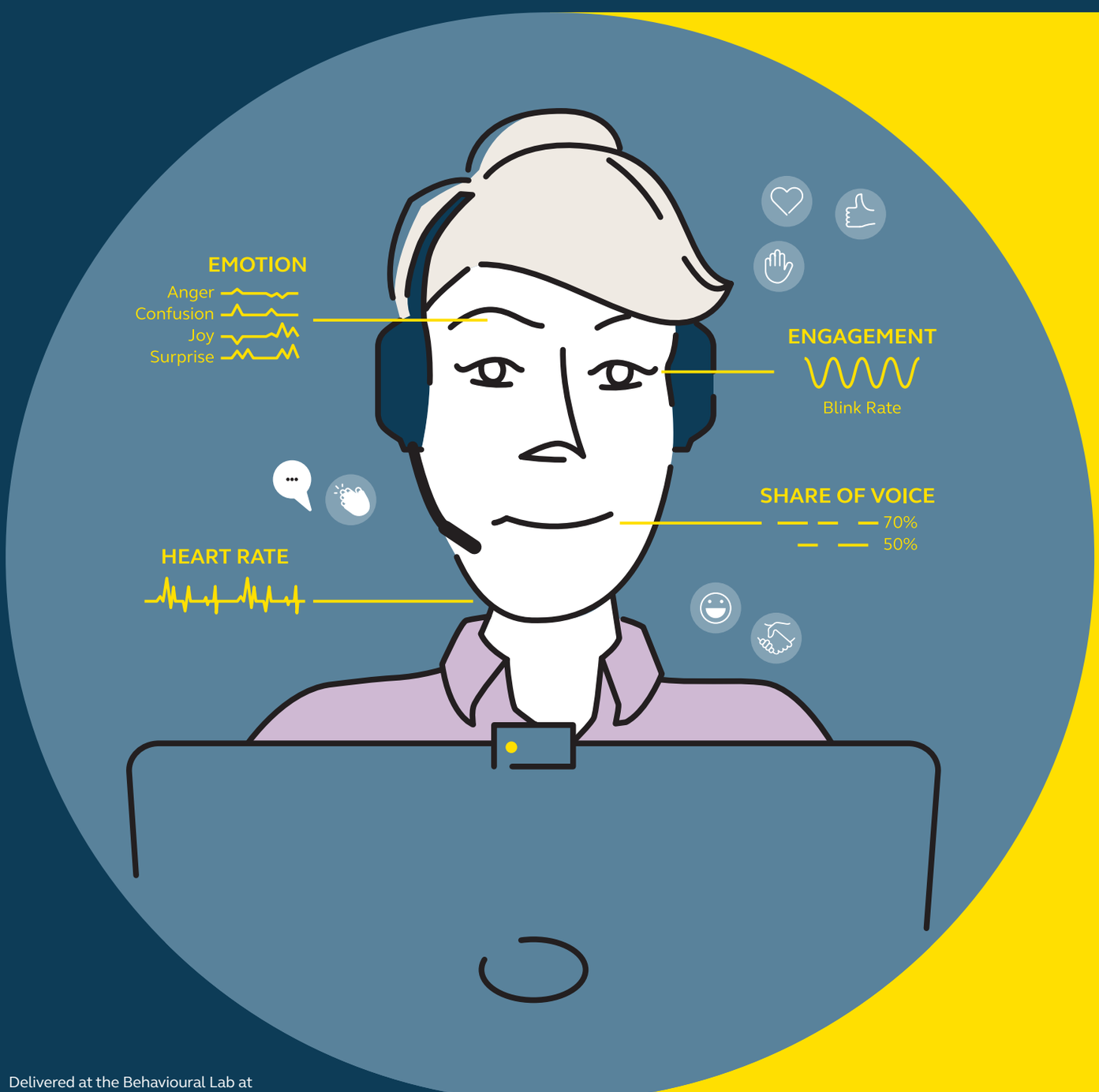
Jabra GN

Meeting great expectations; behaviour, emotion, and trust

A Jabra study at the London School of Economics' Behavioural Lab on the impact of technology on people in modern meetings



Delivered at the Behavioural Lab at

LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

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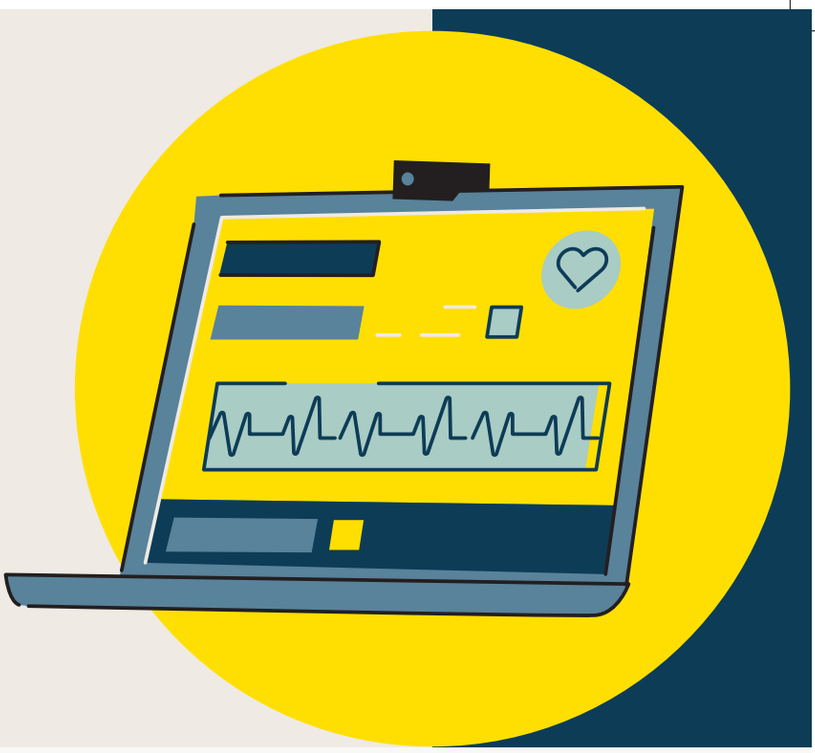
FORWARD BY DR SIMON NOYCE

The psychology of understanding what people aren't telling you



Adapting psychophysiological apparatus for use in new applied contexts rather than tightly controlled laboratory studies is always exciting, but raises unique challenges. In our research, applying eye tracking and bio-psychological recording to groups of eight individuals working together in a hybrid virtual environment was no exception.

