

Researchers use stories, video games to combat obesity

November 29 2016, by Thea Singer



Amy Lu, center, assistant professor, explores video games with, r, Malcolm Matheson, research manager/project coordinator, and Jungyun Hwang, postdoctoral research associate, at Northeastern's Health Technology Lab. Credit: Matthew MODOONO/Northeastern University

We've heard about the power of stories to, among other things, engage,

delight, teach, challenge, and help us understand ourselves. Now new research from Northeastern assistant professor Amy Shirong Lu shows the power of stories to help children fight obesity.

The study, which Lu co-led and was published in the *Journal of Medical Internet Research*, is the first to ask whether a storyline can increase children's physical activity while they're playing active video games—games, such as Nintendo Wii Sports Resort, that engage users in physical exercise.

The answer was decidedly yes. Lu and her colleagues found that the children in the study who watched a three-minute animated narrative before playing such a game took, on average, 18 percent more steps per each 10-second period and 42 percent more steps overall than those who did not.

"Here we wanted to test whether stories, through their ability to suspend disbelief, increase attention, and provide characters to identify with, could motivate children to play active video games longer or more vigorously. And they did."

"I'm interested in the psychological mechanisms that determine how stories change people's views, attitudes, and behavior," says Lu, who holds appointments in both the College of Arts, Media and Design and the Bouvé College of Health Sciences at Northeastern. "Here we wanted to test whether stories, through their ability to suspend disbelief, increase attention, and provide characters to identify with, could motivate children to play active video games longer or more vigorously. And they did."

An imaginative leap

The researchers recruited 40 overweight and obese children ages 8 to 11,

with equal numbers of boys and girls. They randomly assigned half of the group to watch an animation before playing Nintendo's "Wii Sports Resort: Swordplay Showdown" and the other half to jump immediately into the game.

Lu took extreme care in selecting the game. When she proposed the study, it was one of only two active video games on the market that the American Heart Association had endorsed for stimulating moderate to vigorous physical activity, she says, plus it featured a character that sparked her own imagination. "As I played, I imagined a hero wielding a sword in different locales against lots of attacking enemies and uncovering the world's secrets along the journey."

The three-minute animation, too, required a great deal of vetting. In a previous study, Lu had collaborated with a professional media company to develop four narrative plotlines linked to the game that she had 20 children rank. The winner, titled *The Door*, tells the story of a sleeping child who wakes in a [video game](#) world full of stick people brandishing swords. The child, clasping a sword that miraculously appears, fights back, soon learning that the characters' unhealthy lifestyles landed them there and that to return home they need to start exercising. "We created a generic character so that the story would appeal to children of different genders, races, and ethnic backgrounds," says Lu.

The children in both groups were told they could play "Swordplay Showdown" for up to 30 minutes. "The children who had watched the animation were jumping up and down and holding the Wii remote control like a real sword," says Lu. "To me that said they were immersed in the story, that their imaginations were likely more active because they'd been motivated by *The Door* video clip. In fact, originally there was no time limit but we added one so they wouldn't get too tired."

Back to the future

In April, Lu received a five-year, \$3.16 million grant from the National Institutes of Health's National Institute of Diabetes and Digestive and Kidney Diseases to continue her research on the effect of narrative on children's experiences with [active video games](#). Ultimately, she plans to recruit more than 200 children and extend her investigation from one story in one session to a serialized story or standalone episodes that will run for six months.

"I'm curious about which narrative approach will motivate children more," says Lu. The possibilities take her back to her own childhood. When playing video games, she says, she focused not only on scoring points but also on the characters and the stories, imagining scenarios and plot twists. "I want to take the research beyond the lab and into [children's](#) homes, into their daily lives," she says.

Provided by Northeastern University

Citation: Researchers use stories, video games to combat obesity (2016, November 29) retrieved 24 April 2024 from <https://medicalxpress.com/news/2016-11-stories-video-games-combat-obesity.html>

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