Expressing My Inner Gnome: Appearance and Behavior in Virtual Worlds

M. assively multiplayer online role-playing games, or MMORPGs, have captivated millions of videogame players worldwide. In games such as World of Warcraft (WoW) and Second Life, players can create unique avatars to represent them as they venture through virtual worlds with thousands of their peers. Although MMORPGs differ wildly in setting, ambiance, and gameplay, they all involve social interactions among players to accomplish tasks like defeating powerful monsters, exchanging goods and services, or simply getting to know one another.

In virtual worlds, avatars mediate social interactions. This raises the interesting question of how avatar appearance impacts those interactions. Does a three-foot-tall, pink-haired gnome behave and get treated differently than a giant, hulking orc, even if the same person controls both avatars? Nick Yee, a researcher at the Palo Alto Research Center (PARC), has conducted a series of studies exploring the relationship between avatar appearance and virtual behavior.

THE ‘PROTEUS EFFECT’

In one of the earliest studies, Yee and Jeremy Bailenson examined what they called the “Proteus Effect,” named for the shape-changing Greek god (“The Proteus Effect: The Effect of Transformed Self-Representation on Behavior,” Human Communication Research, July 2007, pp. 271-290). Their goal was to test the extent to which the “feeling” of having a character with a certain appearance shapes player behavior. In the real world, more attractive people tend to dominate social interactions in certain ways: they move closer to the people they are interacting with and are more open about sharing personal information about themselves. Yee and Bailenson wanted to know whether that same behavior would occur with more attractive avatars in a virtual world.

As Figure 1 shows, in a pilot study the researchers created an immersive 3D environment that users could navigate with goggles and motion-sensitive headsets and ran a lab experiment in which participants interacted with a confederate in the virtual environment. Each participant was randomly assigned an avatar of high, medium, or low attractiveness, while the confederate’s avatar was always of medium attractiveness. The researchers didn’t tell the participants the purpose of the study and recorded everything that occurred during the interactions.

To prevent the experimental manipulation from impacting the confederate’s behavior, the system was designed to reveal different views of the participant’s avatar to the participant and to the confederate. Thus a participant might see himself or herself in a virtual mirror as very attractive, but the confederate saw every participant as having a generic human face. In this way, Yee and Bailenson ensured that any difference in how participants behaved was due only to self-perception and not to the confederate’s reaction to how the participant’s avatar looked.
favors, while those with shorter avatars were twice as likely to capitulate and accept a patently unfair deal—even though the avatar’s height was randomly assigned and independent of the participant’s actual height.

SOCIAL NORMS AND STEREOTYPES

To examine the Proteus Effect in a more natural setting, Yee and his PARC colleagues explored the role of social norms and stereotypes in MMORPGs. In one study, Yee’s team analyzed 8,418 dyads (pairs of people) interacting in Second Life, looking specifically at how each person’s avatar was positioned and what it was looking at (N. Yee et al., “The Unbearable Likeness of Being Digital: The Persistence of Nonverbal Social Norms in Online Virtual Environments,” CyberPsychology & Behavior, Feb. 2007, pp. 115-121). They found that real-world norms regarding gender, interpersonal distance, and eye gaze are also present in the virtual world.

In the real world, males tend to position themselves farther apart and are less likely to look at one another than females. Yee’s group observed the same behavior in Second Life: male-male dyads positioned their avatars significantly farther apart than female-female or mixed-gender dyads, and male-male dyads maintained significantly less eye contact than female-female dyads. This result is intriguing because players in Second Life must use mice and keyboards to control their avatars’ position and gaze, whereas in the real world people simply use their legs and eyes. Despite the difference in modalities, people apparently adhere to social norms in the virtual world.


Most players choose an avatar that matches their own gender, but a survey of 1,040 WoW players showed that a substantial proportion (about 25 percent) of players gender-bend for their primary character—that is, they intentionally choose to role-play as a character of the opposite gender. Gender-bending by players may cloud gender roles in a virtual world, as physical and virtual identity cues are in conflict with one another when players are gender-bending.

To study this phenomenon more closely, the researchers looked at two different activities in WoW: healing and player versus player (PvP) combat. Healing involves using an avatar’s special abilities to help others by restoring health that they may have lost during combat. In PvP combat, players try to kill other players’ avatars to complete various objectives such as capturing an opposing team’s base. In many MMORPGs, PvP combat is a sanctioned competitive activity. The “Griefers in MMORPGs” sidebar provides examples of less consensual PvP activities.

A pretest survey confirmed gender stereotypes associated with these activities: healing is seen as preferred by females, while PvP combat is generally associated with males. Combining the survey data with information about players’ in-game activities, Yee’s team correlated both player and avatar gender to the amount of healing and PvP combat.

The researchers found activity to be predominantly impacted by avatar gender, with player gender either marginally significant (PvP combat) or insignificant (healing), and they observed no interaction effects. In other words, male avatars participated in more PvP combat and performed less healing than female avatars, regardless of player gender. The results indicate that in virtual worlds, behaviors tend to conform to
the expectations associated with the avatar’s gender, not with the player’s gender. Virtual identity apparently takes precedence over real-world identity.

Taken together, Yee’s studies on avatar appearance and online behavior suggest that people take on the behavior they think appropriate for the “body” they are inhabiting, even if that body is only assumed for a short period of time in a virtual environment. What implications might these results have for interactions in virtual worlds?

Yee observes that there is no reason for social interactions in virtual worlds to be the same as interactions in the physical world (N. Yee, J. Ellis, and N. Ducheneaut, “The Tyranny of Embodiment,” Artifact, vol. 2, 2008, pp. 88-93). In the attractiveness study, for example, different people saw different virtual faces for the same avatar. Some researchers have discovered that virtual brainstorming sessions are much more effective when the boss adopts an anonymous avatar, so all participants feel equal socially.

But these ideas have more profound implications. For instance, when people meet someone in a virtual world, they are more likely to agree with them if they look alike. In principle, a programmer could create an avatar that automatically adapts its appearance to look like the person it is facing. A candidate for political office might exploit this idea in a virtual town hall meeting by showing a different face to every participant. And you thought “two-faced” politicians were bad!

Our understanding of the effect of avatars on behavior is still in its early stages. How could the results of research on avatar appearance and behavior in virtual worlds be used to improve the way we work and play together? How could they be used to damage the structure of our social relationships?