At the same time, establishing appropriate external validity required careful consideration to ensure that the meeting tasks sufficiently represented the real-world activities that the collaboration technology would typically be used for. Ultimately it was encouraging to see that participants not only fully engaged with the tasks but also reported favorably about their experiences.

The study used a diverse range of psychological approaches and measures, ranging from self-report ratings to capture participants' opinions and feelings, through to highly objective and sophisticated eye-tracking, facial-expression analysis and biological indices of arousal and cognitive load (skin conductance response and endogenous eye blink). Synchronizing and collating the vast amount of data produced was in itself demanding, with each participant producing close to 500 data points per second.

Synchronizing and collating the vast amount of data produced was in itself demanding, with each participant producing close to 500 data points per second."

Dr Simon Noyce,
Principal Investigator

The study also pushed the capabilities of the apparatus being used beyond the usual limits. Discriminating facial expressions from multiple video streams in relation to the small facial stimuli generated in Microsoft Teams, was hugely different from the usual laboratory application of the technology. And while the data was far from perfect, it was clear enough to allow analysis to be conducted. Establishing standardized areas of interest for eye tracking in the in-room group, where every participant had a different viewing perspective of a shared screen required use of head worn eye-tracking apparatus.

This proved to be far more difficult to work with than the remote participant setup, where the use of individual laptops allowed fixed eye-tracking apparatus to be used, facilitating standardization of interest areas across the remote participants. The variations across the two different laboratory settings provided insights into the different working environment experienced by the two participant groups. Crucially, we were also able to statistically identify distinct variations in both the self-report and psychophysiological measures obtained between these two participant groups in relation to the manipulation of audio-visual input quality.

Overall, despite the challenges this was an incredibly interesting study to design, execute and evaluate. There is clearly huge potential in applying psychophysiological techniques to investigating human interactions in virtual meeting environments.

INTRODUCTION

There must be a better way to meet

In May 2023, Microsoft revealed that people are in 3x more meetings and calls per week at work, than they were in February 2020 – a 192% increase.[1] The heaviest Microsoft Teams users are spending almost a full workday every week in online meetings. The average worker spends about 25% of their day in Teams meetings. Given that there are over 572 million knowledge workers globally[2], we're collectively spending billions of hours in online meetings each week. And yet, many of those meetings are taking place in conditions that are far from conducive to collaboration or productivity.

Inefficient meetings are the leading barrier to productivity, according to Microsoft. At the same time, having too many meetings was ranked as the third biggest productivity disruptor.[1] Earlier this year, in our Jabra Hybrid Ways of Working 2023 Global Report, we found that how people were seen and heard, as well as how well they could see and hear their colleagues in remote meetings was impacting team trust, creativity and innovation. Microsoft's research backs this up, with 58% of people saying it's difficult to brainstorm in a meeting.[1] Interestingly, our research also found that the online meeting experience was impacting how collaborators perceived each other's competence.

Although we're collectively spending a significant portion of our time in online meetings and there are many calls for a return to office, most meeting rooms still don't have the right equipment, with only 15% of employees saying that all their meeting rooms are equipped with technology, while 2 in 3 people are using their laptop's built-in cameras.[3] In another piece of research that we conducted in 2023, we discovered than only 29% of knowledge workers have a headset, and 8% use one as their primary device during online meetings.[2]

All of this led us to wonder, how much is the technology we're using impacting our behaviour in meetings and our ability to collaborate effectively?

Answering that question has taken over a year of work by Jabra at the London School of Economics' Behavioural Lab, to try and understand the biopsychological impacts of the technology we use in our day-to-day work, and how it impacts our relationships, wellbeing, trust, emotions, and engagement in meetings.

Only 15%

of employees are saying that all their meeting rooms are equipped with technology

[1] Will AI Fix Work, Microsoft work Trend Index Annual Report, May 9, 2023.
[2] Jabra Global Knowledge Worker Study, May 2023
[3] Jabra Hybrid Ways of Working Global Report, June 2023

INTRODUCTION

Why the Behavioural Lab at the London School Economics?

The London School of Economics' (LSE) Behavioural Lab is a world-leading laboratory managed jointly by the Department of Management and the Department of Psychological and Behavioural Science. A world-leading, purpose-built laboratory, designed to study human behaviour in a controlled environment, it regularly carries out research in the areas of human behaviour and wellbeing that we wanted to understand. For this groundbreaking study, we needed to find a hub for behavioural science research, and LSE was the perfect partner.

For this research, we created a series of collaboration tasks that replicated those most common to modern-day meetings, with all sessions consisting of 8 individuals, 4 in a conference room setting and 4 joining the same meeting remotely via Microsoft Teams. Participants were also given different technology conditions. For those in the conference-room setting, they were either using our nearest competitor's video bar, or a Jabra PanaCast 50. For those joining the meeting remotely, they were either using a Jabra headset and professional webcam, or the laptop's built-in microphone and webcam.

The entire group comprised of 88 participants representing 15 nationalities. Participants were tracked using a combination of qualitative feedback measures and biopsychological markers, including facial emotion recognition, electro-dermal activity (which corresponds to changes in the autonomic nervous system), endogenous eye blink and gaze pattern analysis and share of voice examination. Eye-blink analysis is a commonly used indicator of cognitive load.

To ensure we had unbiased and ethically sound results, this study was designed by principal investigator Dr Simon Noyce with support by the LSE's Behaviorual Lab and approved by the university's ethics board. All participants were unaware of what was being tested or that the research was focusing on different types of technology and Jabra remained completely anonymous throughout the process.

What we discovered was an entirely new way of understanding how we interact with one another in meetings, how cultural and societal backgrounds affect our interactions, and how the technology we use can profoundly impact things like behaviour, emotion, trust, engagement, inclusion, meeting fatigue, understanding, and people's overall meeting experience.

