

Heneker, S. & MacLaren Page, L. (2003) 'Functional communication: the impact of PECS™', *Speech & Language Therapy in Practice* Autumn, pp.12-14, reprinted at [www.speechmag.com/archives/impactofpecs.pdf](http://www.speechmag.com/archives/impactofpecs.pdf).

## READ THIS IF YOU WANT TO

- **IMPROVE FUNCTIONAL COMMUNICATION**
- **HELP STAFF IDENTIFY AND MAXIMISE ALL COMMUNICATION OPPORTUNITIES**
- **CLARIFY YOUR ROLE**

on line observations

### **Functional communication: the impact of PECS™**

*The Picture Exchange Communication System (PECS™) aims to teach individual users to initiate communication. Sarah Heneker and Lisa MacLaren Page investigate the effectiveness of introducing the approach to whole classes within a school.*

*Sarah writes, "Sadly, since this article was written, Lisa died as a result of a road traffic accident. Lisa was a talented and dedicated speech and language therapist and friend to the whole team. She will be greatly missed. This article is in her memory."*

PECS™ is a system that aims to teach spontaneous communication (Frost & Bondy, 1994). The ability to initiate communicative exchanges is paramount from the outset and this is achieved by the student exchanging a symbol of a desired item in order to obtain it. This system has been rapidly introduced into a number of locations in which we work.

A local school for children on the autistic spectrum undertook an extensive programme of staff training in PECS™ and set out to integrate the system into their school day. They decided that, in addition to individual PECS™ programmes, they would offer two groups of children an entire PECS™ environment.

'Group 1' began in September 2000 and involved all the children in a specified class. The entire environment was set up to facilitate the ideas of PECS™. Parents received support and advice from class staff around the use of the system at home. 'Group 2' began in January 2001 and involved a smaller group within another class. Just prior to this, class staff and parents of the children within the group attended a formal PECS™ training course.

We wanted to evaluate the impact that introducing PECS™ had on:

1. the amount that the children were communicating,
2. the functions of the communication,
3. the methods of communication,
4. the level of adult support needed to achieve this.

We wanted to be as non-intrusive as possible whilst encompassing the whole communicative environment in our evaluation. We therefore chose on line observations, watching the children in their everyday environments. The data was collected through interval recording which involved the use of a dictaphone to prompt the therapist when to begin and cease observation periods.

The four different contexts in which the children were observed - 'freeplay', 'snack', 'swimming' and 'structured teaching' - were adapted from Wood et al's study (1998). 'Freeplay' and 'swimming' were defined as 'unstructured', where the adult's attention on the children was variable, thus providing opportunities for attention gaining. 'Snack' and 'structured teaching' were defined as 'structured'. Within 'snack' the communication opportunities were highly predictable (for example, choice making), whilst within 'structured teaching' communication opportunities were less predictable as the nature of the sessions make them more variable.

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We designed an observation schedule and all observing therapists were trained to ensure consistency. There were two observation phases:

- baseline
- follow-up.

Each child was observed for a total of one hour and four minutes over all contexts. The communicative parameters we observed are in figure 1.

**Figure 1 Communicative parameters observed**

Level of cueing+	Function of communication	Method of communication	Manner in which adult's attention was gained	Adult's response	Level of prompting needed to exchange symbol
* Physical Prompt * Model * Question * Presence of Object / Event * Presence of Listener * Contextual and Interoceptive	* Requesting * Greeting * Rejecting * Commenting * Labelling * Responding * Anticipating	* Physical * Object * Gestural * Symbol * Vocal * Gesture and Vocal * Symbol and Vocal * Symbol and Signing	* Not * Physical Prompt * Environmental * Spontaneous * Already Gained	* None * Explained 'Not Possible' * Actioned	* None * Physical Prompt * Gestural Prompt * Spontaneous

+The continuum used to observe the 'level of cueing' was based on that devised by Halle (1987) in his research on spontaneous language.

## Group 1

Group 1 were in years 1 to 3 (age range 6;08 to 8;04 at follow-up). Baseline was carried out in September 2000 when PECS™ had been recently introduced. At baseline the group's communication skills varied – few used any clear words and the main method of communication was physical (such as leading the adult to the item or trying to take the item themselves) or gestural (for example, pointing to a required item).

