

**Word searches: on the use of verbal and non-verbal resources during classroom talk**

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### **Abstract**

Word finding difficulties in children are typically characterised by search behaviours such as silence, circumlocution, repetition and empty words. Yet, how children's word searches are constructed (including gesture, gaze and prosody) and the actions accomplished during interaction have not yet been researched. In this study, eight-year-old Ciara is interacting with her teacher in the classroom. 37 segments containing word searches were analysed according to the procedures used by conversation analysts. Ciara's interactional resources include co-ordinated deployment of syntax, pitch height and downward gaze during solitary searching that assist the enterprise of self-repair. Gaze shift towards the teacher signals a transition relevance place, thus constituting a direct invitation for her to participate in the search. Ciara's interactional resources include semantic category labelling, phonological self-cuing and pronominal substitution that supply valuable linguistic information to the teacher and trigger production of the searched-for item. Recommendations for language teaching and therapy are presented.

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## **Introduction**

Searching for words is very common in children. There are reports that this phenomenon is experienced by a quarter of those who receive therapy services as a result of language impairment (Dockrell, Messer, George and Wilson, 1998) and possibly half of children who have learning disabilities (German, 1998). Children with word finding difficulties are characterised by poor performance in both word retrieval as well as semantic fluency (Dockrell, Messer and George, 2001), which contrasts with relatively intact comprehension of word meanings (Messer and Dockrell, 2006). As far as explanations are concerned, difficulty in finding words is considered to be related to impoverished semantic representations (Dockrell *et al.*, 2001), less well established phonological representations and poor processing speed (Messer and Dockrell, 2006). Given the cognitive nature of the difficulty, an intervention programme by a speech and language therapist would aim to strengthen the child's form-meaning links. Indeed, there is some evidence that both semantic and phonological training techniques can be successful in assisting children's word retrieval (Wing, 1990; Hyde-Wright, 1994; McGregor, 1994).

How children with word finding difficulties deal with the demands of discourse is less well understood. Given that the child's social and educational experiences take place in discourse contexts, this urgently needs addressing. During children's narrative and whilst interacting with others, there are systematic reports of associated behaviours

such as lengthy pauses, circumlocution, place holders (*uh; uhm*), substitutions, repetitions and empty words (Best, 2005; German, 1992). Furthermore, high processing demands are reported to exacerbate the search behaviours (Dockrell *et al.*, 1998). In clinical settings, one of the aims of speech and language therapy may be to reduce search behaviours because they potentially interfere with the flow of discourse. Taking a different perspective, what is of interest to the author of this paper is how search behaviours operate for the child within the sequence of interaction. For example, do they assist the child during a solitary search or do they mobilise the cooperation of others in the search?

Word searches in adult face-to-face interactions have been explored by conversation analysts. International studies detail the routine deployment of both verbal and non-verbal practices used by English and Japanese speakers (Schegloff, Jefferson and Sacks, 1977; Goodwin and Goodwin, 1986; Hayashi, 2003). In terms of verbal techniques, the *wh*-question format is common. A speaker breaks from a current message in order to make a search explicit through use of a phrase such as *What is it?* (Schegloff *et al.*, 1977) or *nan da(tta) kke* (What is/was it) (Hayashi, 2003). The *wh*-question format may be either self-directed, in order to gain time for self-repair, or directed at the conversational partner as a self-initiated other-repair to seek collaboration in production of the missing word. There are other orderly grammatical designs during collaborative searches. In collaborative completions the person searching for a word constructs the turn grammatically so that only the searched-for item can be produced by the partner (Lerner, 1996).

In addition to spoken elements, gaze shifts and gestures are routinely and systematically deployed. Withdrawal of gaze during searching signals to the hearer that the speaker is holding the turn whereas gaze shift towards the recipient is treated as an invitation to participate (Goodwin and Goodwin, 1986). Other gestures such as pointing, waving or whirling may be deployed alongside words and sound stretches (Goodwin and Goodwin, 1986; Goodwin, 1987). Iconic gestures are particularly interesting because they provide semantic information to the conversational partner that assist in interpretation of the searched-for item (Hadar and Butterworth, 1997).