The research in a nutshell

WHO: Sean Rooney, Chief Scientific Officer and Head of Laboratory Innovation at the LSE's Behavioural Lab, Dr Simon Noyce, British Chartered Psychologist, Principal Investigator and 88 participants representing 15 nationalities • **WHAT:** Ethics-board approved research design, simulating real-world meeting collaboration in different technology setups • **TECHNOLOGY:** Two conference room setups, using Jabra PanaCast 50 or nearest competitor's video bar. Two remote setups, using Jabra Evolve2 85 audio and Jabra PanaCast 20 video, or modern laptop's built-in microphone and camera • **TRACKING:** Emotion recognition software, share of voice software, eye-tracking software, skin conductance response, and qualitative reporting • **WHEN:** June-July 2023

SECTION 1

What we learned about overall meeting participation between being in-room or joining remotely

When we worked remotely, meetings became more formal. They became ever present in our calendars. Then we started to return to the office. For both informal (social) and formal collaboration. Some companies moved to extremes with their return-to-office mandates. And now we're finding the right balance, but one thing that's certain is that the majority of our meetings will involve a mix of people who are in-room and remote.

Solving the dynamics between in-room and remote participants is one of the biggest challenges of hybrid working. Regardless of the technology setups used, we uncovered some compelling findings on how in-room and remote participants interact. We looked at how in-room and remote participants ranked six variables, ranging from engagement, quality of input and body language, to clarity of experience (video), trust and expressiveness, and found clear variations.

WHAT WE LEARNED ABOUT
OVERALL MEETING PARTICIPATION

1. Face-to-face interaction is still the most preferred

One of the recurring major reasons people are being sent back into the office is because of the quality of interaction that leaders say just cannot be replicated virtually. Collaboration can be formal or informal, and indeed, most watercooler chats, desk catch ups and many other social and information-sharing aspects of the office simply can't be replicated in virtual environments. And while more formal meetings can be quite effective online, people still get more from face-to-face interactions.

The research data clearly shows that face-to-face interactions are preferred, with in-room users rating their own intergroup interactions more favorably than virtual interactions with remote users. Being in person led to ratings of 56% more engagement, 11% more expressiveness, 8% higher quality of input, 16% more trust and 30% more for clarity of interaction than virtual users, regardless of the technology they were using. However, we know that most employees still want to work flexibly. Teams should consider cultural shifts to accommodate for in-room biases, inviting the feedback of those joining remotely.

Remote users show no pronounced preference between other virtual users – other remotes or those in room, except in one area. Interestingly, when looking at the ratings of remote users only, they rated the body language of other remote users as 12% greater than for in-room users. This is likely because of the share-of-screen, where all meeting-room participants have less share of screen when compared to remotes.

Looking at clarity, expressiveness, trust and quality of user input, the results were consistent. The lowest ratings were returned for participants all using and experiencing a competitor's video bar and built-in laptop audio and video, and the highest ratings from in-room users rating remote users with Jabra equipment.

The best outcomes for viewing remote users were achieved when remote users were collaborating with a Jabra Evolve2 85 and PanaCast 20, or where both groups were using high-quality professional equipment.

WHAT WE LEARNED ABOUT
OVERALL MEETING PARTICIPATION

2. Giving everyone the same professional equipment has a big impact on their meeting experience

Meeting experiences are holistic, and need to factor in all participants. When we shifted to remote work, most organizations gave some type of headset and maybe even a webcam to employees to take their meetings online. But even within teams and companies, the technology experience is uneven. According to our 2023 Knowledge Worker Study, surveying over 7000 global employees, 91% are using an online meeting platform like Teams or Zoom, but only 29% use a professional headset for work, and only 8% say that it's their main device.[1]

I felt that the change in camera setting gave me confidence that I was visible. The face tracking made it possible for me to move around without being worried if I'd still be seen or not. Some of the participants felt freer to express themselves in depth in this session."

Research participant
in professional technology condition

Looking at people's video experiences, in a separate piece of research we conducted in 2022, only 19% of knowledge workers are using a personal webcam.[2] And back in 2021, 68% of employees we surveyed in our annual global hybrid working research said they would prefer companies to select and provide technology to make the hybrid experience equal.[3]

So, for this study, we were curious about how technology impacts the quality each person can access a meeting with, and wanted to find out how much an equal playing field impacted everyone's overall collaboration perceptions.

When looking at the combined overall ratings of everyone in the meeting, there was a 27% increase in overall clarity of the technology experience, 16% more trust, 35% more reported expressiveness and a 47% perceived increase in the quality of input from all participants, when everyone was using Jabra equipment. By comparison, when participants were using a competitor video bar and built-in laptop audio, they consistently rated all experience parameters at their lowest scores.

As Dr Noyce explains, "when we think about the diversity of the technology that's available in relation to virtual meetings, obviously it's really varied. If you're in a situation where you can make the most of the incoming stimuli available to you, it gives you the advantage of feeling a part of what's going on and raises confidence in the quality of information you're receiving. Ultimately, we're moving towards trying to facilitate the way in which people interact meaningfully at a level that is close to what it would be like face-to-face."

[1] Jabra Global Knowledge Worker Survey, May 2023
[2] Jabra Usage & Attitude Video Purchase Journey, March 2022
[3] Jabra Hybrid Ways of Working Global Report, August 2021

WHAT WE LEARNED ABOUT
OVERALL MEETING PARTICIPATION

3. Remote workers have increased presence, impact and inclusion, when given the right equipment

Remote workers are often those who feel left out of hybrid meetings. In our 2022 Hybrid Ways of Working global report, 2 in 5 employees said they often felt left out in online meetings. And in the 2023 edition, we saw that Millennials and Gen Z were 2-3x more likely to say they felt left out in meetings. As one Gen Z participant in our research noted, "Sometimes the discussion is going on in the room while the others online are left out. I felt like the people that were in the room found it easier to communicate and get involved with the conversation with each other, which led to the people who were separated kind of shying away." This separation can have a big toll on the overall quality of meetings.

"The camera was displaying me fully this time, so I felt better about participating in the conversation and could see the others more clearly, which allowed for a more organized conversation, without lots of glitching or movement."

