

# Avatar teaches breastfeeding benefits and techniques

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Tim Bickmore of the College of Computer and Information Science and Roger Edwards of the Bouvé College of Health Sciences are using computer technology to improve breastfeeding education for expecting mothers. Credit: Courtesy image

Breastfeeding for the first six months of an infant's life is linked to a lower risk of several health problems for both the mother and child. For instance, children who are breastfed are less likely to suffer from asthma, obesity, childhood leukemia and both type 1 and type 2 diabetes. Mothers who breastfeed their children have lower risk of type 2 diabetes, breast cancer, ovarian cancer and postpartum depression.

Nonetheless, only 15 percent of American babies are breastfed exclusively for the first six months of their lives, a timeframe recommended by more than 40 healthcare organizations. The percentage of breastfed babies is much higher in other parts of the world.

Roger Edwards of the Bouvé College of Health Sciences and Tim Bickmore, of the College of Computer and Information Science, are trying to reverse those trends through developing a

computerized lactation-education consultant that helps support and inform expecting mothers. Bickmore has developed similar systems for use in walking-promotion studies, oncology clinical trials and patient adherence programs.

Backed by funding from a Northeastern Seed Grant, the duo carried out a 15-person pilot study to test the system's potential impact. The researchers found that the intervention strategy significantly increased both [breastfeeding](#) knowledge and the intent to breastfeed.

Bickmore and Edwards spent four months developing the system, working closely with a lactation consultant at Melrose-Wakefield Hospital, where the pilot test was conducted.

The researchers videotaped the lactation consultant giving breastfeeding tutorials. In all of the avatars Bickmore designs, the goal is the same: "We're always going back to source videos and dialogues to capture the essence of the expert," he explained. "We look a lot at nonverbal behaviors, like hand gestures, gaze cues and head nods."

Armed with data, the team is now working to secure funding for a broad-based longitudinal study, to test whether mothers who interact with the system would breastfeed for a longer period of time than new moms who don't.

The team also hopes to upgrade the system by designing a 3-D version of the computerized consultant and building a training system in which mothers-to-be would receive feedback on holding a baby doll that contains embedded sensors.

In a 500-patient study of a similar system not related to breastfeeding, Bickmore found that 74 percent of users preferred to hear information from a computer rather than a live nurse. But Edwards said that the technology is designed to augment human expertise, not substitute for it.

"Technology is not going to change a situation where the hospital norms are not supporting breastfeeding," he said. "We have to diligently work on changing these maternity practices."

Provided by Northeastern University

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