More recently, and particularly relevant to the current paper, are explorations of word searches in the field of aphasia interaction. Studies are generally conducted in the homes of people with aphasia who, following cerebral injury, have lost the capacity to retrieve words fluently. Typically, a person with aphasia initiates a solitary search and, during the course of this activity, the familiar conversational partner contributes a candidate understanding or guess that, on occasion, is accepted as a solution to the search (Milroy and Perkins, 1992; Wilkinson, 1995). Recent research further illuminates how these processes operate over sequences of turns. Interactional techniques employed by the person with aphasia include ‘invitations’ for the partner to participate in the search (Oelschlaeger, 1999). The invitation may be constructed in a direct way, whereby it takes the form of partner-oriented gaze and/or *wh*-questions. Alternatively, an invitation to participate may be constructed in an indirect way, with downward gaze and verbalisation, which signals that a solitary search has been abandoned.

Recent work on Finnish explicates different grammatical constructions associated with word searches in aphasia. In addition to *wh*-questions, Finnish speakers systematically use characterising constructions (trans. *it is like*), locatives (trans. *there is*) and pre-modifier noun phrases (trans. *the/that this*) (Helasvuo, Laakso and Sorjonen, 2004). These verbal elements hold a place for the missing item and project that the recipient will produce a noun in response. Finnish speakers with aphasia also use gaze shifts in a comparable fashion to typical adults although whether or not they lead to collaboration depends on the conversational partner: familiar family members do collaborate whereas speech and language therapists are shown to withhold participation in the search (Helasvuo *et al.*, 2004). Hand gestures, including iconic gestures, either fill the position of the head noun or supplement the spoken elements.

Pragmatic approaches to speech and language therapy involve training family members in locally tailored interactional strategies (Holland, 1991). Insights gained from aphasic studies regarding interaction processes therefore equip practitioners with information that informs the advice that they can offer to clients in the home.

However, little is known about the conversational behaviours of children in this regard. The current study aims to provide much needed detail, so that therapists and teachers can support the child's use of locally relevant interactional techniques.

The following analysis will consider these research questions:

1. What interactional resources are available to the child during word searches?
2. How does the design of these resources assist the child with self-repair?
3. In what ways do the child's resources mobilise the adult's involvement in the search?

Insights gained from the analysis will then inform suggestions regarding the interactional implications for specialist language teaching and therapy.

### **Case details and description of corpus**

Ciara (not her real name) is an eight-year-old child who is educated in a specialist speech and language provision attached to a mainstream primary school. Ciara was admitted to the language provision three years previously and during that time has received additional resources from a specialist language teacher and a speech and language therapist. Ciara has a statement of special educational needs that describes her as needing help to develop both her expressive and receptive language skills. Her speech and language therapist and teacher jointly completed a questionnaire to supply details regarding her specific language difficulties and language teaching goals and strategies (table 1). Semantic difficulties are a key characteristic of Ciara's profile, including reported naming and word-finding difficulties. Current areas of priority for language intervention, according to her teacher and therapist, include vocabulary work, syntactic and pragmatic targets.

Insert table 1 about here

Video recordings were made of interactions between Ciara and her specialist language teacher during small group and individual oral language sessions. The author was present during the recordings but did not interact with the participants. There were three distinct types of classroom activity: collaborative story writing in a small group; circle-time where children take turns to speak following the teacher's model; one-to-

one 'speaking book' that contains pictures (see Radford, Ireson and Mahon, 2006, for further information). To reduce observer effects, the data were collected over a period of four consecutive weeks, totalling 248 minutes of interaction in 12 lessons. Each episode of word-retrieval was isolated, as characterised by search behaviours, which yielded a corpus of 37 instances.

