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# The WriteTalk Project: Story-Based Interactive Communication

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A two-year study investigated the relationship between classroom writing and story telling within augmented communication. A single case-study design methodology was used to determine whether of not the development of story writing and story telling skills had an effect on the interactive communication of young people with unintelligible speech. Researchers worked with six young people between the age of six and nineteen. The aetiology of the subjects' disabilities varied, but they all had difficulties with expressive communication. A story-based communication approach using a Macintosh PowerBook™ with a talking wordprocessor, a word predictor and a story-based communication system was implemented. Evaluations indicate that subjects' were able to initiate and control communication more effectively with the system. Their self-esteem and willingness to interact improved, as did their formal writing skills. Most notably, the communication system had a therapeutic effect with subjects who had oral speech with poor intelligibility.

## 1. Introduction

A two-year multi-disciplinary study has investigated ways in which story writing skills can be used by six young people with severe communication disorders [1]. They were taught to use Talk:About™, a computer-based communication system which allows people to write and tell their own stories. Researchers — a special education teacher and a speech and language therapist — worked with the young people, their teachers, therapists and families. The use of the system, together with changes in the subjects' communication skills were monitored and evaluated.

This paper reports the results of this research. Issues are highlighted which impact on the way teachers and speech and language therapists introduce and structure communication intervention programmes.

## 2. Background

Conversational interaction can be divided into two main areas [2]: *Transactional* interaction refers to conversation that is needs and wants driven. This communication is characterised by instructions, commands, warnings and requests. *Interactional* conversation is characterised by free narrative (story telling) and phatic communication or predictable chat, e.g. "hello", "goodbye". It is by using *interactional* conversation that we go beyond

casual acquaintance into firm friendship and meaningful relationships. More importantly, *interactional* skills allow us to develop and define who we are in relation to other people [3].

The majority of currently available communication aids offer various routes of access to *transactional* communication. The needs and wants aspect of communication is vital when capturing a child's interest in the power of communication and access to this type of interaction must be retained within any augmentative and alternative communication device. However, when introducing a communication aid, the need to develop story telling skills that allow individuals to reflect their own personalities must be addressed if AAC users are to have the potential to become fully rounded communicators.

The need to engage in story telling led to the development of a story-based communication system called Talk:About™ [4]. The WriteTalk project has taken this research further by investigating ways in which such an approach can be implemented.

## 3. Project Aims

The overall aim of the study was to ascertain whether, given the opportunity, children with severe communication disorders would use pre-stored stories for interactive conversation. The following questions were investigated:

- Given a story-based communication system, will young people with expressive communication disorders use their own pre-stored stories in interactive conversation?
- Can young people be encouraged to tell their own stories in a social way and if so how does this affect their interactional skills?
- Does a story-based communication approach lead to a more natural form of conversation, i.e. does the approach allow the augmented communication partner to share the control of the conversation?
- Will the motivation to create written material which reflects the young person's own life have an effect on the quality, and quantity of their interactive language and formal writing skills (i.e. skills required to write, spell and construct sentences)?

## 4. Methodology

### *4.1 Subject Selection*

Six subjects were selected to participate in the study. The disabilities experienced by the subjects had different aetiologies, but all had problems with expressive communication — they were seldom understood by staff and parents reported some difficulties with intelligibility with unknown topics. Subjects had existing or emerging literacy skills and could access a conventional computer keyboard.

### *4.2 The Communication System*

Each subject was provided with a Macintosh™ PowerBook with a colour screen. The following software packages (Don Johnston Inc) were installed on each system: Co:Writer™ (word prediction), Write:OutLoud™ (a talking word-processor) and Talk:About™ (a conversation system). Each system was customised for individual subjects, e.g. personalised vocabulary was entered into Co:Writer™ and some personalised stories and topics were stored in Talk:About™.

### *4.3 The Intervention Procedure*

The researchers worked with subjects on a one-to-one basis, both at home and school, and within the classroom situation. Two main types of intervention took place:

Classroom support: Researchers facilitated the use of the system in interactive classroom work, e.g. contributing to news time, answering questions, completing worksheets. The researchers had advance knowledge from the teachers about project work and prepared appropriate texts with the subjects. This enabled researchers to identify the sorts of language and vocabulary which would be useful for classroom activities and helped the subjects to interact meaningfully within the sessions.

Conversation Modelling: The goal here was to develop subjects' story telling skills. This involved working with subjects on a one-to-one basis, assisting subjects in the creation of story texts. The appropriate use of these stories was modelled by researchers as most subjects had little or no understanding of the pragmatic use of story telling for social interaction. The idea of chatting or "gossip" was introduced and researchers shared their own news with subjects. As well as modelling the principle of sharing stories, this had the added benefit of encouraging the subjects to initiate questions — this language form was initially absent from the subjects' communication. Subjects were encouraged to engage in conversations and were facilitated to use pre-stored stories to interact socially with others.

