NATURALISTIC INTERVENTION IN THE DEVELOPMENT OF CHILDREN’S COMMUNICATIVE AND LINGUISTIC SKILLS

Marta Gràcia and Maria José Galván

1. Introduction

Based on socio-historic ideas of development and on functional and interactive theories, the hypothesis that the way parents communicate with their children is decisive in the latter’s linguistic development has been entertained (Bruner 1977; Vygotsky 1977; Lock 1980; Kaye 1982; Moerk 1983). Such views have been moderated with time and it is clear that the communicative environment of young children is not the only exclusive factor in determining the child’s language development, but it is indeed an extremely important one.

Many authors have studied communicative and linguistic interactions between adults and normal or communicatively disabled children (Cross 1977; Snow 1984; Conti-Ramsden 1990; Moerk 1992). Most of this work reveals the importance of these interactions where adult and child are involved, as well as the characteristics of the language used with the child (formal aspects and those related to conversation management or educational strategies, for instance) and they also show adults’ linguistic adaptations.

An analysis of the interaction between adults and children in our context has enabled us to identify interactive patterns and establish a system of categories (del Rio and Gràcia 1996) which we have used in several pieces of research (Sánchez 1994; Gràcia 1998). It has also allowed us to devise naturalistic intervention programs which can be employed in family and school settings (Vilaseca and del Rio 1997; Urquía 1998). These programs are strongly influenced by the “interactive model” (Tannock and Girolametto 1992) and “milieu teaching” (Kaiser, Yoder and Keetz 1992) and by our experience in the applied field.

The interactive model appears to have emerged from the concern that parents of children with disabilities tend to be directive and non-responsive, causing them to ignore their children’s communicative attempts (Mahoney and Powell 1988). Interactive procedures or “responsive interaction” are used with the aim of increasing opportunities for providing models appropriate to the child’s focus of attention.

Vilaseca and del Rio (1997) carried out a naturalistic intervention in the context of a linguistic therapeutic session with interesting results which reveal the possibility of improving morphosyntactic aspects in this kind of interventions, just as was proposed in

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"milieu teaching" and "interactive" models. Later on, Sánchez (1994) and Urquía (1998) implemented naturalistic interventions in normal and special school contexts with successful results. Finally, the work which is presented in this article (study 1), consists of an intervention study in familial context. The result obtained in this latest work show the possibility of improving some aspects related to the quality of parent-child interactions.

In addition, insufficient attention has been given in our culture and language i.e. Spanish to the matter of a tool for evaluating such interactions between adults and young children. We think that such a tool is essential for designing suitable interventions from both an educational and clinical viewpoint and in this study we reflect on this possibility.

2. Objectives

The first aim of this paper is to analyse communicative and linguistic interactions between adults and developmentally retarded children using our system of categories. This system is divided into three main sections: 1) Communication and conversation management; 2) Adaptation and adjustment of the language addressed to the child by the adult; 3) Educational strategies.

The second aim is to improve the quality of such interactions by implementing an adult-targeted naturalistic intervention strategy to accelerate children’s communicative and linguistic development.

The third aim is to devise an instrument for assessing the quality of the interactions between adults and learning-delayed children that can be used by professionals working in schools and early intervention services.

These three aims have been pursued in two different, though closely related, studies. We shall therefore divide this paper into two parts. Study 1 and Study 2.

3. Interactions between parents and children: “good versus improveable” interactive styles

As already noted, some investigators have argued that parental speech to atypical language learners is different from that to normally developing children (Stoneman, Brody and Abbot 1983; Mahoney and Powell 1988), while on the other hand, other researchers have suggested that parental speech to atypical language learners is similar to that to normally developing children (Conti-Ramsden and Friel-Patti 1983; Fisher 1987). In most cases, the different findings are attributable to questions of methodology (Conti-Ramsden 1994). Firstly, the populations studied include children with very diverse disabilities, making it impossible to know which of the children’s characteristics - language difficulties, cognitive limitations or speech problems - explain these differences. However, the conclusions of studies confined to extremely well-defined populations can hardly be generalised to other populations. Moreover, the groups with which the atypical children are compared also vary from one study to another. Another problem is that research with atypical children has moved away from a focus on syntactic aspects to a focus on more pragmatic features, which partly explains why the findings should be contradictory.