The sequences were transcribed by the author, taking care to note both verbal and non-verbal behaviours. Transcription conventions are shown in appendices 1 and 2 and are adapted from the systems devised by Jefferson (2004), Goodwin and Goodwin (1986) and Oelschlaeger and Damico (2000). As well as the spoken words that are shown in typical type, the reader will find relevant non-verbal actions in italics below the talk, and gaze either above or below. Pitch is presented above the talk between two lines that, according to auditory impression, reflect the upper and lower limits of the speaker's normal speaking range. The analysis includes detailed information regarding the linguistic and paralinguistic features of Ciara's search turns and takes account of the sequential implications in the tradition of the procedures used by conversation analysts.

## **Findings**

Whilst the following analysis is presented in terms of the principal techniques employed by the child, it must be emphasised that, as in all CA research, these devices must not be interpreted as isolated phenomena. Crucially, they are context dependent in so far as they emerge from the prior verbal and non-verbal elements of



the interaction. Furthermore, they are context renewing because they influence the subsequent trajectory of the teacher's and child's actions.

Ciara has a repertoire of resources at her disposal that, on the one hand, assist her in her own solitary searching and, on the other hand, serve to mobilise the teacher's involvement in her hunt for words. The detail of how these resources are designed is described next, taking account of linguistic (syntactic and semantic), prosodic (pitch contours) and non-verbal (gaze and gesture) components of the talk, as relevant to the analytical points under consideration. It will be shown that a variety of work is performed by the child's actions. In the first example we see a variety of finely-tuned resources that act as turn-holding devices so that Ciara is able to complete a self-repair. Later examples show her use of a repertoire of verbal techniques that invite the teacher to provide a prompt or candidate lexical item. The following analysis also shows how Ciara's verbal techniques operate alongside the non-verbal resources of gaze and gesture.

Data extracts (1-3) take place during a small group activity that involves between four to six children. The teacher is helping the children to write a story with the use of picture props (various characters and settings that the children have drawn themselves). Extract 1 is an example of how several components of the design of Ciara's turn, namely syntax, prosody, silence and gaze work simultaneously and sequentially to achieve turn holding which affords her the opportunity to conclude her self-repair. Ciara's pitch height is indicated impressionistically in real time above her spoken words, whereas, in order to provide clarity for the reader, her direction of gaze is displayed underneath.

**INSERT FIG 1, (Extract 1) HERE: Silence, syntax, prosody and gaze (self-repair)**

The first line of extract 1 finds the teacher (T) inviting Ciara (C) to talk more about an idea that she generated in a previous lesson regarding the plot of her story.

Syntactically, Ciara's response (line 2) begins with an incomplete turn construction unit (TCU) that ends with a silence instead of the head noun that would typically follow the determiner 'a'. At line 3 Ciara extends her prior utterance with the addition of further specification of the subject and elaboration of the verb phrase. The turn remains incomplete, however, since a silence once again follows the determiner instead of the noun. It is not until line 4 that Ciara succeeds in completing her TCU: this is accomplished by changing her message and opting for a verb phrase, in replacement for the elusive noun.

The key question is: how does Ciara accomplish self-repair without interruption from her teacher? Whereas silence affords Ciara a degree of personal time to process retrieval of the lexical item, the main issue is that the teacher could have taken a turn during either of the pauses at lines 2 and 3. The first dimension to consider is the directional focus of Ciara's gaze; throughout lines 2 - 4 her focus is consistently downwards towards the book on the table that is placed directly in front of her. That she never shifts her gaze towards the teacher suggests that she is not invoking her participation in the search: she is engaged in self-directed activity. Next, syntactic and semantic analysis further explains the teacher's lack of involvement. At the onset of each of the silences, there is an incomplete syntactic unit; the missing noun at the end of each line renders the semantic information supplied to the teacher incomplete.

