

# ⇒ Usability testing with eye tracking

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Historically eye-tracking equipment was cumbersome, difficult to calibrate, fairly unreliable and it would not work for people wearing glasses or thick mascara. It has, however improved significantly in recent years. It is now reliable (people can look away from the screen without disturbing the results), unobtrusive (you do not need to wear any special headgear) and works with most people (including those who like to wear lashings of mascara). It is now increasingly being used in addition to standard usability testing techniques, providing even more insight into how people look at websites and, therefore, additional feedback into how websites can be improved – to make them more usable, and to the organisation’s aims.

## Why and when

The new technology enables eye tracking to be used alongside conventional ‘think aloud’ usability testing. Usability testing reveals the issues with a website that interfere with a good user experience – how users achieve their goals and the usefulness and relevance of the content – surfacing both behaviours and attitudes.

Eye tracking in real time shows precisely what the user is looking at. There is far less doubt about which screen elements are being looked at or have been noticed. This can add significantly to the understanding of the usability issues on a website. This is particularly valuable when a testing session, or a video of it, is being viewed by a client as it makes explicit, without explanation, a lot of issues that may be obvious to an experienced usability professional.

The other major area where eye tracking is valuable is when trying to assess the effectiveness of a specific page or the design and location of elements on a page - for example when comparing two versions of a design e.g. promotions, navigation bars etc.

## How we usability test with eye tracking

Significant additional insight can be gained by watching the users’ gaze paths in real time – and real value can be gained from small sample sizes e.g. 3-5 testers. The important thing is being able to see in real time exactly where testers are looking.

However, if specific eye tracking outputs such as heat maps and gaze plots etc) are required then we would recommend larger sample sizes e.g. 12 – 20.

Because of the benefits of the new equipment used, discussed above, it is possible to use the eye tracker with think aloud protocols and still get meaningful data about how testers look at the page.

## Outputs

The standard outputs are videos of the test sessions that show the screen being viewed overlaid with the eyetrack trace, a head shot of the tester and the audio.

We can also provide a range of analysis and visualisation tools including:

- **AOI definition tool** - Areas of interests (AOIs) can be marked on any stimulus. Tobii Studio will keep track of your AOIs and synchronize them with gaze data. Using AOIs is a great way to quantify gaze data. By relating eye gaze to certain objects on the screen you can obtain meaningful statistics from single or multiple recordings.
- **Cluster tool** - Clusters displaying actual gaze spots may also easily be transformed into AOIs. Cluster visualizations show areas with a high concentration of fixations.

- Embedded statistics tools - The Tobii Studio Statistics tool can be used to display statistics and graphs such as time to first fixation, fixation counts and gaze time distribution. You can quickly and easily extract important statistics for quantitative analysis and comparison, without having to develop your own tools.
- Export of statistics and raw data - For unlimited flexibility and more depth of analysis, your findings can be exported to Excel, Matlab and SPSS.
- Powerful visualization tools including:
  - Gaze plots
  - Heat maps
  - Clusters
  - Replays

By nature, eye tracker information is very visual. Being able to visualize your data in a number of ways, with gaze superimposed on any kind of stimulus, enables you to make very fast and deep qualitative interpretations of your studies. Visualizations are easily exported just by right click and copy or save as image.

Several recording sessions from several test participants can be included in a single gaze data visualization. Effective tools for multi-person analysis, with an option to further filter the participants of a group into categories, provides a time and cost efficient way to collect such data.

Striking visualizations also help to convey your conclusions in reports or management presentations.

## Client examples

WUP has undertaken a number of eye-tracking projects in both the public and private sectors. Recent work includes:

Client	Project	Date
Equator (Thomson AI Fresco)	Eye tracking study of prototype wireframes for the new Thomson AI Fresco site (this took place in Glasgow, so we used our mobile usability and eye tracking lab).	August 2008
InterContinental Hotels Group	Usability testing with eye tracking of the Holiday Inn and Express by Holiday Inn websites with 12 testers.	August 2008
British Library	Usability testing with eye tracking of the new Reading Room catalogue with 3 testers.	July 2008

## Fees

Eye tracking is usually included as part of usability testing projects and the additional cost for eye tracking is agreed on a project basis depending on the number of testers.