

Your Brain on Zoom

The pandemic forced a relatively new form of communication—video calling—onto the business world. **Why are our brains struggling so much with it?**

By Arianne Cohen

Lights and video gear are strewn around Liz Lathan's desk, which resembles a television studio. She's in preparation mode. "I've got great natural lighting from this eastern-facing window, but the sunlight changes throughout the day," she says, as she decides how many lamps she needs. She's choosing between a ring light and side lamps, which she says she often relies on for late-night meetings with clients in Asia. "I try to make sure I that don't look like a grayed-out robot. Or like the shadow of Watergate 'Deep Throat' guy."

She raises her standing desk to a point marked on her wall, checks her sound levels, and plays familiar Motown tunes into a waiting room where she tracks arrivals, welcoming each attendee and letting them know that the meeting will start shortly. She opens the main meeting room and says hello. "There's constant communication," says Lathan, who runs Haute Companies, a creative agency. "In that first three to five minutes, you have to give that feeling of acceptance and belonging. Otherwise people never engage."

It's quite a lot of effort and thought for a Zoom meeting. Still, her attendees stream in, displaying the usual video-call fails: lump on a chair (body collapsed

THE PROBLEM
Growing research suggests that the human brain is not wired for video calls—and will likely never be.

WHY IT MATTERS
Zoom and other such platforms have all but taken over the corporate world, as critical tools for conducting business.

THE SOLUTION
Respect the challenges and train workers as much as possible.

Who can see your messages

To: Everyone

in a seat), FBI anonymous source (backlit shadow figure), spider fingers (laptop camera trained on typing fingers), hostage video (white background, weird lighting). Lee Gimpel, founder of Better Meetings, a meeting training firm, has seen all of this himself—time and time again. "It's astounding," he says. "Even with high-ranking people, I'm looking up their nose. It's mysterious to me that after two years of doing this

every day, they have not recognized the basics.”

Video calls have become the norm, whether via Zoom, Microsoft, or Google. They have become the preferred way to do business. And yet the corporate world is plagued by a nagging issue: Most businesspeople have no clue how to Zoom. By almost any standard, they do not meet the basic criteria for good Zooming. They do bad Zoom. *Terrible Zoom*. Even the simplest task—like controlling the microphone—seems beyond the grasp of many (71 percent of people say the most-used phrase on Zoom is “you’re on mute”). Any sense of decorum is nonexistent (42 percent do their video calls from the bed, another 21 percent while walking or jogging). More importantly, survey after survey reveals that even those who Zoom well burn out quickly during the day. That’s because our brains are not wired for a form of communication so different from face-to-face. “Zoom conversation is this weird mixture of cues that seem like they should be natural,” says cognitive psychologist Julie Boland, professor of psychology and linguistics at the University of Michigan. “But they’re not. There are eye-contact issues and lag issues.” The neurons in our head fire in groups in response to stimuli. Zoom stimuli are weird.

All this might be academic, except that now video calling has overwhelmed the business community in a way that is not likely to change even post-pandemic. Most crucial work now happens primarily on Zoom, from hiring to performance reviews to board meetings to billion-dollar business deals. Organizations are essentially codifying video calling as the communication tool of the foreseeable future—especially if remote and hybrid work continue to become so routine. But most have not yet addressed Zoom communication skills, let alone prepared their people to excel at it. Some leaders may feel it isn’t really possible; others may not have the training budget. Either way, it raises the question: What is the next step?

As fresh as it seems now, the concept of videoconferencing is hardly new. E.M. Forster’s postapocalyptic short story “The Machine Stops,” published in 1909, features isolated individuals living in underground rooms, communicating entirely over video screens. In his telling, communication via screen is a monstrous technological overgrowth.