Finally, additional insight is gained from analysis of Ciara's pitch height: the intonation contour of the child's turns at lines 2 and 3 indicate non-final utterances (Corrin, Tarplee and Wells, 2001). Her turn at line 2 begins at mid-level pitch and continues with alternate dips and rises but finishes at mid-level height before the silence. Ciara begins the second clause at line 3 at a higher pitch level, which next dips before she reaches mid height just before the silence. In contrast, the completed TCU at line 4 has a pitch contour that begins at mid height but ends with a significant rise on the final syllable. The pitch contours of the searches project that there is more talk to follow and may also be a marker of incompleteness to which the teacher is orienting. In sum, the co-ordinated activity of gaze, syntactic design and prosody (pitch height) achieve turn-holding for Ciara during silences so that she can complete her TCU.

The second example also illustrates how silence, syntax and prosody are co-ordinated with Ciara's gaze. However, in contrast with extract 1 where gaze was consistently lowered, we see how gaze shift towards the adult serves as a direct invitation (Oelschlaeger, 1999) that mobilises the teacher's participation and enables Ciara to retrieve the word that she was searching for.

**INSERT FIG 2 (Extract 2) HERE: Silence, syntax, prosody and gaze (direct invitation)**

The teacher asks a question in the first line that invites information about the story's plot. Ciara designs her response initially with a determiner followed by a short silence that is not interrupted before production of the lexical item. The pause after 'a' affords her the opportunity to continue to produce 'fishing', albeit with brief hesitation before the final morphological unit '-ing'. At this point the noun phrase remains semantically incomplete and another short silence ensues (line 3). Following the silence T participates in the search with a repeat of C's lexical item, designed with a final stretched sound and C completes her TCU.

As the verbal output of Ciara's turn at line 2 is so brief, what additionally signals to the teacher that assistance is required? Let us turn our attention to the direction and timing of the child's shift of gaze. At line 2 she is looking down at the book where she has drawn her story characters. What changes at line 3 is that she shifts her gaze, during the onset of the silence, directly towards the teacher who is seated opposite her across the table. The result of this shift of orientation is that C now positions T to take the turn and, indeed, T does so by producing a repetition of 'fishing'.<sup>1</sup> Simultaneously, Ciara makes good use of prosodic resources at lines 2 and 5. Relative to the pitch range of surrounding talk, C's production of the determiner 'a' is at a relatively low pitch height, followed by mid pitch with rising contour on 'fishing'. The pitch rise on fishing does the work of signalling that there is more to follow and, when taken in conjunction with the incomplete semantic phrase, as if turn holding. What follows is at line 5, produced with a closing contour on 'ne:t' that returns to a lower pitch height. 'Ne:t' is thus hearable as being prosodically integrated with C's prior turn 'a fishing' since they share the same intonation contour. The loudness on 'ne:t' is also of interest since it is out of line with typical rendition of 'fishing net' where 'fishing' would be

spoken with relatively louder voice than ‘net’. In this context it appears to do the work of signalling the outcome of the word search. In sum, Ciara has now accomplished, supported by the adult’s repetition prompt, a version of the searched-for item. Indeed ‘*ne:t*’ is received by the teacher at line 6 with a repeat and a positive evaluation. How T’s prompt is designed to assist C in retrieval of the elusive item ‘*ne:t*’, and the relationship to Lerner’s (2004) turn-prompting sequences, is the subject of further research.

The next extract (3) shows Ciara’s substitution of a semantic category label for the searched-for lexical item which, in this case, is a character’s name. This interactional device is treated by the teacher as an invitation to label the searched-for item. As Ciara’s hand gestures are important in this example, they are indicated underneath her spoken words whilst gaze, to simplify interpretation for the reader, is represented above.

### Extract 3: Semantic category labelling

1 T Shall we listen to Ciara’s ide:*a* then. what do you think might happen.

x-----figures-----

2 C Sh::e want (.) she wanted (.) her to come to her castle (.)

((*\*PP princess--PP Mary-----PP princess-----*

x-----figures-----

3 C and sh: (0.2) and she:: (0.6) s: name wanted to come

*PP Mary-----PP Mary-----PP Mary-----*

4 T This is Mary.

((*points to Mary*))

x---figures-----

5 C Mary (.) want to go

--*PP Mary*))

6 (0.3)

-----figures-----,,T

7 C uhm the princess wanted to go to (.) ↑Mary's house  
(*PP princess-----PP Mary-----*)

8 T They've already sorted that haven't they

\**PP* = Points pencil with lowering arch-like movement from semi-upright position until figure is touched.

