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Interview eye-tracking 2022
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Still looked a bit like Borg technology from the Star Trek universe: Eye tracking system in 1997, presented at an exhibition at the University of Jena. **Image | picture-alliance / ZB**

"Eye Tracking is just experiencing its second spring"

Michelle Pia Grätsch, eye square
Brigitte Bayer, like to KNOW
Dr. Antje Venjakob, oculid
Dr. Tina Walber, EYEVIDO

The method of eye tracking is still uncharted territory for many market researchers. In recent years, a paradigm shift took place: away from elaborate studio tests towards remote methods via webcams and smartphone cameras. Due to increased UX requirements and the battle for advertising attention, the method is currently experiencing a rebirth. We spoke with eye tracking experts from eye square, Eyevido, Liketoknow and Oculid about the status quo, the most important areas of application, the challenges in projects and where the journey is still headed technologically.

In your perception, how has the eye tracking method developed in recent years?

Michelle Pia Grätsch: Eye tracking as a method was always considered to be material-intensive, because without an eye tracker there is no eye tracking. But as in all technology-based methods, we see great progress in eye tracking in terms of quality and flexibility of use. Trackers are becoming more accurate, less prone to errors or sensitive to light.

Modern algorithms help with head and eye recognition, so that even conventional cameras in smartphones or webcams can achieve better and better results, without any additional equipment and at the participants' homes.

Professional eye trackers for the monitor or as glasses are now so handy and convenient and can be worn on the nose like normal glasses or simply attached to the monitor. This means that user behavior can now be tracked in a much more real context than in the past.

Antje Venjakob: Eye tracking is currently experiencing its second spring. Driven by technical advances in camera technology on mobile devices, there is a paradigm shift from the lab to natural environmental conditions.

This is a great improvement as it significantly increases the validity and informative value of the studies and opens up numerous new application scenarios.

Tina Walber: Due to the Corona pandemic and closed labs, there is a trend towards remote testing with webcam eye tracking.

However, the quality of the data and the handling for the test persons is a challenge. For example, glasses should be removed, and participants need to sit as still as possible to achieve usable data quality.

We just found in one study that we had to recruit over twice as many participants for a remote webcam test as we needed good eye tracking data sets. For some subjects, the webcam eye tracking provided such poor data that they could not pass calibration, or the data sets had to be discarded.

However, we continue to run infrared eye tracking tests with high quality data in our lab. Here, the trend is somewhat away from tests in in-house labs, towards service study execution, as employees often work in home offices themselves.

It often makes sense to perform rather few tests in the laboratory with high quality. The decisive factor is the goal of a study. If findings about the design of websites are to be obtained in usability tests, we recommend infrared eye tracking. We regularly receive inquiries about webcam eye tracking, where customers ultimately decide in favor of the infrared approach for reasons of efficiency.

Brigitte Bayer: With the growing importance of user-centeredness in (in-house) user experience, usability and user-centered design, the relevance of eye-tracking-based research tools has also increased.

Advertisers and product developers have learned that today they can quickly lose frustrated or disappointed users, and eye tracking can help you capture perceptions of their products to improve performance.

As user-centricity grows, so does the interest in uncomplicated and agile solutions and DIY solutions in companies, which is associated with less high costs, less organizational effort or long field times.

We still conduct most of our studies in our test studio. However, we see the trend towards mobile eye tracking via smartphone. This is because, depending on the study content, it makes sense to investigate user behavior exactly where the real context or touchpoints are. With the growing importance of social media content, but also of mobile shopping activities, the smartphone is becoming increasingly important as an eye tracking tool thanks to sophisticated selfie cameras and machine learning algorithms.

Currently, exciting start-ups and companies are emerging in the field of mobile and remote eye-tracking. For example, as part of our advertising effectiveness research, we work with Entropik, among others, to combine eye tracking with emotional tracking approaches. But we also keep an eye on newcomers like Pupil Labs or Oculid. In general, we rely on partners in the field of eye tracking who already have a high level of technical expertise, which we usefully complement with our market research expertise. Cooperation partners are generally of high relevance for like to KNOW. For our Teststudio solutions, we have been working closely with Tobii for a long time.

We see further exciting future developments in eye-tracking technologies in VR and AR glasses. It remains to be seen how application fields will develop and how accurate these applications will be.are, like so many areas of society, in a state of flux. Which brand would you like to do research on, some day and why?

In your opinion, what are currently the main areas of application for eye tracking? What changes have you noticed in this regard over the years?

Tina Walber: From my point of view, the main areas of application are usability tests of websites, in the web browser and on mobile devices, as well as tests in the marketing area, where, for example, advertisements or billboards are optimized. In online shopping, there continues to be a slight trend towards mobile devices. We have been regularly testing apps and mobile websites for years. In other areas, such as online banking, we continue to work a lot in the web browser and test accordingly.

