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## Tracking Users' Viewing Pattern

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# Tracking Users' Viewing Pattern

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## ABSTRACT

Empirical evidence suggests that users often exhibit a viewing pattern that favors the top and left sides of web pages (Nielsen, 2006). According to the model of visual hierarchy, viewing pattern is guided by two distinct cognitive processes: searching and scanning, both influenced by the attributes of the web components (Faraday, 2000). When used effectively, these attributes create a visual hierarchy that can guide users in viewing a page. In addition, a number of studies show that web users often exhibit a viewing pattern that is shaped like the letter "F" (Nielsen, 2006; Shrestha and Lenz, 2007). F-pattern is common to text-based pages, but can be diminished for an image-heavy page and can also be task-dependent (Shrestha and Lenz, 2007). Because images often serve as entry points to web pages (Faraday, 2000), these findings suggest that visual hierarchy manipulated by images may have an impact on users' pattern of viewing.

This study investigates two factors that may affect the F shaped viewing pattern: 1) visual hierarchy, and 2) task. Two prototypes of a homepage from a financialsrf company were designed to be different in only one section, which was named "Expert Insights". The location of the section was below the fold of the page, a spot typically missed when users exhibit an F-shaped viewing pattern. One prototype was named Faces as its Expert Insights section included images of faces, while the other, the No Faces prototype, contained no images of faces. Because images tend to attract users' attention, their inclusion affects the visual hierarchy of the homepage (Faraday, 2000).

Two tasks were designed in this study: browsing and searching. In the searching task, participants were asked questions such as "You want to know more about a fall in Brazil's stocks" and needed to retrieve information which lay in the Expert Insights section.

34 participants were randomly assigned to one of the four conditions in this two-task (browse or search) X two-prototype (Faces or No Faces prototype) design. Their

viewing patterns and eye fixations were collected by the non-intrusive Tobii 1750 and analyzed using heat maps.

Results of this study showed that 1) consistent with previous findings, the content above the fold received more fixations overall; 2) more fixations in the center of the page were shown in the browsing task, whereas long fixations on navigations and more scattered pattern were shown in the searching task; 3) Faces prototype received more fixations on the text in Expert Insights, but No Faces prototype showed fixations only on the titles.

Compared with a previous study in F-pattern (Shrestha and Lenz, 2007), our homepage had a more complex visual hierarchy, which could guide users' attention to areas outside of the pattern found on less visually complex pages. This study also shows that visual complexity may affect the effect of task on viewing pattern, and that task has an effect on viewing a page with a more complex visual hierarchy. Images of the faces have served as effective entry points, helping users to retrieve the information with fewer fixations. In addition, including images of faces on a homepage can help guide users in viewing and retrieving information adjacent to those images, even when the images are located below the fold of the webpage. Last, creating visual appeal in central area may be of great importance in creating a favorable aesthetic experience. These results not only have theoretical importance, but also have practical value.

## REFERENCES

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