At this point it is possible to state that interactions with atypical language learners
share many of the characteristics observed in interactions with normal children (Conti-Ramsden 1985). However, there may be slight variations in specific aspects (Conti-Ramsden 1994). A clear example of such studies is that by Lasky and Klopp (1982) which concludes that the same input can have different consequences depending on the characteristics of the adult-child dyad. Regarding differences in parentese, studies specifically looking at semantically contingent responses have also come up with contradictory results. Some investigators have found that mothers or atypical language learners use fewer semantically contingent utterances than mothers of normal language learners (Koening and Mervis 1984; Mahoney and Powell 1988) while other researchers have found that the linguistic environment of atypical language learners is similar, in terms of semantic contingency, to that of normally developing children (Lasky and Klopp 1982). In addition to the methodological differences already mentioned, there are other elements that may account for these discrepancies. For instance, investigators are increasingly aware of the role played by individual differences in their findings. In other words, although overall group results present certain differences or similarities, a closer look at the differences reveals heterogeneity within the group: Some parents behave much more like the parents of normal children than others. Another problem that has to be considered has to do with the issue of the comprehension status and age difference between atypical language learners and control groups. One clear conclusion reached by some of the studies making these comparisons is that the characteristics displayed by the child influence the language its parents address to it and in some cases this may cause the parents not to employ the most appropriate strategies - i.e. lower use of recasts - for their children’s language. To put it another way, adult-child-directed speech to atypical language learners may have the potential for exacerbating the children’s problem (Conti-Ramsden 1990).

One of the themes receiving the most attention in the literature on parent-child interaction with atypical language learners has been parents’ directive style. Investigators have measured this in many different ways, such as counting the use of imperatives, demands, commands and requests or initiations in dialogue. Highly directive parents tend to use language essentially to control the child’s behaviour and attention, rather than as a means of achieving a reciprocal and communicative exchange of information. As in the previous case, the reasons explaining these results emerge from both members of the dyad. Some authors have argued that the fact that the parents know their child is atypical affects their interaction in various ways. With regard to the children, the literature on this subject points out that atypical language learners are more passive in conversational interaction than normal children. This may mean that in order to maintain a conversation with their atypical language-leaner child, parents have to adjust their interactive style, making it more directive, more controlling and more initiating. In interpreting these findings, many authors link parents’ directive style to the child’s slow acquisition of language. This means that the way the investigators define directiveness is crucial (Conti-Ramsden 1994).

In short, research with atypical language learners has shown that these children do not have as many skills as normal language learners for extracting, filtering, organising and using linguistic information and that this, in turn, seems to affect parental input language. Secondly, the characteristics which have been thought of as possibly hindering language growth, such as rejection, directiveness and ill-timing, may be circumvented by the normal language-learning child, whereas the atypical language learner may not be capable of this. Parental language style may thus be a factor in the atypical language learner’s rate of
language development (Conti-Ramsden 1994). Pointing out these well-known facts is not to downplay the value of the instructive input provided in many families. The purpose is to warn against falling into an extreme position premised on generalised optimum input, as such a premise would easily be proved as incorrect (Moerck 1998). These conclusions have led us to introduce the terms good interactions and improveable interactions. Other authors have spoken of "successful versus unsuccessful" dyads in terms of communicative interaction (Conti-Ramsden 1994) or of the "poor quality/reduced quality" of carers' input (Ward 1999).

