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They watch, you learn

By Jon Puleston

Eye-tracking studies have been heralded as the closest thing to mind reading, while in the same breath being dismissed as an expensive approach that doesn't really tell a usability analyst much more than they already know. So what major lessons can market research and advertising professionals learn from the practice of eye tracking techniques in the Web usability world? Can other available alternatives such as click testing meet research needs involving visual interactions?

Eye tracking follows and records the movement of the eye as it looks at something. The technique claims that it can not only work out what someone is focusing their attention on, but also how long their eye looks at a target area and what the viewer is thinking. Eye tracking uses infrared technology to show where the pupil is by reflecting light off the retina of the eye. The sensors can be placed in a monitor, or more frequently in head gear.

Eye tracking is not new. Russian scientist Alfred Yarbus was already experimenting with it back in 1967. In one experiment, Yarbus asked respondents to examine a painting of a family in their home. In each case, the picture being observed is the same, but the pattern of eye movements differs vastly.

- When asked to examine the picture with no suggested goal, faces were the first thing that people focused on before taking in the rest of the picture.
- When asked to estimate the material circumstances of the family, people's focus mostly went to objects, such as a piano and a table.
- When respondents were asked to estimate the ages of the people in the picture, like a heat-seeking missile, everyone's eyes darted from one face to the next.

A look at eye tracking and click testing

When Yarbus asked participants to guess the ages of the people in the picture, the instructions he gave greatly affected where participants focused their attention. After Yarbus concluded his research, he noted, "It is easy to determine from these records which elements attract the observer's eye (and, consequently, his thought), in what order and how often."

Really shines

Eye-tracking studies have been used to contribute to scientific advancements for close to a century now. Web site usability is where

Editor's note: Jon Puleston is vice president in the London office of Seattle-based research firm Global Market Insite Inc. He can be reached at jpuleston@gmi-mr.com.

eye-tracking technology really shines. Traditional usability techniques are often quite powerful in providing information on clicking and scrolling patterns. Eye tracking offers the ability to analyze user interaction between clicks. This provides valuable insight into which features are the most eye-catching, which features cause confusion and which ones are ignored altogether. In the realm of Web site usability and online advertising, here are some of the major lessons learned from eye-tracking research:

1. Ads in the top and left portions of a home page receive the most eye fixations. Ads in the right column are treated by users as an afterthought area. Ads at the bottom of the page are typically only seen by a small percentage of people.

2. Close proximity to popular editorial content helps ads get noticed. When an ad is separated from editorial matter either by white space or a rule, the ad receives fewer fixations than when there is no such barrier.

3. Of all types of ads tested, text ads are viewed most intently. On average, text ads are viewed for about seven seconds, and the best display-type ads are only looked at for one to two seconds.

4. When it comes to ads, size matters. Bigger ads have a better chance of being seen. Small ads on the right side of home pages are viewed about a third of the time. Small ads on the rest of the page rarely attract attention, but this may not equate to the relative costs of these different advertising formats.

5. Larger images hold the eye longer than smaller images. Interestingly enough, people often click on photos, even if clicking doesn't take them anywhere or lead to any significant information.

6. Clean, clear faces in images attract more eye fixations on home pages.

7. People are more likely to correctly recall facts, names and places when they were presented with that information in a text format. New, unfamiliar, conceptual information is more accurately recalled when participants receive it in a multimedia graphic format.

8. Shorter paragraphs perform better than longer ones and generally receive twice as many eye fixations as those with longer paragraphs. Attention is clipped on the Internet, therefore short bursts of attention are the best you can hope for. There is a caveat: longer product descriptions do better than shorter ones in e-commerce situations. As with all usability findings, context is key.

9. On a Web site, eyes most often fixate first in the upper left of the page, then hover in that area before going left to right. Only after perusing the top portion of the page for some time do eyes explore further down the page. This may be a learned response since this is the same left-to-right pattern we use to read. If you are building a Japanese or Arabic Web site, then it would be the mirror reverse.

10. People do typically look beyond the first screen. Their eyes scan lower portions of the page seeking something to grab their attention, and may fixate on an interesting headline or a standout word, but not on other content.

Also benefit

Beyond the realm of Web usability, print advertising, brand awareness and product layout can also benefit from eye-tracking techniques to some extent. Because eye tracking shows what people actually focus their attention on, it can reveal what brand elements were noticed in an ad, a piece of collateral or product packaging. With the help of a heat map (an amalgamation of what users looked at), it is easy to see exactly which areas were looked at, and which sections were completely ignored.

