

Beyond Heatmaps : Eye Tracking for Market Research

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Abstract

The market research industry has long recognised the challenges of investigating the retail experience and many methods have been developed to address this. And whilst going beyond techniques that occur remotely from the shopping experience (such as focus groups and surveys) is clearly welcome, there remain fundamental flaws in the preferred methods of accompanied shops, store intercepts and exit interviews. In this article we discuss these weaknesses and describe how an eye tracking methodology for retail that uses **cued retrospective recall** overcomes these by;

- Cutting past the limitations of human introspection and memory
- Minimising intrusion
- Limiting inference

We also discuss how this methodology reveals that a reliance on heatmap analysis alone can be dangerous for your projects' health.

Researching the retail experience

The act of shopping is characterised by a continually shifting flow of behaviours; periods of concentrated search (*where will I find light bulbs?*) are followed by evaluation (*which type do I need? What's the price?*) and selection or rejection of an item. Shoppers' motivations might then return to navigation (*which aisle to visit next*), and behaviour can take a browsing style (*I'll just look in the vegetables aisle in case I've forgotten something*) or be a targeted mission (*I need potatoes*).

But these, and the thousands of micro-states occurring in between them, are rarely consciously experienced, there's no continuous internal dialogue as above. In fact neuroscientists estimate that up to 95% of mental processing occurs below the threshold of our awareness, creating a considerable challenge for researchers interested in the retail experience.

Market researchers have long recognised that retail demands a different tack and have adopted and developed a host of methods tailored for the task. However many of these methods are far from perfect.

So what's the problem with the traditional researcher's toolkit?

Accompanied or assisted shops are commonly used to understand shopping missions. In this method a participant is accompanied by a researcher in a task or shopping mission and is either questioned intermittently or asked to produce a running commentary of their thoughts, aims and actions during that activity (known as CTA or 'concurrent think aloud').

The first problem with this is that the researcher is constantly interfering with the activity the shopper is engaged in, distracting them from their natural method of shopping. The task of forming and verbalising answers to the researchers' questions places extra demands on the shoppers' mental resources, this inevitably impacts on the decision making process. The shopping experience of the participant is therefore fundamentally altered and consequently so is their behaviour.

Secondly, even if we remove the taxing effects of questioning by asking users to amplify their thoughts and '**think-aloud**' this still produces unreliable insights because there simply is no definable 'internal

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monologue'. Our subconscious thought processes simply don't follow the structure of a conversation; they're made up of hundreds of thousands of perceptual inputs, emotions and processes every second, the majority of which we are never fully aware of.

So what are people telling us in **think aloud** if not their innermost thoughts and feelings? Well much research of this nature is producing confabulation.

Confabulation is a psychological term for inferring, incorrectly, the reason why we did something, and we don't just have to be guessing or 'supposing' to fabricate a cause of our behaviour, we can even confabulate when we're unaware we're making inferences. For example we might truly believe the reason we've given for our behaviour or our motivation at a given point in time, yet the limits of our mental resources

physically prevent us consciously accessing this information. This might be due to limited access to our motivations at the time, or an inability to recall due to poor memory of these micro-events. If you consider that neuroscientists estimate up to 95% of behaviour originates in our subconscious, it's not hard to see why we might not know what we're talking about. In addition to this we rarely recall the illogical reasoning that typifies our subconscious, any comment we produce about why we do something is likely to go through a 'sense check' filter in our minds first, resulting in only logical explanations being shared. In short, the limits of our perception and memory make us poor judges of our own behaviour.

Store intercepts and exit interviews, where shoppers are interrupted after they have made a selection or completed a shop do allow a user to conduct their shopping alone naturally. However, the moment they are approached by an interviewer these methods also suffer the same drawbacks of limited insight and recall that produce confabulation or shoulder shrugs.

If that wasn't enough to convince you just asking people why they did something is a flawed approach then also consider that each of the above methods suffers from social desirability issues as well.

The presence of an interviewer means responses are (often subconsciously) subtly altered to fit the persona a respondent

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wishes to project about themselves. Even a desire to be polite to the interviewer can cause us to frame something less negatively than we might do to a trusted friend. In accompanied shops participants are continually reminded that they are being observed and analysed leading to false behaviour.

Enter Cued Retrospective Recall

Cued retro-what now?