Taking as our reference point the findings and conclusions arrived at by the above-mentioned studies and bearing in mind that there is still no objective instrument for assessing the quality of interactions, we shall speak of improveable interactions when the degree of adult directiveness is very high, the degree of adult responsiveness low, there is an imbalance in turn-taking, the parents fail to focus interaction sufficiently on the child's interests, there is little use of strategies fostering language development such as recasts, or when the adults fail to adjust the suprasegmental, phonetic, morphological or syntactic (i.e. MLU) aspects of their speech to the child's linguistic level. On the other hand, we think that by changing these characteristics in terms of increased responsiveness and decreased directiveness, more equal balance in turn-taking, more child-centred speech, closer adjustment of the suprasegmental, phonetic, morphological and syntactic aspects of speech, appropriate use of certain strategies such as imitation and recasts and the use of strategies adjusted and adapted to the specific characteristics of the dyad, it is possible to improve the quality of these interactions and approach what we would call good interactions. This, in turn, as numerous studies suggest, may aid the children's language development (Mahoney and Powell 1986; Girolametto 1988; Iacomo, Chan and Waring 1998).

4. Study I

4.1. Specific aims

To analyse the quality of the interactions between four mothers and their Down’s syndrome children.

To implement a naturalistic intervention strategy directed at the children's mothers in order to enhance the interaction quality of the participants and thus accelerate the children's development and their communicative and language skills.

4.2. Method

4.2.1. Subjects

The subjects were four mothers and their Down's syndrome children. The children's ages ranged from 3 years and 2 months to 7 years and 8 months. Their overall developmental age was between 26 and 36 months (see Table 1). Developmental age was obtained by
administering the McCarthy Scales of Children’s Abilities (1972). Language development was assessed by use of the Preschool Language Scale (PLS) (1969).

Table 1
Children’s ages

<table>
<thead>
<tr>
<th>Child</th>
<th>Chronological</th>
<th>Overall</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>development</td>
<td>Development</td>
<td>Development</td>
</tr>
<tr>
<td></td>
<td>age</td>
<td>age</td>
<td>age</td>
</tr>
<tr>
<td>David</td>
<td>3;2</td>
<td>2;5</td>
<td>2;2</td>
</tr>
<tr>
<td>Lidia</td>
<td>4;8</td>
<td>3;0</td>
<td>2;0</td>
</tr>
<tr>
<td>Laia</td>
<td>6;4</td>
<td>3;6</td>
<td>3;0</td>
</tr>
<tr>
<td>Xavi</td>
<td>7;8</td>
<td>3;0</td>
<td>2;10</td>
</tr>
</tbody>
</table>

4.2.2. Procedure

Videotape recordings and transcriptions

The mother-child dyads were recorded once a week for six months at home while playing. Fifteen-minute CHAT format transcriptions were made of a selection of 15 of these recordings.

Intervention process

In the six months following the first two sessions (R1 and R2), a naturalistic intervention strategy was implemented with the mothers. The intervention consisted, firstly, in the analysis of the videos and direct observations of the interactions. Secondly, a series of home interviews were carried out with the mothers. The videos were analysed and discussed with the mother in order to jointly detect aspects of mother-child interaction that could be modified with a view to improving the interaction quality.

The suggestions included, among others: Observing how the child communicates before starting a conversation and following the child’s lead, interpreting and imitating the child’s gestures, etc. (Gràcia and del Rio 1998). All the suggestions were closely related to strategies which had been analysed during the first two recorded sessions in accordance with the categories system in Table 2.

Data analysis

All the transcribed interactions were analysed in accordance with the categories system summarised in Table 2. In the initial state (first two recordings) these categories proved useful in completing the intervention design. After that, they were useful in assessing the
evolution of the interactions and the changes occurring in both the mother’s and the child’s ways of interacting.