The word “video” did not enter the popular lexicon until the 1950s, around the time AT&T debuted its two-way Picturephone, which paired audio with still images sent at two-second intervals. An improved version appeared in the 1964’s World’s Fair in New York. This was the stuff of fantasy: Picturephone became an interactive Disneyland exhibit. Guests talked for ten minutes at a time, and saw their conversation partner in black and white, at 30 frames per second. AT&T expected commercial models

to be a cash cow, and set up Picturephone booths in New York, Washington, and Chicago, where customers could spend \$27 on a three-minute call. The concept flopped. So did the early-1970s home model, Picturephone Mod II, which cost \$160 a month for 30 minutes and garnered only 500 subscribers. An ordinary telephone was, somehow, better.

Fast-forward. In 1994, Intel introduced ProShare, which required a webcam, sound card, microphone, software (iSpQ or NetMeeting), and high-speed internet connection—a combination owned by scarcely any normal humans. Low-quality connections remained the norm, because most internet access was low bandwidth. But by the turn of the century, equipment had become small enough to fit on a cart, and videoconferencing began to appear in the arsenals of those who had reason to use it, such as President George Bush at his Texas ranch or Peter Jackson shooting *The Lord of the Rings* across New Zealand.

By 2003, all the major instant-messaging apps included video calling. Skype released a 25-person call option. In the next two years, Lifesize Room, Cisco CallManager, and Hewlett-Packard’s Halo Telepresence became mainstays of boardrooms and organi-

Some experts describe this rapid change in communication medium as the equivalent of shifting from cave drawings to comic books in a couple of years.

zations like the United Nations. People quickly figured out that videoconferencing was most useful in scenarios where context was helpful, such as when pitching an idea: the facial expressions in the room immediately after you dropped your idea often told you more than what was said. As videoconferencing became cheaper, workers began to opt for it or phone calls according to their personal preference.

monzenmachi

Video Calling: A Report Card

With the help of our experts, we looked at some examples of how people present themselves on video calls. Spoiler alert: pretty badly.



THIS ZOOM BACKGROUND SAYS: “I have window blinds.”

OTHER ISSUES: Though window treatments often add a pleasant 3D texture, here they are **consuming 60% of the background**. Also, with the camera angle so low and his head positioned in the ceiling corner, he appears to be a huge-handed man in a tiny, low-ceilinged room.

HOW TO IMPROVE: Raise the camera to eye level and turn it 30 degrees to the right. Add a colorful piece of art to the wall. Because the room is devoid of color, wear a photogenic color such as a navy-blue button-down with a pop of bright color sticking out of the pocket.

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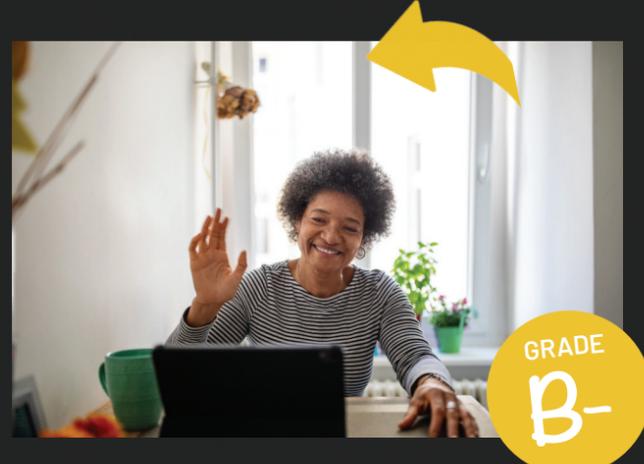


THIS ZOOM BACKGROUND SAYS:

“I barely showed up for work this morning.”

OTHER ISSUES: Though the gleaming environment is a pleasant backdrop, his rumpledness contrasts unfavorably with it. We are looking up his nose, and the too-low camera angle focuses on his wrinkly shirt and on his hands, which appear oversized. The blue shirt contrasts nicely with the all-white foreground—but since he is rumpled, it attracts negative attention in an otherwise immaculate environment.

HOW TO IMPROVE: Swap out the wired headset from 2005 for a sleek Bluetooth model, and raise the camera to eye level. Consider adding books or tools specific to his profession. If he continues to be rumpled, create a more relaxed background.



