



THE POWER OF VIRTUAL REALITY

A *People have talked about the possibilities of virtual reality since the mid-1990s. In this interview, Jeremy Bailenson—director of the Virtual Human Interactive Lab at Stanford University—explains how these possibilities are now becoming real.*

Interviewer: What's the difference between watching a video and wearing a VR headset?

B **JB:** The difference is what psychologists call “embodied cognition.” That is, we learn by doing. For a lot of the most important learning events in your life, you actually did something—you walked somewhere or felt something. Similarly, Virtual Reality is active, not **passive**. You learn in ways that people have been learning for hundreds of thousands of years: by having an experience.

C Our lab studies have shown that, in general, the brain tends to **treat** a VR event in a similar way to an **actual** event. So there's a difference between performing an event in a traditional video game and doing it inside VR.

Interviewer: You've said that VR can help athletes. What's an example of that?

D **JB:** We **demonstrated** in the 2014 NFL¹ season that VR could help quarterbacks² by improving their decision-making accuracy and reducing their reaction times. Carson Palmer is one of the earliest adopters. VR gave him a tool he could use to learn the plays³ better. Carson had a system in his home. For just a couple minutes a day, after he'd wake up, he'd **go over** his plays and mentally practice what he was going to do. It was as though he were actually on the field. But he was in his living room, getting extra practice.

E Since then, VR has been used by teams across many sports. The German national soccer team, among others, uses it in their practice quite often.

¹ The **NFL** (National Football League) is a professional American football league.

² In American football, the **quarterback** is a player who directs a team's attack.

³ In sports, a **play** is a planned action that happens in a game.



➤ A video gamer tries a wireless VR headset at the 2019 Consumer Electronics Show in Las Vegas.

Interviewer: Explain how VR avatars⁴ can improve video conferencing.

- F **JB:** Video conferencing is good for some activities. But it's not good for an important meeting where intense decisions have to be made. One reason is the eye contact problem. If you look at the camera on the top of your laptop, you don't see the other person. **Conversely**, if you look at the other person's image on your screen, you're not looking at the camera.
- G Psychologists have shown that *very* small changes in things like eye contact, body space, or posture **alter** the way conversations flow. With VR avatars, you can control things like body position and eye contact in a way you can't do with video **conferences**.

Interviewer: You have said that VR can help save the planet. How can VR raise awareness of environmental issues?

- H **JB:** One example is an experiment on the island of Ischia, in Italy. Ischia is a marine site that scientists have been studying for decades. Carbon dioxide is destroying its coral and degrading⁵ the food web.⁶ I can't bring the entire world to Ischia to show how CO₂ degrades ecosystems. But with VR, I can bring Ischia to *people*.

⁴ An **avatar** is a 3-D image of a person. In a VR conference, each participant's avatar appears on screen in the same room.

⁵ If a chemical **degrades** something, it causes it to break down and deteriorate.

⁶ A **food web** is a combination of the individual food chains in a community.

- I So, we produced a seven-minute journey that shows how all the oceans will look in about 50 years, based on this one site in Ischia. Using this VR model, people **get to** be scientists. They explore the effects of CO₂ on various species in the ecosystem, and learn by *doing*.

Interviewer: What about the **downsides** of VR—for example, using it to create violent video games?

- J **JB:** The way I think of VR is that we should use it for things that we can't do in the real world. You should use VR to go to the moon or try becoming someone else. But you *shouldn't* do things that you *wouldn't* do in the real world.

Interviewer: In your opinion, will VR change how we interact with other people in the real world?

- K **JB:** VR is a tool, just like any other media. But it has a different impact on how we perceive information. That's because you're using your body and it's completely immersive. It's a big jump in the history of media. But I don't think it's going to change who people are. I think we will continue to be the same humans that we have been on the planet for quite some time. And I, for one, am glad of that.

The interview was edited for length and clarity.

✔ A soccer goalkeeper trains using a Virtual Reality headset.

