



Using NLG and Sensors to Support Personal Narrative for Children with Complex Communication Needs



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Children with Complex Communication Needs (CCN)

- Children with little or no functional speech with severe physical impairments, often with additional learning disabilities;
 - Current Augmentative and Alternative Communication (AAC) focuses on transactional communication (“I am thirsty”).
- As a result it is difficult for children with CCN to develop the personal narrative skills to engage in social interaction.



Computer-based AAC System

Girl with CCN using a Voice Output Communication Aid (VOCA) mounted to her wheelchair. She accesses her VOCA via a head switch to select scanned options.

Natural Language Generation (NLG), Data-to-Text

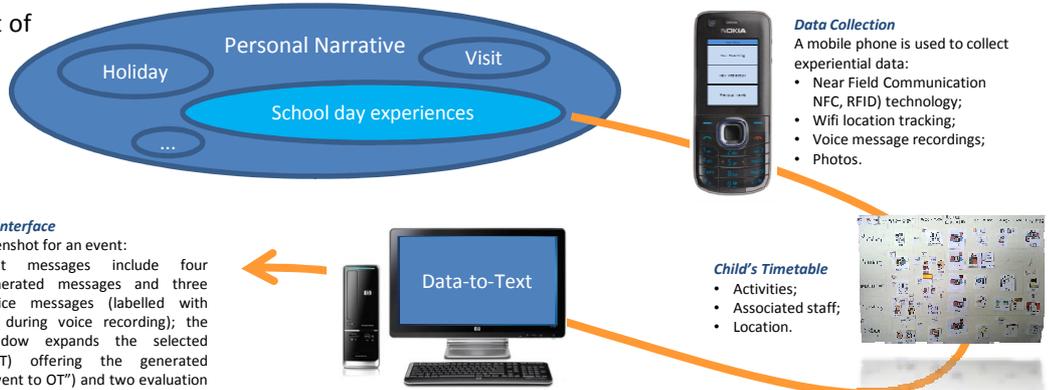
NLG systems generate text summaries of sensor and other numerical data such as weather forecasts or medical reports. We are investigating how best to generate language that supports the telling and evaluation of personal experiences in a conversational setting.

The “How was School today...?” System

- Narrative based communication system in school environment, developed in close collaboration with school staff, speech and language therapists, parents and their children with CCN;
- Uses sensor information (location, interaction with people and objects) and other information (e.g. child’s timetable);
- Staff can augment stories with automatically integrated voice recordings.

The “How was School today...?” System

Stories in the constrained environment of school allow the collection of data, comparing it to the child’s timetable to identify exceptions and then generate a story worth telling.



Story Telling Interface

Example screenshot for an event: Seven event messages include four computer-generated messages and three recorded voice messages (labelled with photo taken during voice recording); the overlaid window expands the selected message (OT) offering the generated message (“I went to OT”) and two evaluation buttons to allow for positive and negative evaluation of message (“I enjoyed it” or “It was rubbish”).

Story Generation

The Data-to-Text system generates messages the child can use to talk about her day, e.g. “I went to OT during English class this morning”, “I got a star for my work in Maths class”.

Expanded Scope

• Developmental Tool

Offering children an interface that is not only appropriate for their current stage of development, but also encourages them to progressively exert more control over story content, language, and narration.



• Communication with Extended Interaction Group

Telling stories to peers and adults who do not know the child well requires adapting the story to the interests, knowledge, and involvement of the partner; this is part of learning pragmatics.



• Stories Anywhere

Using GPS amongst other sources of data, experiences from all areas of life, not just school, could be identified and related to provide stories beyond the boundaries of school life.



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