



# RESEARCH NEWS

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(Last updated 3/19/07)

Images showing examples of Baldi's facial expressions are available [here](#).



## PUT ON A HAPPY FACE:: HAPPY DIGITAL CHARACTERS SELL PRODUCTS BETTER THAN SAD ONES

COLUMBUS , Ohio – Even in the digital world, people respond to the expression of a computerized face.

New Ohio State University research suggests that the simulated emotions of digital characters on web sites might have a real impact on the potential customers that view and interact with them.

The study, appearing in the [International Journal of Human-Computer Studies](#), found that digital characters might be better merchants if they act consistently happy, even if the products they're selling —such as novels—are heart-wrenchingly sad.

[Li Gong](#), an assistant professor of [communication](#) who conducted the research, believes his study of digital characters is important for many applications, especially electronic commerce, learning, and entertainment.



Li Gong

Many Web sites feature digital human-like characters, also called [avatars](#) or agents. These digital humans can help put a face on Web sites that sell products. Although the characters can “read” text with a certain emotion, such as happy or sad, they can't automatically detect emotion from sentence to sentence with today's technology. And that can affect how well they perform..

Gong's research suggests people are more influenced by happy characters.

Gong believes the work might also significantly impact the computer gaming industry, which uses countless computer characters. “People



playing these games want characters to have emotion,” he said. Gong believes the explanation for this desire is that “emotion is an indispensable element in human communication” and is becoming more essential as the use of digital characters grows.

The research involved the emotionally expressive character called “[Baldi](#),” an animated human face who can also talk using text-to-speech software. Baldi, created by the [Perceptual Science Lab](#) at the [University of California, Santa Cruz](#), can synchronize its lips perfectly to a passage of text while reading aloud in a way that conveys a specific emotion.

In this study, one “sad” version of Baldi consistently frowned and sounded sad while reading both sad and happy book reviews for participants. Another “happy” version always smiled and sounded happy while reading both happy and sad book reviews for other participants. The happy Baldi spoke quickly with a high voice and with more range in pitch while the sad version spoke in a lower, slower tone with little change in pitch.

When it came to having Baldi read reviews, Gong found study participants preferred the “happy” version compared to the “sad” talking face, regardless of whether the actual book review was happy or sad.

“When a digital character can't pick up emotional cues in text, it's better to be happy, even if the topic or product is sad,” Gong said. “The age-old idea that positivity outweighs negativity also applies here.”

But the reactions of putting on a happy face didn't end there.

“Participants said they were more likely to read a book presented by the happy face compared to the sad one,” Gong said. The participants liked a happy Baldi more, felt it was more competent, and trusted it more than they did a sad version.

Although participants' responses to Baldi were lukewarm overall, Gong believes the happy face's stronger influence is an important finding. “Baldi is a laboratory version that looks quite strange. It's not a customer-friendly version,” Gong said. “But this fact makes the findings more powerful because people should react more strongly to realistic-looking characters you find on the Internet.”

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While the research has immediate applications for talking faces, Gong is already looking into other aspects of digital characters.

In an upcoming study to be published in the April issue of [Human Communication Research](#), Gong and Stanford University's Clifford Nass looked more closely at the humanness of characters. The researchers mixed and matched Baldi's face and a real person's videotaped face with a human voice or computerized voice.

The results? Mismatched talking faces—such as a human face speaking with a computerized voice or a computerized face speaking with a human voice—made participants less likely to share personal information compared to consistently matched versions.

As for the future, Gong is currently researching digital humans in the context of race. He believes investigating how people perceive the race of digital characters will shed new light on understanding the strengths and boundaries of racial beliefs and attitudes.

“Digital characters are becoming increasingly important as more kids grow up with computers,” Gong said. “Over a decade ago people started paying attention to digital beings. There's been a strong linear expansion of their use that we can't ignore.”

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