The sequence starts with the teacher's story 'invitation' (Radford, Ireson and Mahon, 2006) whose design elicits an idea from C about a next possible event in her story. Ciara's story ideas concern two female characters (Mary and a princess) that are represented by figurines that she has drawn and which she can indicate with a point of her pencil. In line 2 Ciara makes a series of points at the two pictures, alternately, which supplies T with clues regarding the respective references of the first and third person female pronouns. That she is searching for a lexical item is first indicated at line 3 when she stretches the vowels of both '*sh:*' and '*she::*' and subsequently pauses. Whilst production of '*s:*' is difficult to interpret, '*name*' is hearably a substitute for the specific name of the character. Indeed, T orients to '*name*' with a clear labelling of the searched-for item in line 4 ('*This is Mary*'). The final downward intonation here suggests that T's label is not tentative. It could be argued that T is supplying a correction, in the pedagogical sense, rather than offering a candidate lexical item for either acceptance or rejection. At line 5 C accepts the 'correction' by reformulating her earlier idea and incorporating T's name, thus concluding the repair sequence. Another notable feature is that Ciara's gaze remains consistently fixed on the figurines from lines 2-7. According to previous studies and evidence from extracts 1 and 2, this provides additional confirmation that T is not invited to participate in her search. Production of the semantic category label is powerful, then, since it triggers T's involvement, despite lack of direct invitation by gaze.

A conventional design of self-initiated other-repair (SIOR) characterises Ciara's search in extract 4. Syntactically, it takes the form of the standard *wh*-question, although it contains additional lexical elements and is co-ordinated with key gaze and gestural components that serve to cue the teacher's involvement in the search. The sequence takes place in a small group activity where four children are talking about characters that they have drawn in an earlier lesson.

**Extract 4: Wh-question, gaze and gesture (SIOR)**

- 1 T Oka:y? (.) who's this?  
*((pushes Julie figure to C))*
- x----figure-----''writing-----  
 2 C (1.0) Uh:: (2.2) uh:: (.) mm what's it say?  
*((\*RH takes Julie)) ((leans, \*LH points at writing in front of T))*
- 3 T Julie? (.) is that Julie.
- writing-----  
 4 C Yeah Ju[lie  
 5 T [Julie what does.....

\* *RH* = right hand; *LH* = left hand

The teacher starts with a *wh*-question that invites recall of the character's name that Ciara had chosen earlier in the lesson. Alongside her spoken words, the teacher establishes the referent of the question with a gesture involving the figure. She specifically positions C to answer the question by pushing the character picture in her direction and maybe by gaze invitation, although it is not possible to confirm this since her head is sideways to camera. The silences and sound stretches at line 2 indicate that the character's name is not readily available to Ciara. She then attempts resolution by making a direct request for the lexical item, which takes the form of a

*wh*-question. It is significant that the *wh*-question does not have the open format ‘*what is it?*’ (Schegloff et al, 1977). Moreover, Ciara employs a specific verb ‘*say*’ that supplies the teacher with a clue that the searched-for item is written down in her exercise book. That C’s request is directed at the teacher, rather than a self-directed question, is not indicated by gaze in line 2. Rather, participation of the teacher is actioned by the accompanying hand gesture which positions her to take the turn and assist in the search. T immediately supplies the name at the start of line 3, and then seeks confirmation because, according to evidence earlier in the interaction, it was C who had originally invented the character’s name and therefore arguably possessed superior knowledge.

Extract 5 illustrates an altogether different phenomenon whereby Ciara supplies herself with a phonological self-cue that triggers the teacher’s participation in production of the searched-for item. In terms of the context, Ciara and her teacher are discussing some pictures in an exercise book that have been selected by the child for the purpose of joint discussion at school and at home. The current page contains pictures of a selection of musical items, including a guitar, keyboard and CD player.