Research participant
using Jabra PanaCast 20

The research discovered that when remote users take part in meetings using professional headsets and web cameras, perceptions of the meeting quality increase for everyone. Looking at trust, remote users have a 22% increase in trust for other remote participants who are also using professional technology. Overall video clarity was also 9% higher for remote participants when everyone was using Jabra, while meeting-room users rated remote users with 32% more expressiveness and 25% higher quality of input in meetings when they were using professional equipment.

Overall, we discovered that remote participants who are using Jabra audio and video are perceived by meeting-room participants to have nearly twice the quality of engagement – 84% – compared to remote collaborators using their laptop's built-in hardware. These findings showed the levels to which remote workers can show up and contribute to hybrid meetings, and the advantages, or disadvantages, that technology can give them. If organizations intend to maintain a hybrid-working policy, equipping employees with the right personal technology will be essential.

WHAT WE LEARNED ABOUT
OVERALL MEETING PARTICIPATION

4. Meeting room equipment has a significant impact on remote users' meeting experience

How can we bring people into a meeting room, in a way that gives them the highest opportunity to contribute to a meeting? No matter where teams join meetings from, we need end-to-end technology that facilitates them at a level as close to, or better than being in person. Most of this focuses on bringing remote people more inclusively into a meeting room.

Our study discovered that when participants were collaborating using professional in-room and remote technology, remote participants reported a 56% increase in quality of input from those joining from the meeting room than when using a competitor's video bar. They also reported 16% higher video clarity, and 11% higher trust ratings.

For remote users, the quality of input was rated as highest when those using professional headsets and webcams were feeding back on other remote users in the meeting using the same technology. After this, they rated in-room meeting participants using a professional video bar as the second highest. And then thirdly, in-room users rating remote users with video from a professional webcam.

Overall, it's clear to see that the in-room technology makes a big difference to the experience of remote attendees. As one remote user without any professional technology put it, "there was poor sound quality, I missed about 60-70% of words during the last minutes of the session. It seemed that the four people in the room just didn't hear me, and it impacted their perception of my ideas. Of course, they worked together, and paid very little attention to the remote people."

We know that approximately 1 in 10 meeting rooms is equipped with collaboration technology such as a video bar system. While it might not make a meaningful difference to those in the room, we can see that meeting-room collaboration technology has a big impact on remote meeting attendees. In our 2023 Hybrid Ways of Working Research, 4 in 10 said being on video when working remotely helps counter the feeling of not being as involved as when they are present in the office.

However, our new research shows that it is probably more important for those in room to have the right video technology. As organizations locate more people from the office, updating meeting rooms to be equipped for equitable collaboration should be a non-negotiable for any company that values inclusivity.

I could see which person was speaking as everyone had their own individual video feed instead of sitting around a table in a group. When in-room participants all have individual streams, it makes their visual picture clearer."

Remote participant, experiencing Dynamic Composition of JabraPanaCast 50

WHAT WE LEARNED ABOUT
OVERALL MEETING PARTICIPATION

5. Remote collaborators are more engaged in meetings when they can read faces more clearly

In our research on online collaboration, we often talk about virtual real-estate, or how much space each meeting participant has on screen. When everyone was joining online meetings remotely, this was an equal share of screen, but has shifted with hybrid meetings. When looking at gaze patterns and engagement for remote meeting participants, we discovered that when using a 4k webcam that can track and frame faces, remote attendees looked at each other significantly more than when using the lower-quality equipment that comes built-in with most laptops. The research also showed that remotes spent up to 24% longer looking at other remote users than those joining collectively from a meeting room, based on gaze dwell times.

The second session was better… it was much clearer, and I was able to see the rest of the group much better. I could better see each of the participants and their expression."

Remote research participant

However, in contrast to the biological gaze-pattern analysis, the researchers found that when rating different meeting environments, the second highest ratings to in-person collaboration out of any technology mix tested was for remote users rating in-room users who are using a professional video bar that provides an individual video stream for all in-room participants.

Remote users had a clear trend to rate in-room users move favorably than fellow remote users on expressiveness, body language, quality of input, level of engagement and share of voice. This could be because of new meeting-room technology, that gives all meeting-room participants individual video feeds, clustered together. As a result, in-room users are clearly visible, but in a more compact viewing area requiring fewer visual movements to process and extract information. Physiologically, people tend to look at bigger faces on a screen, but when it comes to reporting preferences, they prefer being able to read a group of faces more clearly in a closer area.

These findings suggest that remote participants experiencing high-quality video from the meeting room or other remotes are visually more active than those receiving generic audio-visual stimuli. Remote participants experiencing Jabra had increased visual activity by 30% when interacting with other remote participants using the same equipment, and by 47% when experiencing in-room participants using the Jabra PanaCast 50, compared to our nearest competitor.

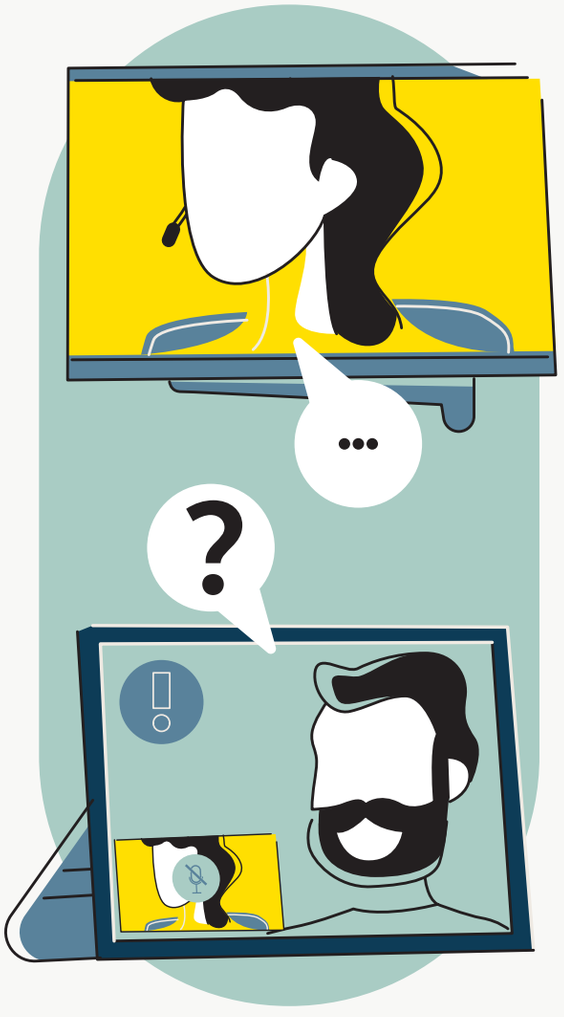
WHAT WE LEARNED ABOUT
OVERALL MEETING PARTICIPATION

6. Selectively equipping teams or spaces can have a more negative impact on overall meeting productivity

In April 2023, we conducted our annual Hybrid Ways of Working Global Report. Studying almost 2000 employees across 6 countries around the world, we discovered that only 15% of employees say all their meeting rooms are equipped with video equipment. At the same time, we know that headset and webcam usage is inconsistent across most organizations.