Brigitte Bayer: For us as a market research provider, advertising impact research remains the most in-demand use. Are all relevant elements of an advertising medium received in a way that is relevant to perception, or is there still a need for optimization here? At like to KNOW, we rely on a multi-method approach and always combine eye tracking measurement with qualitative interviews to question the "why" and uncover impact correlations.

Currently, we also see the potential for faster and more cost-effective on-site PoS research with the ever smaller (and thus less invasive) mobile eye tracking headsets. In recent years, a lot has happened in this area, especially with regard to automatic image and pattern recognition, which in turn can lead to simpler evaluability and thus to more cost-effective study designs.

Antje Venjakob: Eye tracking has long been used by universities in basic research. Within the various fields of application, market research has a pioneering role. In our experience, eye tracking is more widespread and better known here than, for example, in the field of UX research, for which eye tracking can also be very interesting. Within market research, eye tracking has a high profile and application in packaging and store testing.

And we are also seeing increased interest in eye tracking in the advertising industry. Here, the battle for attention, or in technical jargon the "Attention Economy", is gaining momentum, driven by more and more influences that affect us daily. The focus is therefore on tests that investigate whether and for how long advertisements - especially on social media - are seen and perceived at all.

Michelle Pia Grätsch: In advertising research, we are seeing increased interest in in-home eye tracking. This is because it is not only professional eye trackers that benefit from technical progress. Thanks to the constant improvement in camera quality in our private devices, eye tracking can now be carried out in people's immediate surroundings via the webcam or smartphone camera. Thus, we are moving more and more towards a real-life experience with a maximally biotic media usage situation and away from laboratory tests.

In addition, eye tracking is increasingly used to measure pure perception - we call this System 0 - in digital advertising contact. On social platforms, but also in media use of more traditional channels, attention is increasingly becoming a rare and therefore very significant commodity in our stimulus-flooded environment. It is therefore tracked whether advertising is viewed at all, and no longer necessarily which areas of advertising attract the most attention, as was previously the case with print ads or posters, for example. In these times, it is essential for brands to attract attention and thus generate eye contact to get through to consumers with their messages.

What do you still experience as challenging in eye tracking projects?

Brigitte Bayer: We always offer eye tracking in combination with other methods. After all, not everything that is seen is also anchored in the memory in the long term or is relevant. We know that information that was not the focus of the field of vision is also processed. Therefore, it is important to ask the right questions and to interpret the data correctly.

For us, the cause-effect relationship is always the focus of our research. What is challenging is when clients interpret results based on eye tracking results without waiting for the qualitative analysis.

In addition, for us mobile eye tracking headsets are not yet precise enough in their quality for all application areas. An evaluation of the fixations with millimeter precision, as known from stationary eye tracking solutions integrated into a monitor, is not always possible here yet. External factors such as (infrared) light or the angle at which the stimulus material (e.g., a smartphone) is held can also influence the data quality. Here, depending on the application, one has to weigh which test scenario and which technique makes the most sense. Here, the challenge for us is to find the right cooperation partners that offer high-quality tools.

Michelle Pia Grätsch: In the case of projects that are carried out in people's private environments, the quality of the participants' technical equipment on the one hand and data protection on the other naturally play a role. Fortunately, many now have a very good camera setup at their disposal, which makes webcam eye tracking possible from a distance. While no video is recorded, it is understandably sometimes a hurdle to grant access to the webcam. These two challenges are less of an issue in on-site studies. We can work on-site or in-store with state-of-the-art technology and participants are not afraid to reveal too much of their private environment.

Antje Venjakob: Eye tracking is not yet universally known as a method and occasionally encounters concerns about accuracy and data protection issues.

There is still work to be done here to raise awareness. Eye tracking is also always challenging when we have very dynamic settings that differ greatly between individual participants. Here, it is important to track elements of interest well during the study to enable automated evaluation, especially since manual evaluation is very time-consuming and thus cost intensive.

Tina Walber: The evaluation of eye tracking data can be a hurdle for newcomers. We try to convey that it is very easy to approach the interpretation of eye tracking data by means of "learning by doing". Most of our clients are using this form of data for the first time and have been able to learn on their own.

We are also working in our research project UDeco together with the University of Stuttgart on the automated evaluation of eye tracking data. The idea is to create a kind of automatic evaluation of the user data. For example, it will be calculated whether relevant areas are viewed several times before clicking. Such behavior indicates ambiguity; users are not sure, for example, whether clicking a certain button will lead to the target.

How can providers stand out from the competition in this field?

Antje Venjakob: A combination of accuracy and natural environment is significant and gives us the opportunity to stand out from the competition, as many common methods only choose one path. In fact, both are important, because accurate data reflecting unnatural behavior is just as problematic as natural behavior that is inaccurately reflected.