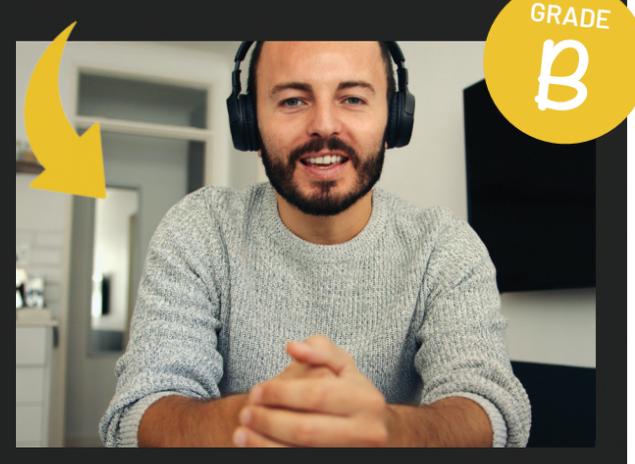
THIS ZOOM BACKGROUND SAYS:

“I have a pole protruding from my head.”

OTHER ISSUES: Backlighting. Bright light streaming through the window directly behind her makes her appear to viewers like a shadow. Also, horizontal stripes are unflattering on camera.

HOW TO IMPROVE: Reposition so that **no window-frame lines intersect with her body**. To give the background more life and texture, add more plants to the already lovely selection. Choose a monochromatic shirt that contrasts well with the turquoise plant pot and mug. (Pro tip: look directly across the color wheel from turquoise for its complementary color, which is pink.) And of course, raise the camera to eye level.

Jasmin Merdan, Luis Alvarez, Hiramam



THIS ZOOM BACKGROUND SAYS:

“Hey, stare into my bathroom mirror.”

OTHER ISSUES: Distraction alert! The viewer’s eye is drawn to things that are shiny, and the metallic toaster and mirror take attention away from the speaker. The viewer is further distracted by the awkward camera angle, which chops off the top of his forehead in a way that makes it appear to be very large.

HOW TO IMPROVE: Simply lift the camera and **put a curtain over the bathroom doorway**. Anything alive—plant, cat, etc.—would also help.

“It’s astounding. Even with high-ranking people, I’m looking up their nose.”

But the extent to which people used the technology was nothing like it is today. The pandemic and lockdown-led movement that chased people home has created some crazy increases. Both Microsoft Teams and Zoom saw customer-base increases well in excess of 1,000% in just the first few months of the pandemic. Some experts describe this rapid change in communication medium as the equivalent of shifting from cave drawings to comic books in a couple of years; but if there was a need for any learning or adaptation, the pandemic forced people to bypass it.

“We suddenly had to spend most of our time on videoconferencing, without time to understand what it implied for communications,” says Géraldine Fauville, an assistant professor at the University of Gothenburg. The first batch of research that emerged—including Fauville’s—taught us about Zoom fatigue, linking it to the effort required to be expressive while watching your own face for hours a day and remaining in a static body position (in natural conversation, people shift their bodies beyond a frame view). But this, it turned out, was just the tip of the iceberg.

As far as your brain is concerned, Zoom conversations are not a fair substitute for in-person interaction. “A number of factors, all together, make videoconferencing much more annoying and more fatiguing,” says the University of Michigan’s Boland. Humans have evolved to communicate based on eye contact and responses to certain cues, all of which are foiled in a medium in which eye contact is nonexistent and significant lag time exists.

The problem is rhythmic. In a conversation, a group of neurons in your brain tracks my speech rate and fires automatically, helping you time when to speak next. The interval between when you stop speaking and when I start is only a fifth of a second, because you’ve formulated your response while I speak. The key detail is that this happens automatically. Your mind automatically anticipates when I’m going to stop and start talking.

But Zoom tosses this age-old rhythm out the window. Latencies appear on both sides of the conversation. Zoom tries to keep its lags to under 150 milliseconds, but researchers like Boland see disruptions with lags as small as 30 milliseconds. “When the

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THIS ZOOM BACKGROUND SAYS:

“I am a competent professional. I am organized and have a sharp eye.”

