the research subject's pupil, and software records the results. The data output comes as report in form of 'heat maps', 'gaze patterns' and 'gaze plots'. Eye tracking has been successfully used in perception and visual search research (e.g., Findlay & Golchrist, 2003). Combined with conventional techniques that gather data based questionnaire, eye tracking provides another layer of insight into how users process the visual information to which they respond when interacting with the website. To find the correct information, search or make a purchase decision, user must successfully complete two stages of visual search 1). Distribution of attention and 2). Information processing (Bojko, 2006). The effectiveness and efficiency of these stage depends on how easily the information can be comprehended, which is related to content (e.g., visuals, words, labels, logos etc) and affordances (e.g., easy of navigation). Upon successful completion of the both visual search stages, the user can make precise choice.

Methodology: Data was collected regarding consumer evaluation of website in terms of website layout/design. Fifteen websites were randomly selected from small businesses related Accommodation & Food services Industry; Arts, Entertainment & Recreation; Restaurants; Retail trade and Manufacturing. Twenty student participants were allowed to navigate on the desktop computer equipped with Tobii X30 eye tracker. Each participant approximately navigated each website for about 2-3 minutes and answered the follow-up questions on each website. The eye fixation, gaze plots and gaze patterns were recorded and analyzed. Eye fixations are indicators of perceived points of interest and the length of fixation is an indicator of the cognitive complexity of the information being acquired. By analyzing which website design features show higher/lower fixation rates, we can learn which features play a bigger role in evaluations and product purchase intentions. The combination of measures used in this study (i.e., gaze and fixation) allowed us to understand how consumer's eyes move on the website and what went on while users were looking for the information. Based on these insights, recommendations were made.

Findings and Discussion: Over all there was a significant difference between the participant's eye fixation on the information and gaze pattern on the different websites categories. Summary

of the findings are in the below table 1. The findings reveal that, the website features were viewed differently for each type of businesses. For example, the ‘contact us’ and ‘about us’ feature on the website was more relevant for Accommodation & food services industry and Manufacturing businesses where most of the eye fixation was seen. The visuals/ pictures/logos were fixated across all the business types although visuals were gazed by more number of participants for Accommodation & food services industry, retail trade and Arts, Entertainment & Recreation when compared to restaurants and manufacturing business websites. The ‘search engines’ were fixated more in the manufacturing, retail trade and restaurant websites. The ‘upcoming event’ tabs were gazed in accommodation & food service industry and Arts, Entertainment & Recreation websites. ‘Product category’ feature on the website were fixated on all websites and the number of views were more for retail trade and restaurant websites. Surprisingly the social media tabs were never viewed on the website.

Table 1: Summary of the findings from the eye tracking study

Navigation on areas of interest on the website	Number of participants (mean) who fixated on the information (eye fixation)				
	Accommodation & food services industry	Arts, Entertainment & Recreation	Restaurants	Retail trade	Manufacturing
Contact us	15	-	-	-	13
About us	16	-	-	-	12
Visuals/pictures /logo	18	15	13	20	10
Search tab	-	-	12	10	6
Upcoming event	8	10	-	-	-
Product categories	5	2	15	18	3
Social media tab	-	-	-	-	-
Questionnaire Results	Number of participants (mean) who said yes to purchase intentions				
Purchase intention	15	11	16	17	3

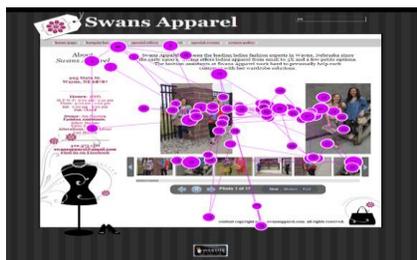


Figure 1: Example survey results of consumers Gaze pattern and eye fixation (heat maps)

Reference: Bojko, A. (2006). Using Eye Tracking to Compare Web Page Designs: A Case Study. *Journal of usability studies*, 3(1),112-120.
 Findlay, J. M., & Golchrist, I. D. (2003). Eye movements in visual search (pp. 112 – 128). In: *Active vision: Psychology of looking and seeing*. Oxford: OUP