Follow-up was carried out 10 months later. We have highlighted the key findings for each part of our evaluation:

### 1. Amount of Communication (Total Number of Communicative Acts)

This changed by the following amounts:

	BASELINE	FOLLOW-UP
<i>Freeplay</i>	12	21
<i>Snack</i>	9	20
<i>Swimming</i>	26	22
<i>Structured teaching</i>	15	29

Although the Total Number of Communicative Acts during swimming decreased at follow-up, the children were using more sophisticated forms of communication and needed less prompting to do so.

## 2. Function of Communication

*'Requesting' was the main function at both baseline and follow-up.*

Additionally, at baseline, 'commenting', 'greeting' and 'rejecting' were observed during some activities, namely 'swimming' and 'structured teaching'. At follow-up, the use of these functions had increased and use of them across situations appeared to have generalised.

## 3. Method of Communication

*At baseline this was generally symbols. At follow-up the main methods of communication were 'symbols' ('snack' and 'structured teaching') and 'physical' ('freeplay' and 'swimming').*

We felt the high occurrence of the use of symbols at baseline (with the exception of no symbols being available during swimming) was due to the intensive teaching of the use of PECS™.

In all but one context ('freeplay'), symbol use increased. Children's spontaneous use of symbols varied at follow-up – some would seek out their PECS™ folder spontaneously, whereas others tended to need prompting. The children were often using their most effective form of communication within the given situation (for example, if they were playing a joint attention game with staff, then using physical, gestural or vocal means appeared to be most appropriate), and this is something that we strongly advocate.

## 4. Level of support needed

*The 'Presence of an Object or Event' remained the main level of stimulus to which the children were responding for all activities.*

The children did not show an increase in spontaneously gaining the adult's attention, and this remains a key area to focus on. However, they did appear to have learnt the importance of needing somebody's attention before communicating with them. The children showed a striking increase in the number of attempts they made to communicate following the adult giving the child their attention (from 48 per cent to 88 per cent).

The children learnt the process of exchanging symbols over the period of observation. At baseline, the children generally either did not exchange the symbol, or required a physical prompt to do so. At follow-up, the children were spontaneously attempting to exchange the symbols in 95 per cent of cases. This, however, did not always result in a successful communicative exchange, as the adult's attention had not always been gained first.

## Group 2

Group 2 consisted of children in years 4 and 5 (age range 9;04 to 10;10 at follow-up). Baseline was carried out in January 2001. Prior to this, PECS™ had been used solely within snack with no generalisation observed. Children were receiving structured PECS™ teaching sessions at phases 1 to 3 (see figure 2) during the baseline observation week. At baseline the group had a stock of spoken words or phrases, but their functional use was limited.

### Figure 2 Phases of PECS™

Phase 1 Identifying a reinforcer and teaching picture exchange  
Phase 2 Increasing spontaneity and range  
Phase 3 Introducing the concept of choice  
Phase 4 Introducing sentences  
Phase 5 Responding to the question, 'What do you want?'  
Phase 6 Commenting in response to a question

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Follow-up was carried out six months later. As with group 1, we have highlighted the key findings for each part of our evaluation:

### 1. Amount of Communication (Total Number of Communicative Acts)

This changed by the following amounts:

	BASELINE	FOLLOW-UP
<i>Freeplay</i>	<i>1</i>	<i>5</i>
<i>Snack</i>	<i>8</i>	<i>16</i>
<i>Swimming</i>	<i>3</i>	<i>11</i>
<i>Structured teaching</i>	<i>16</i>	<i>10</i>

Although the Total Number of Communicative Acts was observed to decrease in 'structured teaching' at follow-up, the students were being taught the more independent skills of commenting for the first time, and this may have had an impact on the amount of communication observed.

### 2. Function of Communication

*'Requesting' was the main function at both baseline and follow-up.*

(In addition, at follow-up, 'commenting' was evident in 'structured teaching' as it was being taught).

### 3. Method of Communication

*Over the period of observation, the children were observed to move towards using more formal methods of communication across all contexts.*

The children were also increasingly using a combination of methods at follow-up (such as 'physical and vocal' or 'physical and gestural') even if they were not always using symbols. Symbols were not always readily accessible during all activities for this group.

Symbol use increased in 'snack' and in 'structured teaching'. During 'swimming' no symbols were available during either baseline or follow-up. In 'freeplay' use of symbols remained the same. The children's spontaneous use of symbols varied at follow-up – some would seek out their PECS™ folder spontaneously, whereas others tended to need prompting.