**Table 2**

*Interaction analysis categories (based on del Rio and Gràcia, 1996)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Communication and conversation management strategies</strong></td>
<td></td>
</tr>
<tr>
<td>Turn density index</td>
<td>Number of communicative acts per turn.</td>
</tr>
<tr>
<td>Communicative sequence initiation</td>
<td>A communicative act by a participant through which s/he makes a request or suggests a topic, activity or object of interest to the other participant.</td>
</tr>
<tr>
<td>Behaviour and attention regulation</td>
<td>A production by the mother, unrelated to the interaction topic, by means of which she tries to regulate the child’s attention and behaviour.</td>
</tr>
<tr>
<td><strong>II. Input adaptation and adjustment</strong></td>
<td></td>
</tr>
<tr>
<td>Unvocalised nonverbal communicative acts</td>
<td>Gestures or signs made by the child or mother to the other interlocutor without vocalisation.</td>
</tr>
<tr>
<td>Vocalised nonverbal communicative acts</td>
<td>A production by the mother or child consisting solely of a vocal emission or a phonetic chain that is not regarded as a word.</td>
</tr>
<tr>
<td>Verbal communicative acts or utterances</td>
<td>Any verbal production, isolated word or set of words with a meaning emitted by the mother is considered an utterance. The criterion for classifying a vocal emission by the child as an utterance is that it should contain at least one word.</td>
</tr>
<tr>
<td>Mean utterance length index</td>
<td>Mean number of words per utterance.</td>
</tr>
<tr>
<td>Lexical diversity index</td>
<td>Number of different words as a proportion of total word production.</td>
</tr>
<tr>
<td><strong>Other input adjustments</strong></td>
<td></td>
</tr>
<tr>
<td><strong>III. Educational strategies</strong></td>
<td></td>
</tr>
<tr>
<td>Interpretation</td>
<td>An utterance by the mother which attributes meaning to a prior vocalisation or gesture by the child which is unintelligible to her.</td>
</tr>
<tr>
<td>Identical imitation</td>
<td>A vocalisation which exactly repeats the child’s prior emission.</td>
</tr>
<tr>
<td>Expansion</td>
<td>A contingent utterance which takes a prior utterance by the child and completes it without altering its essential meaning.</td>
</tr>
<tr>
<td>Implicit correction</td>
<td>An utterance which corrects an utterance by the child in a non-explicit manner without adding any words.</td>
</tr>
<tr>
<td>Explicit correction</td>
<td>An utterance by means of which the mother makes explicit that a given utterance by the child is incorrect.</td>
</tr>
<tr>
<td>Positive feedback</td>
<td>An utterance providing positive feedback by approving, confirming or praising the child’s prior verbal or nonverbal communicative act.</td>
</tr>
<tr>
<td>Negative feedback</td>
<td>An utterance by means of which disapproval of a given communicative act by the child is expressed.</td>
</tr>
<tr>
<td>Action request</td>
<td>An utterance in the form of an order or question which expects a response from the child.</td>
</tr>
<tr>
<td>Choice question</td>
<td>An utterance by the mother in the form of a question giving the child a choice of two replies.</td>
</tr>
<tr>
<td>Potentially educational sequences</td>
<td>Sequences made up of three, four or more turns by each participant comprising at most two communicative acts. Each of the mother’s turns includes at least one communicative act classified as imitation, interpretation, expansion or implicit correction.</td>
</tr>
</tbody>
</table>
4.3. Results and discussion

We shall now present the quantitative results of our work in regard to each of the three sections of the coding system. The results of only one or two dyads are presented in graph form for illustrative purposes.

Communication and conversation management

The first graph (Fig. 1) shows the joint evolution of the turn density index for the dyad formed by David and his mother.

![Graph showing turn density index for mother and child](image)

Fig. 1. Mother's turn density index (MTD) and child's turn density index (CTD) for each recording session: mother-David dyad.

We interpret these results, as well as those for the other dyads, which are very similar, as reflecting an adjustment of the participation in the interactions of the two members of the dyad. Overall, the mother gradually took up less communicative space, which appears to have helped the child to increase his participation, eventually leading to a balanced turn density between the two.

Over the course of the intervention period we observed a decrease in the use of behaviour and attention regulation, especially in those mothers who initially (R1 and R2) over-used it. David’s mother provides the clearest example of this adjustment (see Fig. 2). We interpret these results as showing that intervention generally helped the mothers to manage the conversation situation differently from how they had done so prior to intervention. For example, they increasingly listened to the children, followed their interest and their lead, allowed them more room to interact communicatively, etc. This brought with it decreased use of regulation strategies.
The initiation profile seen in Fig. 3 is representative of all the dyads and is interpreted as a result of the mother’s following the suggestion to let the child initiate communication, not to control the situation, to let the child choose and to follow the child’s lead. The conclusion we have drawn is that the children soon came to take the lead in the interactions while the mothers became more attentive to their needs and took up their proposals.