Our study discovered that higher levels or arousal, stress and cognitive load in remote participants was associated with mixed technology conditions, when some people were using professional technology and others weren't. The lowest endogenous eye blink counts (indicating cognitive load) were achieved when everyone in the meeting was using professional technology.

Remote participants show less stress, anxiety and cognitive load when everyone uses and experiences the same audio-visual quality, with the lowest levels associated with everyone using professional technology. Interestingly, when everyone was on lower-quality technology, there was less strain than in the mixed condition. When there was a mixture of technology, with some using professional technology and some using lower-quality hardware, we saw the highest eye-blink counts, indicating greater stress and cognitive load.



"It was harder to understand the people in the room. One was more likely to talk over somebody in the room as their facial expressions were harder to read."

Research participant,
Mixed technology meeting

SECTION 2

Trust and emotions in meetings, and technology's impact

Trust is an enabler for all business. It opens and closes doors, deals and perhaps most importantly, it affects our mental wellbeing and productivity at work. As early as 5th century BC, handshakes were a pledge of peace and trust, and since then trust in business has been evolving, as well as the ways in which we build it. As neuroscientist Paul J. Zak's research has shown: "compared with people at low-trust companies, people at high-trust companies report: 74% less stress, 106% more energy at work, 50% higher productivity, 13% fewer sick days, 76% more engagement, 29% more satisfaction with their lives, 40% less burnout."[1]

Trust in virtual and remote environments has been the subject of much discussion. Most would argue it is at the absolute core of the return to office debate. Microsoft call it productivity paranoia, where 85% of leaders say the shift to hybrid has made it challenging to have confidence that employees are being productive and struggle to trust their employees to do their best work. At the same time, 73% of employees say they need a better reason to go into the office than just company expectations.[2]

This paradox begs the question, what different levels of trust can you build in hybrid environments, and how? As psychologist Dr Noyce explains, "trust is very hard to measure at a biopsychological level, so with this research we've used a self-report trust scale to get behind whether people think the people they're interacting with are trustworthy." In our research, we ranked trust based on different technology conditions and meeting environments. This is what we found.

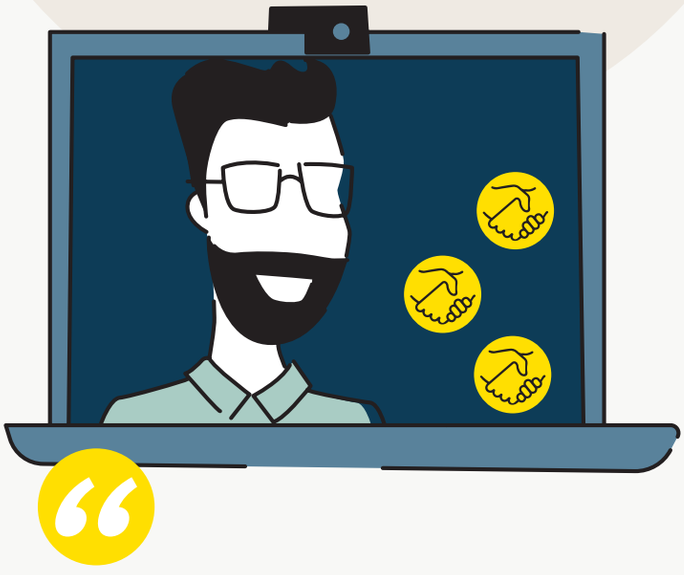
[1] https://hbr.org/2017/01/the-neuroscience-of-trust

[2] https://www.microsoft.com/en-us/worklab/work-trend-index/hybrid-work-is-just-work

TRUST AND EMOTIONS IN MEETINGS,
AND TECHNOLOGY'S IMPACT

1. Technology influences how much we trust people in meetings

For remote users, trust is usually harder to form than in person. As Dr Noyce explains, "when people are interacting with each other, there's a whole range of things going on; our ability to process faces is largely under the governance of dedicated areas in our brain such as the right fusiform gyrus. We are largely driven by visual stimuli, and our occipital lobes that process visual stimuli make up a large proportion of our cognitive make up.



In terms of modern, hybrid meetings we have a very different social structure in place. So, if you're in-room, you can obviously reference your peers very differently and in a fuller way, than if you're remote. Some of the technology we're using has dedicated software that focuses on the face. This obviously means that the face takes up more real-estate on the screen. That greatly enhances our ability to process things like nonverbal cues."

What we found in the research was that remote participants using and experiencing professional technology report significantly higher levels of overall trust for both other remote users and in-room users. When viewing fellow remote participants who are also using professional video, there was a 22% increase in trust ratings compared to those using their built-in laptop audio and video. Looking at the average rating given for in-room and other remote participants, trust is 18% higher when remotes both experience and use professional collaboration technology.

Trust is consistent across both sessions, indicating that both using and experiencing Jabra equipment has a significant impact raising scores by nearly 20% compared to when remotes participants' view video and audio from a laptop's built-in audio and video. It seems that for remotes users using the PanaCast 20 & Evolve2 85 actually enhances their perception of other users."

