

Eye tracking research provides valuable information for areas as diverse as Human Computer Interaction, usability testing, language processing, marketing research, ergonomics, psycho-linguistics, webpage design, and advertising. Using eye tracking in combination with The Observer® XT gives an extra dimension to your research.

COMBINE EYE TRACKING WITH EVENT LOGGING

The Observer XT is the professional software tool for the collection, analysis, and presentation of behavioral data. It is often the combination of behavioral data with other data modalities that makes research most valuable. Use The Observer XT to combine your logged events with eye tracking videos and physiological data to achieve the best results.

Manage all data

Eye tracking usually produces multiple data modalities, such as a video image of the participant's field of view, hotspots, pupil width, fixations, and areas of interest. Besides that, the registration of mouse clicks, key presses, and website visits may be of interest as well. With The Observer XT it is possible to manage all data in one research set-up. For example, integrate video with your logged events and data obtained with data-acquisition systems. Or add additional video files of the environment.



Figure 1. Hotspots on a webpage measured with a computer-monitor eye tracker.

Choose the right eye tracker

Take advantage of our experience and knowledge: we often integrate eye trackers into lab set-ups. We help you find the eye tracker that works best for you.



Figure 2. The fully mobile, head mounted gaze tracker.

Head mounted gaze trackers allow you to be extremely mobile, whereas remote eye tracking devices and computer-monitor eye trackers are stationary, and often used in an office setting. With all systems you can obtain measures such as pupil height and width, ocular torsion, pupil position, velocity of eye movement/saccades [1], and location and duration of eye fixation.

COLLECT YOUR DATA

Connect the eye tracking equipment to a computer that runs The Observer XT and start your data acquisition. When a data acquisition system is connected to The Observer XT, your data sets will be synchronized. If the equipment is not directly connected, synchronization can be done later by manually adjusting the timestamp of your observations.

Code behavior

With The Observer XT, you can specify all subjects, behaviors, and any elements that might influence your data in a coding scheme before or during observing the test subjects. For example, define independent variables to differentiate between participants with and without previous task-experience. When a participant has previous experience with a website, the scan path of the eyes will have fewer fixations than the scan path of a participant with no previous experience [2,3].

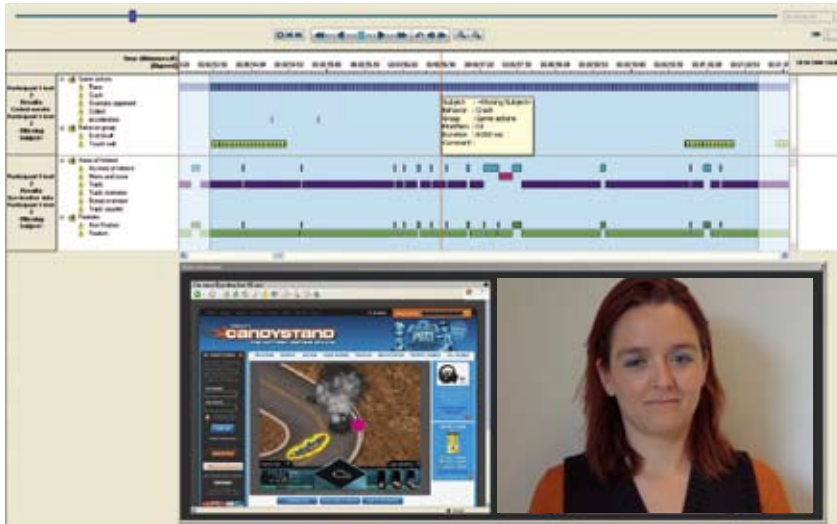


Figure 3. Different data streams in The Observer XT.

You do not necessarily have to set up a coding scheme first: add or change elements while observing and perhaps log comments to qualitatively classify your results later. You can code your observations by means of keystrokes or mouse clicks, which are automatically assigned to a timestamp. Coding can be refined as many times as you like, without losing previously coded measurements.

Video recordings

To facilitate coding video images, detailed time settings are offered. You can play two or more video images simultaneously backward or forward and at multiple speeds. This is especially useful when coding a video of eye movements and fixations, or scan paths on a webpage, since they are hard to follow unless viewed in slow-motion.

Assess emotions

Convince your audience with additional information about liking or disliking. The revolutionary software FaceReader™ automatically analyzes emotional expressions. Data acquired with FaceReader can easily be imported into The Observer XT for synchronization with other data, including eye tracking data.

SELECT AND ANALYZE YOUR DATA

After importing and coding your data, you can start to investigate the relationship between your logged events and the eye tracking data.

Select data

Specify parts which are relevant for behavioral and numerical analysis by filtering or nesting the appropriate variables, subjects, behaviors, and modifiers. For example, determine if the company logo on a website attracts more attention than another image.

Visualize and analyze

The Observer XT provides detailed visualizations which help you to explore the results.

Customized charts and statistics

are accessible in a few mouse clicks and ample search options give access to the video images you require.

Additional calculations

For additional calculations and analysis, The Observer XT contains the possibility to export data to a CD or DVD, or to programs such as spreadsheets, databases, or statistical packages.

Pattern detection

Another possibility is exporting your data to Theme™ for structural analysis. Theme detects complex patterns of events in raw behavioral data, and quantifies the complexity of the behavior as a whole. Where patterns in time-based data are difficult if not impossible to find with standard statistical methods, Theme will discover them.

Present your data

A wide range of presentation options is offered as well, to facilitate communicating your results to others. Select important video fragments and create your own Highlights Video Clip to illustrate your outcomes.

Feel free to contact us or one of our local representatives for more references, clients lists, or more detailed information about eye tracking, The Observer XT, FaceReader, and Theme.

www.noldus.com

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- [1] Goldberg, J. H. & Kotval, X. P. (1999). Computer Interface Evaluation Using Eye Movements: Methods and Constructs. *International Journal of Industrial Ergonomics*, 24, 631-645.
 - [2] Crosby, M.E. & Peterson, W.W. (1991). Using eye movements to classify search strategies. In *Proceedings of the Human Factors Society 35th Annual Meeting*, 1476 – 1480. Human Factors and Ergonomics Society, Santa Monica.
 - [3] Altonen, A., Hyrskykari, A. & Rähkä, K. (1998). 101 Spots, or how do users read menus? In *Proceedings of CHI 98 Human Factors in Computing Systems*, 132-139. ACM Press.