Rather more simply put, retrospective recall is where a moderator or interviewer asks a respondent to recall a past event and to provide insight into their thoughts, emotions and motivations or strategies at that moment in time. So far, so familiar. The key difference between this and other market research methods discussed above is that the respondent is assisted with their memory by being shown cues. A cue might be a picture or and audio or video playback of past behaviour, but at SimpleUsability we've found that one of the most powerful cues available to our research is Eye Tracking.

Why eye tracking?

When combined with retrospective recall eye tracking becomes an even more powerful tool than it is on its own. Rather than inferring participants' motivations from their eye tracking footage or heatmaps, as is common in many market research projects, we combine eye-tracking sessions with a post task retrospective recall interview where we play back the shoppers footage to them. We gently apply questioning that is tied to key points in the eye tracking, all the while conducting the research in a natural and relaxed environment for the participant.

This method has multiple benefits over accompanied shops and exit/intercept interviews;

- Firstly users are left alone to shop as they would naturally, free of disruption or intrusion. The very latest in unobtrusive mobile eye tracking technology allows for a very natural shopping experience, so much so that past users have even commented they'd forgotten they were wearing the eye tracking glasses.
- Secondly users don't need to rely on their memories to recall their actions, the footage is such powerful evidence of what they did that mental resources are freed to recall the threads of thought and emotion they were experiencing at the time that lead to those actions.
- In addition the eye tracking reveals to participants far more detail about what they did than they would otherwise remember. It acts as a reminder of forgotten actions but more crucially it reveals to users for the first time exactly what they were looking and glancing at to the level of individual fixations and saccades. These would be impossible to recall and analyse independently of eye tracking footage and gives us a window into the subconscious mind of the consumer.
- In the face of the eye tracking footage it is much less likely that participants will confabulate a response because the evidence is right there in front of them.
- Finally, the placement of emphasis on the footage as opposed to the participant and a gentle approach to questioning reduces the stress of the research experience for the participant. This in turn reduces on the spot responses and helps quell social desirability effects.

"Eye tracking alone can only describe behaviour; cued retrospective interviews with the shopper explain it."

Better than Heatmaps...

The problem with researchers analysing eye tracking independently is that it is very easy to infer why something is grabbing attention or is being ignored or why a particular strategy is being followed. However this analysis rarely matches the users account of what was going on at the time. Eye tracking can only describe behaviour; retrospective interviews with the participant explain it.

Using cues alongside retrospective recall has been shown to be a powerful and accurate elicitor of the very memories, motivations and actions occurring at any given moment in time. Visual cues are particularly powerful prompts for human memory, more so than asking someone to think back to a past event. These cues meaningfully put the subject 'back in the moment'. They provide irrefutable evidence of what a participant actually did, allowing more accurate recall of thoughts and motivations and eradicate any fabricated memories. This is the case with eye tracking.

Retrospective recall is a long established and respected research technique in the world of academic anthropology, psychology and more recently the web usability industry. This information eliciting technique is less familiar in market research, yet has much to offer the retail researcher and buyer looking to go beyond heatmaps.

Here at SimpleUsability we're aiming to go further still in the future and believe the next step in revealing subconscious experiences in retail environments is through the use of neuroscientific electroencephalography

(EEG). This is where electrodes are placed on the scalp to directly measure the brain activity responsible for cognition and emotion in response to products and environments. However, current methods of EEG measurement are inflexible, highly intrusive and can be messy and uncomfortable for the participant to wear.

We vehemently believe this alters the shopping experience and therefore doesn't yet present a beneficial step to better research. But exciting developments in this field are allowing for more and more acceptable technologies all the time and we will be at the interface of these opportunities in the future.

About Us

SimpleUsability works with major brands and organisations helping them understand the people who use their products and services through market research and usability. We then help evolve how their products and services might be made easier to use for existing customers and new customers alike.

We use specialist technologies, such as eye tracking, to capture conscious and subconscious behaviours of people interacting with printed material, web, video, packaging and in-store fixtures. Presenting back actionable findings to be used to build a more successful offering, increasing engagement, curtailing drop out, and ensuring ROI.

We are passionate about what we do and about making a positive difference to our customers businesses, don't trust your usability and research needs to anyone else until you've spoken to SimpleUsability.

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