Michelle Pia Grätsch: Eye tracking is a complex method, and a lot of know-how is needed to set up and conduct such studies. In more than two decades of experience, we have been able to build up an extensive eye tracking benchmark for a wide range of industries, with the help of which we can classify new studies and thus make them even more meaningful. In addition, it is essential to be always up to date with the latest technology. As mentioned earlier, technology-intensive methods are constantly and rapidly evolving.

Together with our partners from Pupil Labs (eye tracking glasses) or Oculid (smartphone webcam eye tracking), we are involved in the further development of software and hardware to always be able to support our customers with the latest technology.

Tina Walber: The goal of our software solution EYEVIDO Lab is to enable simple and efficient user studies with eye tracking. Among other things, screenshots are automatically created in the web area and the data of all test persons are accumulated, displayed and evaluated. This enables very intuitive and fast work. In addition, the portal for study creation and evaluation is independent of the type of data collection. We offer both infrared and webcam eye tracking. The approaches can even be combined.

Brigitte Bayer: We always combine eye tracking and apparative techniques with what remains the core mission of market researchers: Establishing connections, providing insights, and deriving concrete recommendations for action. The combination of apparative methods with depth-psychological market research will remain highly relevant.

Because this combination delivers more than just the uncovering of phenomena. In this way, we create context and meaning and find out what the real drivers and motivators are. We are certain: Only when we understand people and their inner processes holistically can we interpret data and derive clear recommendations for action.

What innovative further development would you like to see in the field of eye tracking?

Brigitte Bayer: For us, the topic of VR is exciting to offer previously expensive studies more cheaply, as virtual environments can be changed and adapted quickly. We are looking forward to new developments in this area. We would like to see higher precision in eye-tracking headsets and improved image recognition algorithms for easier, cumulative evaluability.

In addition, we would like to see eye-tracking software manufacturers pay more attention to improving the analyzability of web UX and usability studies, because there is still a lot of potential for optimization in terms of automated and cumulative analyzability.

Michelle Pia Grätsch: Standardized tests can already be evaluated quickly and easily. However, with increasing individuality and complexity, the evaluation effort also increases. Automated coding procedures already exist for many areas. However, we are still rather at the beginning of the journey when it comes to the automated evaluation of smartphone eye tracking. For the future, I hope for more automation in evaluation, which could not only reduce costs, but also enormously shorten study runtimes.

Tina Walber: We are working on further developments ourselves and see the greatest potential in two areas: automated data evaluation and further improvements to webcam eye tracking. The latter is mainly about further increasing data quality. Here we see a lot of potential in the targeted support of testers. In the future, they should be notified in real time if their sitting position has changed too much or if the lighting conditions are too poor.

Antje Venjakob: Eye tracking must become even more comprehensible for users who do not perform it regularly. I think that interpretation aids are almost more important than technological advancements. We are on the right track here.

Michelle Grätsch
Research Consultant Brand & Media

eye square

Michelle Pia Grätsch works as a Research Consultant in the Brand and Media Experience Unit of eye square. She is passionate about quantitative approaches to various research questions. In particular, she analyzes and optimizes moving image formats of international brands.

As part of the System-0 Tribes, Michelle is an expert in the field of human perception analysis, e.g. through different eye tracking methods.

Brigitte Bayer
like to KNOW

Brigitte Bayer heads the new People Insight Agency like to KNOW- an independently operating subsidiary of RTL Germany with Gruner + Jahr. She comes from RTL Germany's own ranks, where she was most recently Senior Head of Audience, Trend & UX Research at RTL Data, where she (further) developed the methodology and content of the teams for program research, trend and future research, and UX.

Brigitte Bayer started her career as a market researcher in 1997 as a trainee at the advertising agency Grey. After working for RSG Marketing Research and Sony Germany, she moved to the media industry as an advertising effects researcher in 2012. With a degree in business administration, she deepened her market research knowledge in the morphological compact study program to become a market/media researcher at the Rheingold Institute in Cologne.

Dr. Antje Venjakob
Oculid

Dr. Antje Venjakob is co-founder and CEO of Oculid, a Berlin-based company offering an eye-tracking testing platform for remote testing on smartphones.

She is a data-driven researcher and entrepreneur with a background in psychology, studied and worked in Amsterdam and Berlin, and founded Oculid in 2018 as a spin-off from TU Berlin. Oculid's mission is now to make eye tracking available to companies of all sizes and budgets.

Dr. Tina Walber
EYEVIDO GmbH

Dr. Tina Walber is founder and managing director of EYEVIDO GmbH. The company offers cloud-based software for conducting user tests as well as services in the field of eye tracking. Tina Walber is a computer scientist and holds a doctorate in the field of eye tracking. She has been using the method for more than 10 years in scientific research and usability testing.