But is eye tracking really a one-size-fits-all solution to address all the visual and virtual research needs of professionals? It would be great if simply asking respondents always resulted in them telling the truth, but people don't always consciously know what catches their attention. Other times, they won't admit what catches their attention simply because they would be embarrassed to admit it.

An average eye-tracking study costs $20,000. That sort of price tag can make the technology unrealistic for the average advertiser who is hoping to refine an ad campaign or a marketer who is testing product packaging. When it comes to advertising, feedback is key. Unfortunately, offering feedback is a weakness of eye tracking. In advertising, simply pointing out which areas grab attention doesn't tell the whole story. A negative visceral reaction will capture someone's attention, but it won't effectively sell a product or develop brand loyalty. Knowing that an element in an ad gains attention isn't helpful unless you know why. In order to generate an accurate heat map, users can't be asked too many questions because participants look away from the screen and toward the facilitator too often.

An eye-tracking simulator is another, cheaper alternative. The simulator creates a window of focus by blurring the rest of the image. Mouse movements are recorded as respondents move the window of focus over areas that catch their interest. By creating a small area that is in focus, the eye-tracking simulator forces the respondent to move that area of focus to areas they want to see. There isn't much need to ask the respondents questions or give complicated instructions, all that is needed is an image to test. The area of focus acts as the eyes in the eye-tracking simulator. Any movement of the area of focus is recorded. After the test is finished, you can see which areas were focused on most, least and the order in which things were viewed.

This system works well for large images because shapes can be made out even though the image is blurred. The system doesn't work as well if there are smaller elements in the ad, like text. Eye-tracking research has proven that people quickly scan headlines and text to search for areas that catch their attention. With an eye-tracking simulator, the only way to quickly scan

text is to bring the area of focus to the words, so you can read.

Click with their mouse

Similar to eye tracking, click testing is an online diagnostic research technique that can be used to evaluate everything from advertising and editorial layouts to product design. Respondents are asked to click with their mouse on the elements they notice most on a page presenting visual stimulus material. After consolidating the results from 200 to 300 respondents, a visual heat map is produced highlighting the elements that are noticed most frequently on that page.

The technique mirrors the results of eye movement tracking surveys, but with the added advantage that it can be undertaken at a fraction of the cost and with rapid turnaround times. Click testing integrates questionnaire design, data harvesting and reporting in a way that makes it a cross between a survey and an eye-tracking simulation.

Simply highlighting areas that catch people's attention doesn't give the whole story, as emotion plays a huge roll as well. Click testing is designed to find out why people are interested in particular elements of an ad. With click testing, a set of instructions comes before each item to be tested. Respondents can be asked to click on the elements that catch their attention, making it similar to an eye-tracking simulator. They can also be asked to click on any elements that are off-putting, titillating or cause any other emotion. It allows advertisers to test people's reactions not just where they focus their attention.

Click testing has been used in a range of applications:

- print and outdoor creative ad testing, including comparative evaluation test of ads in real street environments, poster click-testing and brand recognition tests following microsecond exposures to measure impact and appeal;
- broadcast media evaluation, involving the integration of video and sound footage into online surveys, minimizing wait time for video or sound footage to be downloaded;
- print ad placement testing;
- Web page layout and design testing; and
- shelf product design projects.

New developments in click-testing techniques are also looking at mouse movement tracking. Instead of prompting people to click on what grabs their attention, respondents are asked to simply move their mouse over areas of the page they are looking at. The computer then records the mouse position every few milliseconds.

See what they offer

So which technique is right for you? The information these techniques present helps us recognize how consumers form impressions and process information. Before you decide on one approach or another, call a few companies and see what they offer.

A sound knowledge of human cognition and user behavior is needed to draw meaningful conclusions from eye-tracking data. Not all eye-tracking companies have this expertise, so ask if they help you interpret the data or if they just hand you the results with a few colorful heat maps.

If you decide you'd like to use one of the eye-tracking simulators, check out a demonstration first, and ask the vendor if you can see a detailed explanation of their methodology. Many companies will let you experiment with their software before you buy it.

If you determine click testing is for you, remember that it is a capability that can also be easily outsourced, should your team become swamped with workload and deadline.

Like eye-tracking simulators, click testing has the ability to follow flow of attention, but it cannot measure how long someone lingers on certain visual elements.

No matter which technique you choose, both are highly interactive methods that help researchers and advertisers see how consumers form impressions and process information. They can provide the input that lets advertisers break the mold and forge creative new trails. | Q