**Extract 5: Phonological self-cue**

- x----picture-----

1 T It’s a guitar isn’t it
- x----picture-----

2 C Guitar a CD player (.) to put CD (.) and a (2.0) uh:m (1.5) u uh::(1.0) kuh (.) kuh
- 3 T It begins with kuh doesn’t it ke::yboard isn’t it
- x-picture---

4 C Keyboard
- 5 T Ke::yboa:rd what do you do.....



The teacher's initial labelling of '*a guitar*' and her tag question are treated by C as an invitation to 'tell more' about the topic of musical things that we can see in the picture. In line 2 C begins a listing of items, beginning with a repeat of the teacher's label, followed by a second item ('*CD player*') with some additional information. So far, the turn proceeds without overt hesitation. It is during Ciara's search for a third item that she encounters difficulties with fluency, indicated by several pauses, lengthened vowels and production of two single consonants '*kuh*'.

The teacher could have introduced a candidate item herself during any of C's pauses (latter part of line 2) but remains silent throughout. It is notable that T waits until C produces two attempts at the initial consonant before she takes her turn. One possibility is that the teacher is orienting to the focus of C's gaze, which is maintained on the picture and does not shift in her direction. In fact T never, throughout C's turn at line 2, receives a direct invitation by gaze to participate. Production of the consonant sound '*kuh*' performs two important jobs simultaneously. On the one hand it triggers T's collaboration and, at the same time, provides sufficient clue for T to select the correct item (line 3). The availability of the picture as a joint visual resource would also facilitate T's production of the searched-for item and assist in a swift resolution to the child's wordsearch. It is also worth examining some of the implications of T's turn design at line 3, from a pedagogical perspective. In the first part of the turn, T confirms C's use of the initial consonant even though it failed to lead C to the searched-for item. The teacher is making visible the use of a phonological self-cue strategy in a word search context, which has interesting implications from a teaching and therapy perspective.

The final example of Ciara's strategies (extract 6) shows her use of filler words ('*it*' and '*that*') in substitution for yet another elusive noun. How these apparently vague referents assist the teacher to collaborate in successful resolution of the search is now explored. The context for this extract is the same dyadic activity seen in extract 5. C has just turned the page to reveal a new picture that shows an astronaut floating around in space.

### Extract 6: Pronominal substitution

- 1 T And there's you've got another picture with an astronaut. haven't you.
- 2 C ((*nods*))
- 3 T Do you think that's the same one?
- x \_\_\_\_\_ book \_\_\_\_\_
- 4 C Yeah trying to get to (.) it
- 5 T Trying to get to what?
- x \_\_\_\_\_ book \_\_\_\_\_, T \_\_\_\_\_
- 6 C Trying to get to like that that  
((*points at picture*))
- 7 T To that planet.
- 8 C That planet
- 9 T Yeah how comes he was floating around like that

The teacher's question at line 3 refers to whether or not the astronaut in the current picture is the same one that they had viewed on an earlier page in the book. C responds affirmatively and adds information about the astronaut's journey that includes the pronoun '*it*' instead of the name of the destination. T treats the pronoun as problematic by asking for clarification in line 5. The teacher's clarification request has an interesting design since it is formulated as a request for specification of the vague referent. There is partial recycling of the child's material from the previous turn, followed by a *wh*-question that precisely locates the source of trouble as the final

word. At this juncture, T is continuing to allocate responsibility for the choice of word to the child who, at line 6, makes a further attempt to label the destination of the astronaut's journey. On this second occasion, instead of finding the word, C substitutes the pronoun '*that*' and repeats it. That the teacher's participation is invited during production of these pronouns is indicated by the child's simultaneous gesture at the picture and the shift of gaze from the book to the teacher's face. The teacher then has no hesitation in supplying a candidate noun phrase, which is accepted, with repetition by C, in line 8.

