Use of a Wearable Recording Device in Therapeutic Interventions for Children with Autism

Gabriela Marcu, David H. Nguyen, Gillian R. Hayes
University of California, Irvine
{gmarcu, dhn, hayesg}@uci.edu

Background and Objectives

We hypothesized that the use of a wearable recording device, SenseCam, by children with autism, can help with the following challenges:

‣ To develop visual social stories.
‣ To facilitate and encourage a child’s communication skills.
‣ To enhance caregiver awareness of a child’s behavior and activities.
‣ To improve communication and understanding between caregivers.

The primary objective of this work is to develop processes for inclusion of SenseCam technology into everyday use by children with autism and to modify interfaces to SenseCam media for use in these interventions.

SenseCam

‣ Is a camera worn around the neck.
‣ Functions with no user intervention and has no viewfinder.
‣ Does not capture sound.
‣ Can capture photographs automatically on a schedule or in response to sensed stimulus such as movement or temperature.
‣ Creates a photographic account of a user’s activities to be reviewed at a later time.

Method

‣ Observations in special education classrooms.
‣ Interviews with autism experts.
‣ Focus group demonstration sessions of the technology.
‣ Participants included: special educators, assistive technology specialists, private therapists, and parents of children with autism.

Results

Designing an intervention using SenseCam

‣ Design an effective way for children to wear the camera: chord, clip, part of weight vest.
‣ Make SenseCam use a part of a routine or typical activity.
‣ Set appropriate frequency for image capture, and appropriate speed for image review.
‣ Contingency planning: from school to home, images without sound can be misinterpreted.

Example applications for SenseCam as part of interventions

‣ Documentation of school activities and behavior for IEPs and parents.
‣ Training caregivers through the review and critique of captured interactions.
‣ Image review for speech therapy, to encourage communication.
‣ Incorporating captured images into a classroom curriculum, such as inspiration for writing projects.
‣ Travel training, such as street crossing, safety in public, and stranger danger.

Future Work

‣ Conduct a pilot study of SenseCam use in the home and classroom.
‣ Study the everyday use of SenseCam.
‣ Develop and test a modified interface to enable children to review images themselves (right).
‣ Learn more about how to effectively design interventions with the use of SenseCam.