### *4.4 Evaluation*

The intervention stage of the single subject design was staggered so that the starting dates for subjects were different. The language and communication abilities of the subjects were measured at the beginning and end of the intervention period using the following tests: "T.R.O.G." [5], "Basic Language Concepts" [6] and "Profiles of Development" [7]. The subjects' written work was monitored and examples were analysed at regular intervals. Conversations between subjects and speaking partners were video-recorded at monthly intervals. These were analysed using subjective and objective methods [cf. 8]. Feedback from teachers and parents was obtained at regular intervals using interviews and questionnaires, but most valuable were the spontaneous unprompted comments.

## 5. Results and Discussion

The first two pilot case studies are presented in this paper. Both subjects attended a Special Needs school. Subject 1 is a 17 year-old girl with cerebral palsy. She uses a powered wheelchair. She has no oral communication but some limited gestural signs. She took part in the original PAL™ research [9] but used a TouchTalker™ for communication purposes. She made some use of WordStrategy™ for proper names, some verbs and small words such as conjunctions and prepositions, but her preferred method of communication was to use "Spell Mode" and "Speak Display".

Subject 2 is an ambulant girl of 10 years. She has a severe oral dyspraxia and prior to intervention spoke at a telegrammatic level. Although Makaton was introduced to her at a pre-school nursery level, she never used it effectively. She was first introduced to a Macaw™ at a Primary 1 stage, followed by Speaking Dynamically™. She was shown the "Facilitated Keyboard" within this program and was fascinated by it. Thereafter, the desire to create her own text dominated.

Both subjects showed an improvement in interactive communication, formal written work and self-esteem. Subject 1 has developed story telling skills and now generates a wider variety of sentence constructions. Most notably she is now able to spontaneously

question within social conversation. Story retrieval can be difficult for this subject, but the researchers continue to develop strategies to solve this problem.

Subject 2 responded in a very different way to subject 1 and the system has had a therapeutic effect on her interaction and oral skills. It has provided a tool through which she has been able to follow developing patterns of social interaction. Most importantly, she has had the opportunity to make mistakes and experience positive reinforcement.

Preliminary observations of the other subjects are supporting issues raised by the first two subjects:

### *5.1 Acquisition of Pragmatic Skills for Story Telling*

It is not always the desire to create the story that is absent but the experience of how to tell the story. It is essential to develop story telling skills. It is also perhaps fundamentally important to encourage experience of imaginative narration. Observations indicate that although subjects with some oral ability did have pragmatic story telling skills prior to the intervention, they had learnt to communicate in telegrammatic utterances to ensure successful communication.

### *5.2 Literacy Skills*

Results support previous research [9] in which the use of word-prediction has led to improved written language structure and spelling. Subjects' written language skills have benefited from a literacy-based story-telling approach. The fact that even subjects who exhibited emerging literacy skills were able to use the system has implications when recommending augmentative and alternative communication aids.

### *5.3 Therapeutic and Augmentative Communication Tool*

The study indicates that those subjects with little or no intelligible speech used the system as their primary form of communication. However, those whose intelligibility decreased with utterance length tended to decrease their reliance on the system as their confidence grew. They then moved towards intentional use of it to back up poor intelligibility in specific circumstances. This is the real meaning of augmentative communication.

### *5.4 Creating Environments for Successful Story Telling*

The researchers observed that successful communication tended to occur in environments where teachers used an "open question" approach and encouraged questioning from subjects. Subjects were able to use the story-based system in classes in which teachers encouraged discussion and provided opportunities for students to direct activities, e.g. news time. However, the system was obsolete in situations where staff controlled the conversation. Some teachers and other staff tended to use a "closed question" communication approach to reduce the risk of communication breakdown and this has a negative effect on the child's ability to expand utterance length. This in turn effects the development of narrative skills. There is a real issue that communication partners do not expect expanded utterance or narrative abilities from poor communicators and therefore the environment where these skills will be encouraged and developed is absent.

## 6. Conclusions

The WriteTalk project has shown that a story-based communication approach has allowed two young people with severe expressive communication disorder to communicate more effectively in conversation and social situations. The success of the intervention can be attributed to the change in approach but the use of a literacy-based communication system within a personal computer has provided these young people with a wide range of communication modes and the use and development of pre-stored stories. The use of a literacy-based communication system provides a bridge between formal classroom work and interactive communication and allows teachers and speech and language therapists to use the same system to achieve a common communication and educational goal. No less significant has been the subjects' potential to access the entire lexicon of their native language through literacy.

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