Adaptation and adjustment of the language addressed to the child by the adult

One finding with all the dyads was that the mother’s utterance frequency declined over the intervention period while the child’s increased. The results for Laia and her mother can be seen in Fig. 4. We interpret these results as a consequence of the mothers’ taking up a number of our suggestions, such as allowing the children more room to make an utterance and furnishing them with models slightly above their current level. The children’s results are interpreted as a consequence of these changes in the mothers’ behaviour.
These results reflect a gradual trend towards the construction of a discourse in which most
turns consist of a single production.

Fig. 5 shows the mean length of utterance (MLU) for Laia and her mother. As with
most of the findings regarding the children's enhanced language development, we are
cautious in our interpretation of this result. Nonetheless, the variations in the children's
linguistic level over the intervention period (increased word frequency, increased utterance
frequency, increased MLU) lead us to believe that the input adaptation and adjustment
characteristics of the interactions during, and at the end, of the intervention period
facilitated the children's increased productivity, especially in comparison with the first two
video recordings (R1 and R2).

Educational strategies

Major changes in the interpretation and imitation strategies taking place over the
intervention period can be seen in Fig. 6 for the dyad formed by David and his mother. It
should be pointed out, however, that a lot of the variation had to do with the type of activity
being performed. Lidia’s mother also considerably raised the frequency of her use of the interpretation strategy, thereby increasing her use of the expansion strategy. At the same time, the child’s utterance frequency also increased.

![Graph showing frequency of mother's interpretations (INT) and imitations (IMI) per recording session: mother-David dyad.](image)

**Fig. 6.** Frequency of mother’s interpretations (INT) and imitations (IMI) per recording session: mother-David dyad.

Another finding which is worth highlighting is the decreased use of requests by David’s mother. This change is interpreted as a decrease in her directiveness, since she had asked the child a lot of questions, probably more than might be thought appropriate for his linguistic skills, during the initial sessions.

Perhaps what best illustrated the improved quality of the interactions in regard to the use of appropriate educational strategies are potentially educational sequences. The graph in Fig. 7, which gives the results for Lidia and her mother, is representative of all the dyads. We have interpreted this result in all cases as a consequence of a far more appropriate and contingent use of educational strategies by the mothers in their interactions with their children.

Elsewhere (del Rio, Vilaseca and Gràcia 1997; Gràcia 1998) we have presented more qualitative results consisting of an analysis of dyadic interaction sequences from the first to the final sessions. Such an approach often affords a clearer illustration of the gradual small variations in interaction style and the influence that the changes in one of the members of the dyad has on the other.
5. Study 2

5.1. Introduction

As an immediate consequence of the research described above, the possibility and the need arose for designing a tool for evaluating the quality of adult-child interactions.

In short, we seek to elaborate a tool to be used in clinical, educational and research fields which may help professionals to develop their intervention designs more precisely. These new models of intervention, instead of developing programs in which only the child and the therapist appear, try to involve the child and adult interlocutors in order to create what we could call an intervention unit.

Information given by the assessment tool is fundamental in order to adapt the intervention program for the specific styles and features of each dyad.

5.2. Specific aims

To design an assessment tool from a naturalistic perspective that would enable adult-child interaction quality to be evaluated in relation to communication and language skills development.

To use this tool to devise new intervention models in which the objects of the intervention would be the children's interlocutors, the children themselves and their social and linguistic environment.
5.3. Procedures

Based on the results of the previous piece of research and with a view to obtaining study data, the initial test design included procedures such as interview, questionnaire, direct observation and observation of a video recording.