Dr Simon Noyce,
Principal Investigator

2. Remote users are more likely to be confused and fatigued from lower quality in-room technology

Meeting fatigue has been studied for a few years since the onset of the pandemic and rapid adoption of online meetings. Stanford Professor Jeremy Bailenson drove groundbreaking research demonstrating the increased cognitive load of interpreting nonverbal communication via video, as well as excessive close-up eye contact, seeing yourself on video and having reduced mobility.[1] This fatigue is also exacerbated by increased duration and frequency without breaks.[2]

In our research, we looked at facial emotion recognition, endogenous eye-blink, and gaze-pattern analysis to help determine engagement and fatigue. Using facial emotion recognition software, we analysed participants micro expressions for 15 different emotional states, associating negative emotions with meeting difficulty, and positive states with meeting engagement. Spontaneous (endogenous) eye blink is triggered by aspects of information processing and is related to voluntary attention, often around a goal-driven process such as a meeting. It is widely studied in psychology that blink rates can be used as way to evaluate the level of complexity of processing, or cognitive loads in a meeting.[3]

When looking at hybrid workers who join calls remotely, our research showed that they are more likely to experience fatigue-related emotions. The researchers noticed statistically significant increases in levels of facial-muscle responses associated with sadness (specifically the corrugator which produces wrinkles in the skin and depressor anguli oris which turns down the edges of the mouth) with different technologies. Remote users viewing in-room participants with a non-Jabra video bar registered a 265% increase in this emotion when compared to those experiencing audio-visual information from a Jabra PanaCast 50.

As LSE Behavioural Lab's Sean Rooney noted, "one of the things that we noticed in-room quite early on was the difference in the field of view. So, with the competitor's field of view, we noticed that sometimes participants wouldn't be in view, and it affected how their audio was picked up, which caused delays in a meeting getting going. Whereas with the PanaCast system, we could see very clearly on screen and that meant that the meeting got going very quickly and you could see that there was a level of greater interaction with each individual on the call."

With the audio quality, I couldn't hear some participants. Also, one of the participants sitting in-room wasn't fully visible."

Remote participant,
viewing 120° field-of-view video bar

[1] Bailenson, JN, Nonverbal Overload: A Theoretical Argument for the Causes of Zoom Fatigue, 2021
[2] Fauville, G, Luo, M, Queroz, A.C.M. , Bailenson, J.N., Hancock, J. Zoom Exhaustion & Fatigue Scale, 2021
[3] Fogarty, C and Stern, A. Eye movements and blinks: their relationship to higher cognitive processes

Remote users also registered statistically significant findings, with 282% higher levels of confusion when experiencing a non-Jabra video bar product compared to one that captures every participant in the room and what they are saying. Remote users also displayed 523% higher expressions of anger when experiencing generic audio-visual stimuli, associated with confusion. The increase in overall negative emotions was 347% higher for remote participants experiencing a non-Jabra video bar than those able to receive incoming video from a PanaCast 50.

The overall conclusion was that experiencing higher-quality audio and video had a greater impact on remote users than in-room users. Overall negative emotions and specifically, anger, sadness, confusion and disgust were all lower for remote collaborators when receiving audio-visual stimuli from the PanaCast 50, compared to the alternative video bar.

For the in-room participants, the results were less consistent. However, experiencing audio-visual stimuli from remote collaborators using professional audio and video resulted in greater levels of attention and engagement than those using the built-in laptop microphone and video.

How we measured emotion

Independent t-tests were conducted on the 15 iMotion software dependent variables, set at the 25% threshold (Anger, Sadness, Disgust, Joy, Surprise, Fear, Contempt, Engagement, Attention, Sentiment, Confusion, Positive, Negative, Neutral and Smile) in relation to possible differences based on user technology experience. This data was split by setting (remote or in-room) to allow the impact of the quality of audio-visual experience to be assessed in each of the experimental environments.

SECTION 3

Equal participation is impacted more by culture than technology

Joining a hybrid meeting can often be more tricky for remote participants. Even if they are using professional audio and video, they can struggle to hear and see those in-room, which can stifle engagement and productivity.

As we've seen from the results of this research, when you're face-to-face, you're more likely to interact with everyone in the room at a much higher level than with those who are remote. However, we also found that cultural differences play a considerable role in the ways in which people interact in meetings, and cues they rely on the contribute.

EQUAL PARTICIPATION IS IMPACTED MORE BY CULTURE THAN TECHNOLOGY

1. How much people say in meetings is more cultural, than technology dependent

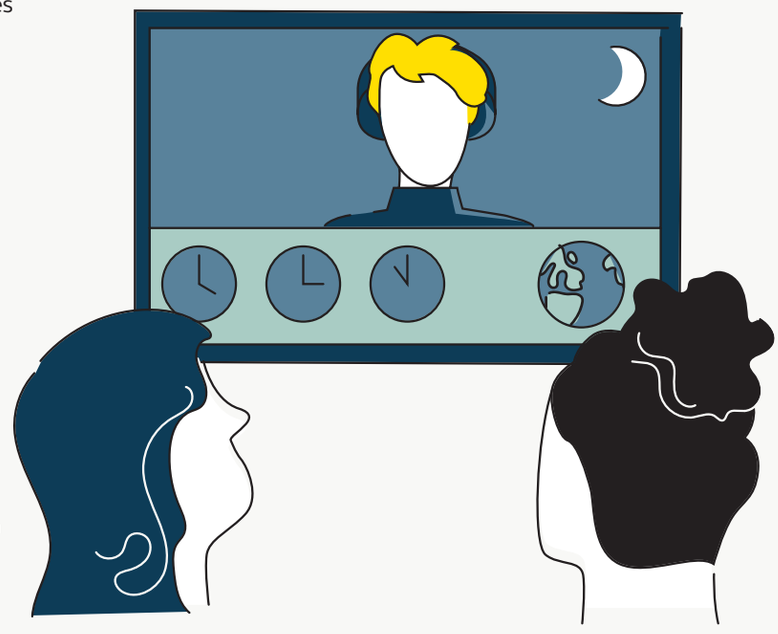
When looking at different technology conditions, our research didn't deliver any significant results on share of voice being impacted by various technologies. However, when we investigated a basic binary division between Europeans and non-Europeans, some interesting broad cultural differences began to emerge. Erin Meyer, professor at INSEAD and author of The Culture Map, has long studied these differences. As she observes, "the culture in which we grow up in has a significant bearing on the ways we see communication patterns."[1]

We noticed statistically significant variations in share of voice, where the key finding is that European participants tended to have significantly higher share of voice than their non-European peers, regardless of whether they were collaborating remotely or in room. Put more simply, Europeans engage in significantly more verbal dialogue than their non-European peers, offering around 1.6 times or 39% more verbal engagement across all of the experimental settings.