### 4. Level of support needed

*The 'Presence of an Object / Event' remained the main stimulus that the children were responding to during 'snack' and 'swimming'. However, for 'freeplay', responses became more 'independent', with the children moving towards 'Presence of a Listener' as the level of cueing required to initiate communication.*

In 'structured teaching', responses became less 'spontaneous', moving from 'Presence of an Object / Event' to a 'Question'. This appears to be because the children were being taught the communicative function of 'commenting' at this time.

The data showed an increase in spontaneously gaining the adult's attention during 'snack' and 'swimming'. No major change was observed during 'teaching', but the adult's attention was already gained for the entirety of the activity observed at follow-up. Significantly with this group, 'freeplay' appeared to be a less motivating activity and, consequently, the context in which the children were less likely to be communicative.

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As for Group 1, the children in this group had learnt the process of exchanging symbols. At baseline, there was limited occurrence of symbol exchange. At follow-up, spontaneous exchange occurred on average 96 per cent of the time for all interactions that involved a symbol.

## **Changes in communication**

Generally, the study showed that there was an overall increase in the number of communicative attempts made and that Group 1 (who had been using PECS™ for four months longer than Group 2) showed an increase in the range and quality of their Functions of Communication. Symbol use and more formalised methods of communication increased and children showed a greater awareness of the importance of having somebody's attention before communicating with them. The children were only observed to use PECS™ with adults and not with their peers.

The fact that The Presence of Object / Event remained the main level of stimulus in order to communicate is an interesting observation. A further follow-up study could identify whether this is still the case 18 months on, and for which communicative functions.

Although not formally observed we noted that, at follow-up, children involved in the study appeared to show less frustration and were able to accept that they could not always have what they had asked for. When using symbols, we often saw them waiting patiently if the adult was not able to give them their attention immediately.

Group 1 communicated more at baseline than group 2 and made more progress in relation to Number of Communicative Acts, but we must acknowledge that the time between baseline and follow-up was longer. We also need to be sensitive to the fact that group 1 were younger children who had had less experience of communication breakdowns than group 2. This supports the need for early intervention.

This study gave us the opportunity to observe PECS™ being used with a whole class group and in all situations versus a sub group. For us, this has clarified the importance of the whole environment being conducive to PECS™. Irrespective of whether children use PECS™ or not, the use of such an approach facilitates staff to identify and maximise all communicative opportunities.

## **Challenges for the future**

We have many challenges for the future. Communication is a process that is dynamic in nature. It is therefore important that opportunities continue to be identified and set up to provide communicative environments in which the children are able to consolidate, generalise and expand the skills that they have learnt. To achieve this, staff need to continue to constantly think ahead and plan for future communicative opportunities and ensure that sufficient symbols are always readily available.

Speech and language therapists have an ongoing role with the introduction and implementation of PECS™. This should include:

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1. Advising on the communicative environment and monitoring vocabulary and language levels.
2. Stressing the importance of the developmental symbolic hierarchy to ensure that children are working at a level where they are successful, moving towards a higher symbolic level as appropriate. This may mean working at an object level before moving onto the higher level of symbolism.
3. Ensuring that communication is multi-modal. PECS™ should be considered alongside, and not to the detriment of, other communication systems.
4. Ensuring that care is taken to move methodically through the PECS™ phases, at an appropriate pace for the child, generalising skills at each level before moving onto the next.

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### **Resources**

Further information about PECS™ (including courses) from Pyramid Educational Consultants UK Ltd, Pavilion House, 6 Old Steine, Brighton BN1 1EJ, tel. 01273 609555, [www.pecs.org.uk](http://www.pecs.org.uk).

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## **REFLECTIONS**

- **DO I HAVE AN ORGANISED APPROACH TO OBSERVING CLIENTS?**
- **DO I EVALUATE THERAPY IN TERMS OF THE AMOUNT, FUNCTIONS AND METHODS OF COMMUNICATION AND THE LEVEL OF SUPPORT NEEDED TO ACHIEVE THIS?**
- **DO I GIVE CLIENTS THE OPPORTUNITY TO PRACTISE USING THE MOST EFFECTIVE FORM OF COMMUNICATION FOR A GIVEN SITUATION?**