Interview

The interview is divided into two parts. The first part (I) is of a general nature and is similar to a classical clinical interview, whereas the second is more specific and focuses on interaction, communication and language. The objective of the first part is to obtain personal and job details, a clinical and general developmental history, so on and so forth. The second part (II) has a threefold objective: To determine the child’s communication and language development history; the adults’ reactions to, and expectations of, the child’s retardation; and the educational interactive situations most frequently set up by the adults.

Obviously the replies to the request for information about these three areas will be provided by the adults according to their own criteria and it will be up to the interviewees to draw their own conclusions regarding the parents’ awareness of communication and language development, what they expect from, and their possible degree of involvement in, the assessment and subsequent intervention stages.

Table A gives an example of the kinds of topics on which the interview questions are to be based.

Table A

<table>
<thead>
<tr>
<th>Interview II. Communication and language</th>
</tr>
</thead>
<tbody>
<tr>
<td>General kinds of topics on which specific questions are to be based</td>
</tr>
<tr>
<td>Examples</td>
</tr>
<tr>
<td>- Adult-child understanding</td>
</tr>
<tr>
<td>- Child’s ways of communicating.</td>
</tr>
<tr>
<td>- Adults’ behaviour.</td>
</tr>
<tr>
<td>- Adults’ wishes regarding:</td>
</tr>
<tr>
<td>- Child’s ways of communicating.</td>
</tr>
<tr>
<td>- Their own ways of communicating.</td>
</tr>
<tr>
<td>- Communicative activity functions.</td>
</tr>
<tr>
<td>- Adults' resources for fostering their child's communication and language skills development.</td>
</tr>
<tr>
<td>- Adults' expectations.</td>
</tr>
</tbody>
</table>

Questionnaire

The second procedure is a questionnaire to be filled in by the adults. Its aim is to provide information about the families’ language environment and details of their daily life. Table B also shows the kind of general topics on which the specific questions are to be based.
Table B

**Questionnaire**

<table>
<thead>
<tr>
<th>General kinds of topics on which specific questions are to be based</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examples</strong></td>
</tr>
<tr>
<td>- Make a family 24-hour clock to establish a routine and activity timetable.</td>
</tr>
<tr>
<td>- Family’s reading habits.</td>
</tr>
<tr>
<td>- Have they got picture books and story books at home?</td>
</tr>
<tr>
<td>- Are these books within the children’s reach?</td>
</tr>
<tr>
<td>- Entertainments.</td>
</tr>
<tr>
<td>- What toys does your child like?</td>
</tr>
<tr>
<td>- Are they within his/her reach?</td>
</tr>
<tr>
<td>- Where does your child play? What room has s/he got to play in?</td>
</tr>
<tr>
<td>- Does your child like watching television?</td>
</tr>
<tr>
<td>- Do you usually watch TV with him/her and comment on the things you see?</td>
</tr>
</tbody>
</table>

**Direct observation**

The twin objectives of this third procedure, direct observation, are to establish the parents’ and child’s communicative and linguistic skills.

This observation is carried out in a setting specially designed to resemble a natural situation as closely as possible. The parents are asked to engage in an activity which the observer has judged to be the most informative. The observer decides whether the child’s own toys should be used, or particular toys depending on the child’s developmental age, or both.

Table C gives an example of the method currently being worked on.

Table C

**Direct observation**

<table>
<thead>
<tr>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a setting specially designed to resemble a natural situation parent(s) and child engage in a joint activity.</td>
</tr>
</tbody>
</table>

- Materials chosen by the family

- Materials chosen by the observer based on his or her own judgement and the child’s developmental age.

  * 0 - 12 months: Playing with a doll that makes a noise.
  
  * 10 - 18 months: Banging.
  
  * 10 - 18 months: Putting one thing inside another.

  * Older: Sitting on the floor and playing with a ball.
  
  * Very easy jigsaw/lift-out puzzle.
  
  * Looking at picture book.
  
  * Doll’s house or farm.
Video-taped observation

The last procedure, video-taped observation, differs from direct observation in that families themselves are asked to film two interactive situations. These can be specific to each family, or all the families involved can be requested to record the same situations, for instance, lunchtime and playtime. The reason for this procedure is that the observer’s presence might have an effect on family member’s behaviour.

