Supporting Personal Narrative for School Children with Communication Disorders

The Development of a Prototype

RAatE 2008, Monday, 1\textsuperscript{st} December 2008, 11.30am

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Outline

- Personal Narrative, Stories & AAC
- The Feasibility Study
- Development of the Prototype
  - User Centred Design
  - Observations: Current Systems
  - System Design: Backend & Frontend
- Next Steps
Why stories are important (Waller, 2006)

- relating and sharing experiences
- developing self image
- expressing personality
- provides form and meaning to life
- developing organisational skills
- working through problems
- entertainment (being interesting people)
“The major bulk of interaction takes place through the medium of Story” (Cheepen, 1988)

But...

AAC* systems (light & hi tech) are designed to facilitate transactional communication.

* AAC - Augmentative and Alternative Communication
How do children learn to tell stories?

- Children's story structures develop initially with **scaffolding** (Bruner, 1975)
- 3-year-olds – initiation but seldom expansion (initiation may involve simply telling the punchline)
- 4:6-year-olds – initiation & expansion.
- 6-year-olds - initiation, maintenance & conclusion (Peterson & McCabe, 1983).
Scaffolding personal story telling: How was school today?
Supporting narrative for non-speaking children

Feasibility/Pilot Study
How was school today? – Pilot Study

- What sorts of stories
- Design an interface
- How can we use sensor data to generate stories? (e.g. GPS sensors, RFID tags and barcode readers)
- Build and evaluate a prototype
How was school today? – Issues

- **Ethics**
  Working with Children in Schools:
  - Curriculum
  - Participants need to enjoy taking part in project
  - Informed consent. Children: Informed ‘assent’

- **Privacy**
  Collecting private information:
  - Data protection
  - System design (Interface, database, etc.)
Prototyping: User Centred Design

- Story Generation (Backend)
- Interface (Frontend)
Current Systems of Story Communication: School and Home Diaries

Home Diary; Oscar 12 May
- Our new headmaster is Mrs May. Donald and Anne went out shopping to get a Wii for the school.
- Rolf is in school doing research with DynaVox users. I am taking part and think it is cool.

Home Diary; Frederic 14 May
- The Wii was set up on the big screen at lunchtime. I got a shot of the golf game. Sue was rubbish at it.
Current Systems of Story Communication: Voice Recording Devices, SGDs

Voice recording: Step-by-step

- Step 1: “I had a visitor today in Speech and Language Therapy.” – Step 2: “Rolf was here to show me his new prototype.” – Step 3: “I really enjoyed trying it out.”

Speech Generating Devices (SGDs)

- “Today we had a special presentation about the environment project. We met all in the hall and discussed what we could do. I was in a group about fresh water preservation. We...”
School Day Observations

<table>
<thead>
<tr>
<th>Time</th>
<th>Place</th>
<th>Event</th>
<th>People</th>
<th>Interaction</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:20</td>
<td>Front entrance</td>
<td>Arrives in bus</td>
<td>Mary, John</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Picked up by teaching assistant</td>
<td>chat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>Dining room</td>
<td>Snack time</td>
<td>assistant, Sam, Rolf</td>
<td>food</td>
<td>Step-by-step recorded: “I met Rolf at Snack time”, “He is here for his new project”</td>
</tr>
<tr>
<td>11:00</td>
<td>Hall</td>
<td>Eco-School opening event</td>
<td>all staff and pupils</td>
<td></td>
<td>normally Jane has physio now, her class gets to discuss &quot;Water&quot; and &quot;Global Citizenship&quot; (Other subjects are &quot;transport&quot;, &quot;waste&quot;, etc.)</td>
</tr>
</tbody>
</table>
Today in class we did drawing

Interface “Tell story” (Power Point)
Prototyping: Data Collection

- **Sensor information:**
  - Time
  - Location
  - Interaction (person, object)

- **Data information**
  - Timetable (classes, activities, staff, location)
  - Lunch menu

- **Additional information**
  - Recorded speech messages
Data Collection with Sensors

RFID Simulator
(A. Alshahrani & D. Westwater, 2008)
Interface “Tell story” (Clicker5)

Personal Narrative, Stories & AAC – The Feasibility Study – The Prototype – Next Steps
Next steps

- Test run (December 2008)
  - Shadowing one participant with working system
- Setup (January 2009)
  - Preparation of School, one week
- Evaluation of the Prototype
  - Two participants over one week
- Feedback gathering and data analysis
Thank you!

http://HowWasSchoolToday.computing.dundee.ac.uk
Contact: rolfblack@computing.dundee.ac.uk
AAC Study Day

“Guess What Happened Today!”

Enabling Children with Complex Communication Needs to Tell Stories

27 January 2009
at The Institute of Child Health, London

28 January 2009
at The Together Trust, Cheadle, Manchester

3 February 2009
at The City Chambers, Edinburgh
References

http://www.computing.dundee.ac.uk/projects/writetalk/

References (cont)

References (cont)

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