



NFL Commissioner Roger Goodell dons a headset to explore virtual football in the Virtual Human Interaction Lab run by Jeremy Bailenson, left, on Thursday. (Photo: Tamer Shabani)

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NFL Commissioner Roger Goodell steps into virtual reality at Stanford lab

During a visit to Jeremy Bailenson's Virtual Human Interaction Lab at Stanford, NFL Commissioner Roger Goodell learned how virtual experiences could improve training and officiating, and also teach players empathy on a variety of social issues.

BY BJORN CAREY

Every visit to [Jeremy Bailenson's](#) lab at Stanford starts with a dare. Strap on a virtual reality headset and walk a narrow wood plank across a deep pit.

"We've got a problem here," said NFL Commissioner Roger Goodell, struggling to maintain his balance during a recent visit. "I believe that you did not open a real hole in the floor, but there's no way that I'm going to step off."

Next, he survived an earthquake, flew like Superman to save a child in need, and took snaps as the quarterback for Stanford's football team.

"That's unbelievable," Goodell said as he took off the headset.

Goodell's reaction was not unexpected. Bailenson, a professor of communication, explained that two out of three people refuse to step off the plank, despite knowing full well that they are in a safe place, thus showing how quickly and powerfully sophisticated virtual reality simulators can alter a person's psychological presence.

Bailenson studies how virtual experiences can influence a person's behavior in the real world. During a tour of his lab a contingent of NFL executives got a taste of how virtual reality could make a real change for the league, from player training and enhanced fan experiences, to making players more empathetic on a host of social issues.

"Experiences change you," Bailenson said. "My job is to make virtual reality feel like a physical experience so that it changes you and makes you a better person in the real world."

To do that, the Virtual Human Interaction Lab (VHIL) is outfitted with a suite of gear that creates some of the most immersive virtual experiences in the world. Powerful speakers in the walls and floor create the sensation of wind blowing from different directions, or the rumble from an earthquake rolling from one side of the room to the other. A closetful of computers tracks a user's movements to within one quarter of a millimeter and regenerates his or her viewpoint at 150 frames per second and then feeds a video into an Oculus Rift headset.

The visitors strapped on the headset and experienced a handful of the simulations that Bailenson and his students have devised to investigate aspects of human behavior. They swam around a coral reef being devastated by the effects of ocean acidification, and experimented with role play in which they embodied a person of a different gender or race and then faced difficult social situations. Bailenson and his colleagues have shown that these experiences can have lasting impacts on subjects' attitudes toward environmental conservation and improve overall empathy.

Bailenson gave an update on his collaboration with Stanford's football team to create 360-degree virtual representations of gameplay. The project, which he started with former student Derek Belch and has grown into a commercial product, lets quarterbacks repeatedly read defenses in the injury-free space of the simulator. The researchers found that quarterbacks improved decision-making by 30 percent, and made those decisions about one second quicker. They are currently working on expanding the experience to other

positions.

After the demo, Bailenson and the NFL contingent discussed the variety of ways that the technology could improve the sport, both for players and the fans. Goodell envisioned re-creating the view from the sideline "This could let us give fans an experience that only players and coaches get," Goodell said. Bailenson proposed enhancing the social experience of watching the game at home and celebrating a win with a group of virtual buddies.

Previous work in Bailenson's lab has looked at how virtual experiences can help patients overcome an injury by showing them moving freely through a virtual world, which studies show can reduce pain and improve range of motion more quickly. Another task involves a game where the avatar pops balloons. Bailenson said an injured player will play the game longer than performing the same therapeutic motions in a physical therapy setting.

Just as players can improve performance through virtual training, Goodell was particularly interested in creating a training suite for referees so they can review the fast-paced action and look for the subtle differences between legal and illegal plays.

The executives were also interested in another focus of Bailenson's work, which involves investigating how spending time in carefully crafted virtual environments can build empathy and lead to positive changes in real-life behaviors, work that is funded by the [Robert Wood Johnson Foundation](#). Switching gender and race could help players better understand the personal struggles of players of different socioeconomic backgrounds. Facing a crowd of obnoxious fans could help teach emotional management. The league could address domestic violence by putting players in the victim's shoes.

"This is a great way to re-create situations where the player is experiencing stress, and to give them a way to see how their different reactions produce different outcomes," said visit organizer Michael Huyghue, who has worked in multiple capacities in the NFL and was former commissioner of the United Football League. "We could teach them through virtual experiences how to cope better with these moments."

Bailenson's experiments have shown that experiences such as these can drive participants to express positive behavior modifications, and that the lesson sticks with people longer than if they watch a video or hear a lecture.

"You literally become someone else and you experience trauma that is personal to them," Bailenson said. "That makes it so much more meaningful and creates a lasting respect for other people."