The key verbal resources at the child's disposal are use of the pronouns at lines 4 ('*it*') and 6 ('*that*'). Although they lack precision in terms of their reference, they supply crucial information to T that the searched-for item is a noun. The syntactic frame of the child's turns also provides a further clue since an adverbial phrase proposes a place name to be the relevant next item. Indeed, through on-line syntactic analysis of this information the teacher is able to produce the lexical item. Furthermore, the child's hand gesture, which is a point at the relevant picture, cues a shared visual resource that serves to focus the teacher's attention and give a further clue.

### **Summary and conclusion**

This paper offers a systematic examination of a dataset of word-finding behaviours (pauses, repetition, filler words, silence, etc) displayed by a child who experiences word finding difficulties. Fine-grained analysis of the design features in their sequential contexts affords a richer interpretation of the child's actions. First of all, the analysis demonstrates how the child's turns are constructed with verbal elements

alongside silence, downward gaze and prosody to accomplish the action of maintaining the turn until the lexical element is retrieved. Such a pattern of behaviours may be compared to the so-called ‘solitary’ word searches in adult-adult talk (Goodwin and Goodwin, 1986). The teacher clearly interprets these behaviours as non-turn final: the child is engaged in self-directed activity and is not soliciting the participation of the teacher. In a sense, then, the adult is collaborating with the child by tolerating the silences and search behaviours in order to afford the child the valuable opportunity to retrieve her word.

In contrast with solitary searching, both verbal and non-verbal interactional techniques mobilise the adult into participation in the child’s search. Direct invitations (Oelschlaeger, 1999) are constructed either by *wh*-question or by gaze shift. Rather than a standard *wh*-question (Schegloff *et al.*, 1977), the child includes semantic elements and gesture that clarify the target of the search. According to interviews with the teacher, this technique is taught explicitly to the child in the specialist language resource setting during therapy tasks and small language groups. Interaction analysis therefore provides evidence of spontaneous usage by the child in a real time context. Gaze direction and the timing of gaze shift are used competently to signal the abandonment of solitary searching. When searching alone, gaze is maintained on the local visual resources, such as the pictures of a book on the table. In contrast, gaze is directed towards the teacher in order to signal an invitation to participate in her search. It is thus used by a child who experiences a specific language difficulty in a comparable way to how it is accomplished in adult-adult talk (Goodwin and Goodwin, 1986) and in aphasic interaction (Oelschlaeger, 1999).

It is of further interest to note that the child's searches are not constructed solely with elements that lack linguistic information (e.g. uh:: ; silence). Rather, the child displays a range of competent linguistic behaviours: syntactic, semantic and phonological. These designs, through the on-line linguistic analysis of the teacher, afford valuable resources with which to work out the target element. For example, the semantic category label ('*name*') defines the semantic field of the noun being searched for. A contrasting semantic device is reported in aphasic interaction whereby a specific noun ('*blouse*') is employed alongside gesture to indicate to the conversational partner a wider semantic domain (i.e. all clothes) (Helasvuo *et al.*, 2004). Similarly, phonological self-cueing, does more work than simply assisting in the activity of solitary searching. It has the pedagogical effect of getting the teacher to reinforce the use of a taught word search strategy and cues her production of the noun. Finally, pronominal substitution, which at first appears to be empty of semantic content, yields valuable syntactic information to the adult that a noun is needed.

A different finding in the current classroom data is that the aforementioned verbal resources are strong triggers for adult collaboration, even in the context of gaze withdrawal. Despite the absence of a direct invitation (shift of gaze towards the teacher), it is notable that both the *wh*-question and phonological self-cue triggered the adult's involvement to provide the lexical item.