As Andy Molinsky notes in HBR, "there are differences in terms of how and where people are supposed to sit in meetings, the extent to which they get down to business at the start of a meeting versus how much time they spend socializing, the extent to which they're willing to provide feedback or argue publicly – there are so many different elements."[2] While many aspects of in-person meeting etiquette are often absent in online meetings, we still have cultural differences that impact our collaboration.

In one session we conducted, Europeans dominated with 60% greater verbal dialogue in comparison to their non-European peers, while during the next session, similar differences were obtained with Europeans engaging in 37% more verbal dialogue than the non-European participants. In the remote setting, Europeans provided 47% greater verbal engagement than their non-European peers, as compared to 32% in an in-room setting.

However, when looking at our facial emotion recognition data, there was one variable that showed significant differences between European and non-European participants, which was for attention. Non-Europeans showed 134% higher levels of attention in meetings relative to their European peers. This is an interesting contrast against the share of voice data.



[1] https://www.forbes.com/sites/insead/2015/11/30/map-your-teams-cultural-differences/
[2] https://hbr.org/2015/12/how-to-run-a-meeting-of-people-from-different-cultures

EQUAL PARTICIPATION IS IMPACTED MORE BY CULTURE THAN TECHNOLOGY

2. What we learned about share of voice

Overall, we discovered significant variations in verbal engagement between European and non-European participants in the study, and that this difference is consistent across both setting environments (remote and in-room), and all sessions. However, these differences may account for the failure to isolate overall significant variations when the data set is tested in its entirety.

Considering the sample was composed of mainly post-graduate students all of whom have been exposed to three to five years of study in higher education one might expect greater similarity across the sample. Explaining differences between European and non-European participants is difficult as it could be attributed to a number of factors. A possible explanation often adopted in psychology is to focus on cultural differences, which at the simplest level might take the form of separating the sample into individualistic (western) versus collectivist cultures (eastern). Based on this viewpoint, individuals from a collectivist background might be argued to see the importance of the group being more important at the expense of their own individual contributions, and as a result of this cultural position be personally less communicative. This contrasts individualistic perspectives where individual achievement and contribution is seen as favorable. While the extent of these perspectives might be questioned in an increasingly globalized context, it may offer a potential explanation for the differences seen.

Other factors such as language competency and the extent to which individuals feel part of the 'group' they are working with will undoubtably also play a role. Ultimately, from the data collected, it is not possible to fully resolve the reason behind the differences isolated, and further research would be required to do so.

We recommend doing some research on cultural differences and how they manifest in your work-place, and establishing company-wide ways of working that address how meetings will run, who is responsible for leading a meeting and how to manage meetings effectively. At the same time, remember that in dynamic meetings, you should call on others to share their opinions, provide feedback and never assume someone is supposed to act in a certain way based on their culture. It can go a long way to get to know colleagues outside of work to drive a better understanding of these differences.

How we measured share of voice

Share of Voice is represented as the overall percentage of verbal engagement made by each participant across the entire session. As a fixed reference for a session where all participants contributed equally in terms of their verbal engagement, this would result in each member of the group having a 12.5% (100/8) Share of Voice. These analyses were accomplished by submitting the audio data recorded from teams' sessions into OTTER AI to transcribe the task dialogue and return the overall Share of Voice for each participant across the experimental conditions.

Conclusion and methodology

Since mid-2021 through to mid-2023, a return to office debate has been developing. The results are far reaching, as people who have relocated, adjusted to better autonomy and work-life management push back against seemingly hollow mandates. On the other side, leaders push to reach productivity and trust levels they see as possible only through office-based work. Regardless of how this plays out, our meetings are still predominantly facilitated by online tools like Microsoft Teams, Zoom and Google Meet. They're also largely hybrid, with some mix of in-room and remote participation. And so how we find better ways to meet, and better technologies to facilitate this, will remain critical in the decade ahead.

This research conducted at the London School of Economics' Behavioural Lab scratched the surface of understanding the behavioural dynamics of meetings and impact of technology. What we discovered will hopefully drive an awareness between this relationship, as well as other dynamics between different meeting room participants that will help to level the playing field over time. As Dr Noyce puts it, "I think the advantage of the technology that is now emerging is that it seems to provide an equal footing for all members of the meeting. When we think about mental wellbeing, a lot of what we value is that connectedness to other people. Any technology that helps close that gap in a remote environment has to be beneficial. I think what becomes interesting is whether it is something that is immediate, so in the context of our research, it might not be within the snapshot, but it becomes more salient as you look at the quality of that interaction over time. If you're having to work less hard to read people's faces and process information, that potentially reduces stress and the overheads that are involved with processing visual information."

Methodology

The research was conducted based on an eight-person hybrid virtual meeting group. With four of the participants sat together in the situational context of an in-room group, which was complimented by an additional four remote participants.

The research utilises a mixed format design centring around two key independent variables, situational context (remote or in-room) and the quality of the audio-visual experience (high quality using Jabra equipment, low quality using generic or competitor equipment). Participants remained in their randomly assigned role of either an in-room or remote group member across two research sessions. However, the inclusion of a repeated measures element to the design ensured that individual participants experienced both combinations of audio-visual equipment (Jabra and generic) over the two sessions. This allowed more accurate comparisons to be made, and greatly enhanced the quality of the self-report data.

This carefully counterbalanced design allowed for every possible combination of 'setting' and 'audio-visual experience' across four possible combinations, which could then be compared against the key dependent variables. In combination one, all participants (both in-room and remote) used high-quality Jabra audio-visual equipment. In combination two all participants (both in-room and remote) used competitor, or built-in audio-visual equipment. Combination three consisted of in-room users using Jabra audio-visual equipment, while remotes used built-in audio-visual equipment. The final fourth combination equipped in-room users with competitor audio-visual equipment, and remote users with Jabra audio-visual equipment. It should be noted that while the remote and in-room groups remained fixed in terms of their participants, each of their research sessions involved them working with a different remote or in-room group.