OTHER POSITIVE DETAILS: She is nicely framed between the whiteboard and bulletin board, with the camera raised to a height that flatters her face. A half-dozen tools from her professional life present her as work focused.

BONUS POINTS FOR: The yellow stripe on the wall, which gives color to an otherwise bland surface, and the 3D plant art. Both **plants and pop art look excellent on Zoom**. She has combined both.

Drazen... Geber06, LeoPattizi



THIS ZOOM BACKGROUND SAYS:

“I am a boring person in a bland room.”

OTHER ISSUES: The viewer can see only a plain wall. Her face is shadowed. We should pause to note that the **Zoom background does have a pleasant depth to it**, avoiding the common Human Against a Wall syndrome.

HOW TO IMPROVE: Hang a colorful piece of art on the wall, and add a ring light behind the laptop to softly light her face. Raise the camera to her eye level with a stack of books.



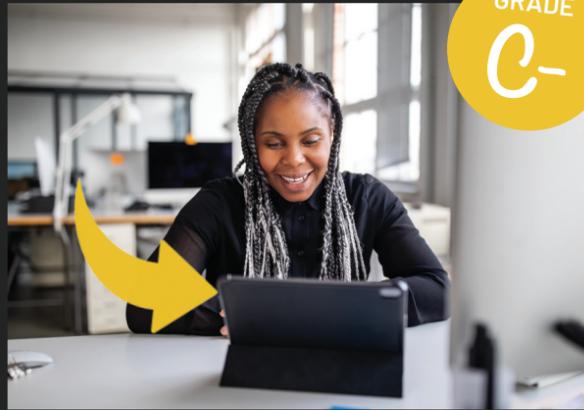
THIS ZOOM BACKGROUND SAYS:

“I am a very neat homeowner who favors Ikea.”

OTHER ISSUES: This is A+ for a Zoom call to Mom. And these, dear reader, are **spider fingers**.

HOW TO IMPROVE: Raise the camera to eye level, and add a half-dozen professional tools or cues. Signs of life, such as plants or a fish tank, would also help.

Video Calling: A Report Card



THIS ZOOM BACKGROUND SAYS:

“Who am I? Why am I here? Where am I?”

OTHER ISSUES: *She could be an architect or a coder or a sales rep—the viewer has no idea. On the plus side, she’s very animated. But also: monochrome. The viewer sees a sea of white, black, and gray. And she’s backlit.*

HOW TO IMPROVE: *Anything, really. She could lift the tablet to frame her face, add lighting, or put in any effort whatsoever to create a background with pops of color, signs of life (plants, a fish tank, or other humans), and cues as to her profession.*

rhythm is thrown off, the automatic mechanism doesn’t work,” says Boland. Even if you persevere with your Zooming, what was once a program humming invisibly in the background is now consuming significant energy in the foreground. You can think of a phone call as the mind’s equivalent of riding a bike on a smooth, flat road: pretty easy. There’s only one kind of delay, and it’s mild. Zoom, in the best of circumstances, is like riding on a bumpy mountain bike trail.

This is just one piece of the puzzle. Now a steady stream of what we can call Zoom Problem research is emerging from media labs. People are fatigued by seeing their own image all day (you can disable that function), and they are made quite anxious by a sea of eyes staring at them while they talk (you can minimize the window). Videoconferencing also messes with your brain’s sense of appropriate intimacy, because evolutionarily, a face a few inches from your own “is perceived by the brain as a situation that would lead to mating or conflict,” says Fauville. “So again, this is a very intense situation for the brain.”

I often place my camera above my eye level because that is my most attractive angle. Yet a study by Fauville found that people using high camera angles are perceived less positively. As I speak, you’re also staring at my face and lips for visible articulatory cues. “On Zoom, that timing is also off a little bit,” says Boland, so your brain is furiously translating audio signals that are out of sync in a different way with the corresponding video signals. After 30 minutes of this, how much do you think your brain likes me, no matter how valuable to your business I may be?