As far as employment of hand gestures is concerned, according to the available data the child's usage differs from that by adults during searches. Whereas adults with aphasia make use of iconic gestures that supply a semantic clue to the conversational partner (Helasvuo *et al.*, 2004), none were found here. Ciara's gestures take the form

of pointing at pictures and moving materials towards the teacher. They are thus directed mainly at the local visual resources that the teacher regularly uses to support oral language teaching in small groups. That these resources are visually shared between the teacher and the child is an important component of an oral language lesson. Whether absence of symbolic gestures reflects the fact that a child with a developmental language difficulty lacks a fully established linguistic and gestural system, or whether the gestures are influenced by the local context of the interaction (visual teaching resources), remains unclear. More data will be needed to clarify this issue.

The findings have several implications for teaching and therapy practices and for training providers. Sensitive withhold of a candidate lexical item or correction is recommended in order to maximise opportunity for self-repair. The importance of accepting children's silence after teacher questions is already acknowledged in the literature because of the potential to improve the quality of children's responses (Walsh and Sattes, 2005). Silences during word searches operate differently because they occur at a non-completion point during the child's turn. Tolerance of these silences is important, especially when gaze is averted and pitch height indicates non-completion of the turn. Adults could model appropriate direct invitation techniques such as specific *wh*-questions ('What is it called?'; 'What does it begin with?') and support their use during interaction. Teachers and therapists could also model self-repair strategies in a variety of linguistic domains. Examples from the current data include: phonologically, an initial sound self-cue strategy; semantically, category information; syntactically, a sentence frame fitted to the elusive noun.

This study explicates the systematic deployment of several competent, adult-like practices by a child during word searching in a classroom setting. A wider range of cases will need to be studied in order to verify the current findings and uncover fresh strategies, particularly with respect to the interaction between prosody and grammar. An avenue for further immediate research is to conduct fine-grained analysis of the adult's collaborative strategies (compare similar work in aphasia: Oelschlaeger and Damico, 1998) so that teaching and therapy practices can be further illuminated.

#### Notes

<sup>1</sup> The author would like to thank Juliette Corrin for several insights in this analysis.

<sup>2</sup> The author is also indebted to Merle Mahon and an anonymous reviewer for their valuable comments on earlier drafts.

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### Appendix 1: Transcription of gaze, gesture and prosody

Gaze and gesture adapted from a system used by Oelschlaeger & Damico (2000), originally devised by Goodwin & Goodwin (1986). Marking of pitch height follows the conventions used by Corrin, Tarplee & Wells (2001).

1. Gaze of the speaker is marked above or below the turn at talk. A line without orthographic description (----) indicates that the speaker is gazing towards the listener.
2. x marks the beginning and end of the direction of gaze.
3. ,, indicates a shift of gaze from one direction to another.
4. Specific gaze direction is described orthographically through indication of the person or place or the direction of the gaze (e.g. initial of person, or book). Continuous gaze at an object is indicated with a broken line: x---book---x.
5. Gesture is described orthographically in italics e.g. *((points))*; where there is simultaneous talk, it is placed below the spoken words. Continuous gesture is indicated with a line *((book \_\_\_\_\_))*.
6. Pitch height is shown orthographically above the turn at talk, between two straight lines that indicate the speaker's typical range.

Table 1: Ciara's reported language difficulties and language intervention programme

<i># Specific language difficulties</i>	<i>Language teaching goals</i>	<i>Language teaching strategies</i>	<i>Strategies when in difficulty</i>
<p>*Expressive syntax</p> <p>**Naming &amp; word retrieval</p> <p>*Word meaning</p> <p>*Receptive difficulties</p> <p>**Pragmatic difficulties</p>	<p>Verb tense: past &amp; present</p> <p>Cause &amp; effect</p> <p>Vocabulary: maths &amp; science; position</p> <p>Topic maintenance</p> <p>Response to questions</p>	<p>Visual &amp; concrete props</p> <p>Breaking down tasks</p> <p>Modelling &amp; rehearsal of target forms &amp; strategies</p>	<p>Give prompts &amp; cues</p> <p>Slow her down</p> <p>Give visual connection to each part of task.</p>

Key: # Each column is presented as a list  
 \* mild difficulties; \*\* moderate difficulties