5.4. Assessment design

Having defined the procedures, we now move on to the assessment criteria. These are similarly based on the category system which proved to be suitable in Study 1 and which underpins the preparation of our assessment tool. The data obtained via the procedures described above are evaluated from three different angles: Communication and conversation management; adaptation and adjustment of the language addressed to the child by the adult; and implicit educational strategies. This evaluation is both qualitative and quantitative, although the data given here are only of the former type.

The observer exercises his or her judgement with respect to the different areas comprising the three sets of items in the categorisation system listed in Table 2. This assessment will make use of different criteria for each block. In the first block, in keeping with our approach, the interaction of both interlocutors will be evaluated, while in the second and third blocks only the adults will be assessed, although this assessment will take into account that the adults’ actions will be continually influenced by the child’s communicative and linguistic skills and characteristics. Tables D, E and F give an example of one area of each of these blocks, suggesting the types of questions the observer should ask in order to make his or her assessment.

The observer will then use his or her conclusions to define the family’s interactive profile, specifying both the aspects to be improved and those that need to be introduced. Naturally these aspects will play a major role in designing the subsequent intervention program.
### Table D

**Qualitative assessment - conversation and communication management:**

**Establishing and organising interactive situations**

The observer will make a judgement on the following:

- Does the adult often establish and organise interactive situations which are potentially enhancing language development?
  - Are they sufficient?
  - Are they appropriate?
  - Do they last long enough?
  - Are the materials used appropriate to the child's developmental age?
  - Are the materials within the child's reach?

- The child's responses in interactive situations.
  - Non-verbal responses, gestures, looks, smiles, motor excitement, etc.
  - Verbal responses, unintelligible verbalisations, requests, questions, etc.
  - Makes non-verbal anticipatory responses, gestures, points, picks up a toy, etc.
  - Makes verbal anticipatory responses, unintelligible verbalisations, requests, etc.

### Table E

**Qualitative assessment - Formal adaptation of the language addressed to the child by the adult: Suprasegmental adjustments**

The observer will make a judgement on the following:

- Does the adult use a pleasant intonation?
- Does the adult speak slowly, without rushing?
- Does the adult use a sweet tone?
- Does the adult use exclamations and onomatopoeias?
- Others...

### Table F

**Qualitative assessment - Implicit educational strategies: Expansions**

The observer will make a judgement on the following:

- Does the adult complete the child's utterance?
  - By correcting it phonetically?
  - By correcting it morphologically?
  - By correcting it syntactically?
  - By converting a positive utterance into a negative?
  - By converting a statement into a question?
  - By adding a second or third utterance?
- Others...
6. General discussion and concluding remarks

Studying communicative and linguistic interaction between mothers and their Down’s syndrome children using the specially devised categories system has shown itself to be a useful and valid way of designing naturalistic intervention programs with mothers.

By means of naturalistic intervention - consisting in assessing mother-child interactions in natural contexts - we were able to improve certain aspects of the communicative and linguistic interaction between the mothers and their children. Furthermore, improving the quality of the interactions raised the childrens’ level of communicative and linguistic skills in a number of important aspects.

Nonetheless, the above findings need to be taken cautiously. Methodologically, our study 1 did not have a control group. Hence the changes observed over the 6 months of the study may not have been the direct result of the intervention strategies used, but simply the results of developmental progress during the period of the investigation. In addition, the mere act of filming mother-child interactions on a weekly basis and of helping the mothers to take the time to analyse and reflect on their interaction could have had a significant effect, regardless of the content of the intervention per se. There is little doubt that future research involving a control group of matched mothers and children, filmed in the same conditions and for the same amount of time, but without any other intervention, is needed to gather more evidence.

We have presented the preliminary results of a study aimed at designing a tool to assess adult-child interaction with regards to communication and language development. The most suitable procedures for such a tool appeared to be: Interview, questionnaire, direct observation and video-tape observation. It is hoped that research will help refine further this potentially useful assessment tool.

References