There is no fix for latencies and Zoom fatigue aside from limiting Zoom use. You can diminish them, though, by overcompensating—excelling in other aspects of Zoom communication in order to improve the overall experience. You can think of Zoom as an imperfect office with crappy lighting and a less-than-ideal cubicle setup. You would do everything you can to override this “blah” atmosphere, perhaps by decorating or installing an old-school Nintendo corner. So it is with Zoom.

Gimpel, from the training and events firm, teaches the acronym SAFER to remind employees of the baseline actions for good Zoom: standing, angle (of your camera), front lighting (not back lighting!), Ethernet (not Wi-Fi), and rehearsing. Initially, the pandemic brought him a flood of corporate clients with such questions as how to turn Zoom on or send invites. Companies continue to hire him—but only for special online events, such as when executives deliver a speech. “It’s putting out fires,” he says. “There’s no recognition that they’re in dozens of meetings a week that are probably pretty bad.” He wishes that people would hire him to fine-tune—or tune at all—this new way of working.

The neurons in our head fire in groups in response to stimuli. Zoom stimuli are weird.

Training imparts knowledge that’s impossible to glean from a career of in-person meetings. “Ideally, you want a group of five to six people,” says project manager Emily Taylor, who runs focus groups via videoconference for Drive Research for an average of 40 people per week. She says that with five to six people in a group, power-balance issues are easier to fix, particularly those involving strong personalities. “When you get down to four people or less, a go-getter can kind of control the meeting. Also, people remember they’re part of a videoconference—they feel more pressure to talk.”

Lathan, of Haute Companies, runs her meetings like a television host. “The energy you bring in and put forth is what you get back from the attendees,” she says. “You have to push all that energy toward them to make sure they feel like you care and are engaged, so that they’re going to participate with you, even if it’s just a team planning meeting.” She has partnered with a research firm to study the qualities that produce the most effective Zoom meetings: hope, adventure, access, acceptance, motivation. (If you want to remember that, think HAAAM.) Hope can simply be attendees looking forward to the rest of the meeting. Adventure can be a surprising or exciting conversation, or getting a five-minute tour from an attendee situated somewhere interesting. “Doing those things creates an environment where everyone wants to be there and everyone is primed for business,” Lathan says.

Then there is Barbara Barna Abel, a well-known New York media and executive coach, who approaches video calling as a weird kind of digital television in which the cameras are much closer, creating a more intimate experience. She coaches clients to consider how they want people to think and feel about them, and to project that. “They tend to focus only on what they’re going to say. If you get all the words right, and you’re flat and boring and people are disengaged, that’s not a win.” Your home-office persona is probably not best suited to the task at hand. She suggests always asking yourself three questions: What’s the goal? Who’s the audience? What’s the platform? (If you want to remember that: Mind the GAP.) And how do you best speak to the group? “Sometimes a very direct monotone might be the right approach,” she says. “It communicates that this is going to be calm and inspires trust.”

Abel’s clientele has included leaders struggling to translate executive presence to the screen; this line of business has exploded during the pandemic. Sometimes she has clients watch clips of people they admire: How are they communicating? Is it their body language? Facial expression? How do they work through nerves? What’s their energy? On Zoom, body language and voices dominate. “It’s really incumbent on leaders to master how to engage people through Zoom.”

Must-Have Zoom Gear

PLEXICAM

A see-through contraption that allows you to position your webcam anywhere on your screen, so you can look attendees in the eye.

SCRIBE.AI

A platform that records meetings and transforms them into instantly searchable and shareable video and text.

KRISP

An AI-powered app that removes background noise from meetings (ideal for calls when pets or humans are nearby).

GOOGLE JAMBOARD

A real-time collaborative digital whiteboard for attendees that raises active engagement.

ZAPP PAD

A hot-key pad with 22 keys for common videoconferencing functions like chat, mute, raise hand, mute all, and record.