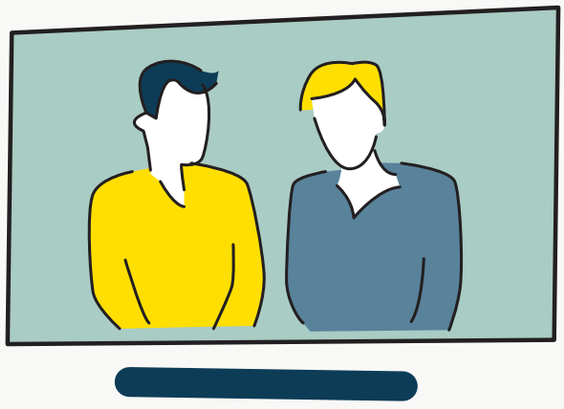
Jabra GN

About the Behavioural Lab at the London School of Economics (LSE)

The LSE Behavioural Lab facilitates world-class behavioural research by providing state-of-the-art facilities for researchers in Central London for LSE academics, students, and external partners. The LSE Behavioural Lab is a purpose-built facility open to any department at LSE (and other institutions) and is co-hosted by the LSE Department of Management and the LSE Department of Psychological and Behavioural Science. Researchers have used the Lab to examine behaviour in various fields, such as behavioural economics, psychology, judgement and decision making, management, marketing, organisational behaviour, team dynamics, leadership, creativity, consumer choice, behavioural public policy, and behavioural game theory. The Lab also invites applications and collaborative projects from external partners, including other academic institutions, governmental, international, commercial, and non-profit organisations. The Lab's vision is to be a global leader in the facilitation of world-class rigorous behavioural research and teaching, and to act as a cornerstone of an interdisciplinary community in behavioural science.

Overall, despite the challenges this was an incredibly interesting study to design, execute and evaluate. There is clearly huge potential in applying psycho-physiological techniques to investigating human interactions in virtual meeting environments."

Dr Simon Noyce,
Principal Investigator



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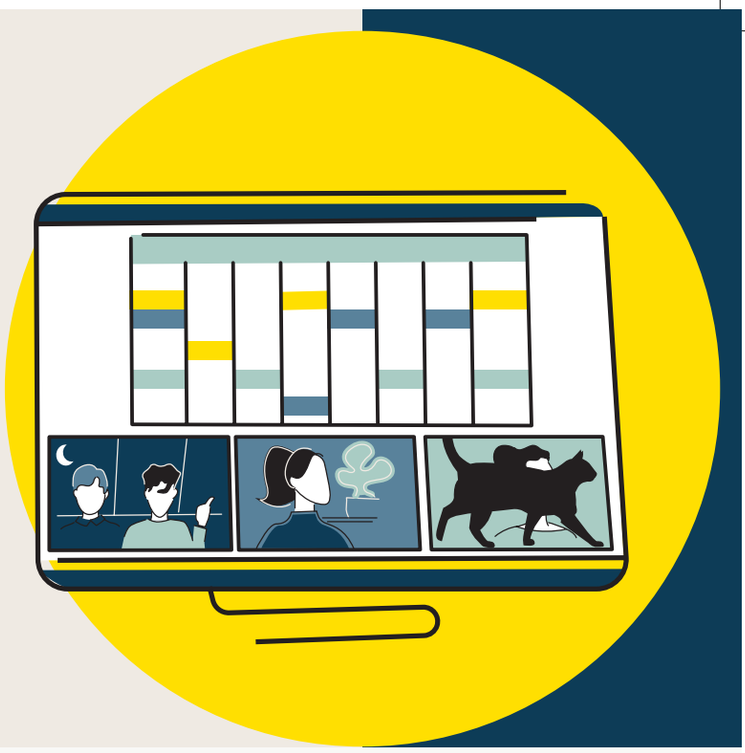
Glossary



Endogenous eye blink and gaze analysis

This technique is used to track the movement of a person's eye and blinking, which results in data on presence, attention and gaze point. This research method indicated how engaged and attentive participants were, as well as how stressful or cognitively taxing a technology condition or meeting environment might be.

Facial Emotion Recognition

This method uses technology that analyses facial expressions from images or videos to reveal information on a person's emotional state and better understand micro expressions. We used iMotions to be able to track 15 different emotional states.

Heart-rate tracking

Heart-rate tracking means that we monitored the heart rate rhythm to detect the effect of different stimuli on the pulse such as if pulse increases when sitting in the meeting room with other participants and may indicate heightened awareness, stress, arousal or otherwise.

iMotions

iMotions is a Danish company leading the development within human insights software. The iMotions platform integrates several biosensors such as Facial Expression Analysis which was used in this study, collecting and analyzing biometrics to track 15 different emotional states.

OTTER AI

OTTER AI is a leading technology company in using AI to generate real time automated notes and speech to text audio transcription during meetings. This software allowed us to track share of voice to better understand verbal engagement and dynamics in meetings.

Shimmer

Shimmer Research is a leading wearable technology and sensor manufacturing company that among others specializes in wearable sensor solutions. In this study we used Shimmer's hand sensors, which allows tracking of data in a galvanic skin response analysis.

Skin Conductance Response

Skin Conductance Response is a physiological measure measuring the electrical conductance of the skin which responds to emotional arousal and other psychological processes. It's typically used in research to better understand human behaviour and psychology. Shimmer's hand sensors can track this skin response, and we used it in this study.

Tobii

For more than twenty years a global leader in eye tracking, Tobii develops tools for eye tracking and attention computing technology. This technology measures human attention and intent by tracking of eyes' movement, which we used for the eye blink and gaze analysis.

Find out more

If you have any questions about Jabra products, please contact your Jabra representative or visit Jabra.com

WHO WE ARE

Hej. (That's 'hi' in Danish.) We're Jabra and we've been engineering technology that makes life look and sound better for over 150 years. And you? Well, you might be running a million-dollar account from your kitchen (or café, or school run, or just about anywhere really). Or running your first 5k with a pair of expertly engineered earbuds. Or running a project via video, beaming yourself from a Toronto armchair to a Tokyo boardroom. Whatever you've got going on, we've got you. With advanced, intelligent video technology. And an incredible sound quality that makes your voice and your music sound better than ever. All designed to bring life and work wonderfully in tune.

Jabra. Technology for life's new rhythm.

Jabra Collaboration Study at The LSE Behavioural Lab Print