

Pragmatic abilities of blind children.

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A long lasting tradition relates congenital blindness to serious pragmatic difficulties in language acquisition. Keeler (1957) was probably the first who remarked that blind children's language is full of stereotypes and formulas, which are not well adapted to context. Other psychoanalytically oriented scholars (Burlingham, 1961, 1965; Nagera & Colonna, 1965; Wills, 1969) considered the language of congenital blind children as essentially imitative, and, therefore, not well adapted to ongoing discourse. Blind children's language was even considered to be *parroting* (Burlingham, 1965).

The proximity of this description of blind children's language to echolalia of children who suffer from autism is certainly great (Fay, 1973).

In modern days, the similarity between blind and autistic children has been defended by an important number of authors. Peter Hobson has probably been the author who established a theoretical basis to this autistic-like position.

Hobson has suggested that two conditions are needed for an adequate development of mind and personality (Hobson, 1993, 2002). In the first place children need to perceive other people's emotional reactions and attitudes towards the external world. In the second place, children need the ability to establish empathy or identification with other people's emotional reactions and attitudes. By observing these emotional attitudes, children can identify with them and show similar attitudes, which is of essential importance for the development of self and other selves. This, in turn, makes up the psychological basis for understanding minds and for acquiring a theory of mind. Blind children, because of

their lack of vision, are thought to have difficulties in understanding and identifying themselves with other people's attitudes and emotional reactions towards objects, persons, and events. While congenitally blind children are deprived of an essential socio-emotional experience for the development of a theory of mind, since they cannot see the expression of emotional attitudes of other people directed to a shared world, children with autism cannot identify with others' attitudes; in other words they show a substantial deficit in their capacity for empathy (Brown, Hobson, Lee and Stevenson, 1997; Hobson, 2002).

Hobson and colleagues (Hobson, 1993, 2002; Brown et al, 1997; Hobson, Brown, Minter & Lee, 1997; Minter, Hobson & Bishop, 1998; Hobson, Lee & Brown, 1999) suggest that deprivation of this kind of socio-emotional experience may contribute to a range of blind children's social, cognitive and linguistic delays and abnormalities, which results in an overlap in the developmental psychopathology of congenitally blind and autistic children.

More recently Hobson and Bishop (2003) limited the claim of similarity between children with autism and blind children to those blind children who are socially impaired, in contrast to those who are not (which constitutes a circular argument). The former group of blind children showed autistic-like features in an observational study, while the latter did not. Hobson and Bishop (2003) classified both groups of blind children according to the results of the following question directed to their class teachers: "on a scale of 1-5, how would you rate this child 's ability to relate to adults and peers (rated separately), establishing normal mutual interpersonal contact with them?" Those children who were rated 3 or less by their teachers were considered socially impaired (LS), while those who rated higher than 3 were not.

Other authors belonging to a different tradition also shared the idea that blind children have deep pragmatic difficulties. Stereotypical speech and verbal routines of blind children have been related to their imitative speech and to the difficulties that they have in developing a fully creative language based on productive rules (Dunlea, 1989; Andersen, Dulea & Kekelis, 1993). In addition, these authors consider that the conceptual bases of words are deficient in blind people (Dunlea, 1989).

Underlying both positions there lies a common consideration of imitation as non-useful, or even negative for language development, a tradition that goes back to Chomsky's criticism of Skinner's *Verbal Behavior* (Chomsky, 1959). Imitations and repetitions cannot be considered as mechanical in most cases. There are many imitations and self-repetitions that imply interesting processes of linguistic analysis (Pérez-Pereira, 1994). On the other hand, the proposal of *cultural learning* (role reversal imitation) (Tomasello, Cruger & Ratner, 1993; Tomasello, 2000), offers a new interpretation of imitation, which is grounded in socio-cognitive processes. Cultural learning, together with mechanisms of linguistic processing in children, such as those proposed by the *usage based* perspective (Pine & Lieven, 1993; Lieven, Pine & Baldwin, 1997; Tomasello, 2003; Lieven & Brandt, in press) --rote learning, schematic representations, distributional learning, etc.--, lead us to a different interpretation of imitation, quite distant from the old neo-behavioral postulates.

In this talk I will first present an example of research carried out with blind children, which defends the idea of their pragmatic deficit, and will critically comment on this research. Later I will give examples of my research, which offers

results that defend an opposite view: that blind children manage to achieve an adequate use of language.

In recent research, Tadic, Pring & Dale (2010) compared the structural language skills and pragmatic language competence of 15 children with congenital visual impairment (VI) to those of 26 sighted children. All the children were aged 6-12 years and of equivalent verbal IQ. The children were assessed with the Clinical Evaluation of Language Fundamentals 3 (CELF-3), although only 4 out of the 10 subtests integrating the test were used, in order to get an evaluation of their mastering of the structural aspects of language. The children were also assessed with the Children's Communication Checklist (CCC-2) (Bishop, 2003), a 70-item parental questionnaire, as well. This test evaluates everyday language and communication skills, that is, pragmatic language use (scales 5 to 8). The questionnaire also includes two scales assessing possible autistic features. According to Bishop (2003) the CCC-2 is a good instrument to evaluate pragmatic linguistic impairment in children from 4 to 16 years of age.

The results found by Tadic et al (2010) are shown in Table 1 and Figure 1), and seem to indicate that although VI children get good scores in the CELF-3, their pragmatic abilities are seriously impaired. The authors conclude from these results that there are ongoing socio-communicative and pragmatic language difficulties in children with congenital VI at school age, despite their high intellectual abilities and advanced linguistic skills. Their research provides unique evidence that autistic-like characteristics remain prevalent amongst children with some, albeit severely degraded, limited form of vision (Tadic et al, 2010, 702).

These results, however, are not free from doubt. Firstly, the CELF-3 is not an adequate test to be used with blind or VI children. Secondly, because the CELF-3

was not fully applied, its reliability and psychometric qualities are lost or diminished. With respect to the CCC-2, some of their scales do not seem to make much sense when applied to VI or blind children. For instance this seems to be the case with the *use of context* and *non-verbal communication* scales. It is logical that blind or VI children get lower scores in these scales; however this is not necessarily an index of social or pragmatic impairment. In addition, Bishop (2003) indicates that the Social Interaction Deviance Composite (SIDC) (discrepancy between composite scores A-D and E-H), which can be used to group children who have communication impairments, reaches significance when higher than -15, which is not the case in Tadic et al's research (2010). Further investigation of children's communication skills is warranted if they have a score at or below the 10th percentile on three or more sub-scales in the CCC-2. However the results seem to indicate that this is not the case with most of the VI children.

Tadic's study is rather representative of the type of research carried out by authors who defend pragmatic deficits and autistic-like features in blind children. The majority of them use checklists completed by parents or teachers, which detect the presence or absence of certain behaviors. However, from a functionalist (Budwig, 1995) and cognitivist point of view, similar or seemingly identical behaviors (including linguistic utterances) may have different meanings or cover different functions depending on the context of use. [In different papers I have offered data supporting this claim in relation to blind children (Pérez-Pereira & Conti-Ramsden, 1989; Pérez-Pereira & Resches, 2008)]. It is certainly a paradox to study pragmatic abilities without taking into account the contexts of children's linguistic productions (language in use), and their possible functions.

In a very different type of research, characterized by more intensive observational data gathering and functional analysis, we have studied communicative breakdowns produced by blind children and their mothers (Pérez-Pereira & Conti-Ramsden, 2003; Pérez-Pereira & Conti-Ramsden, 2005). If blind children lack skills to participate in conversations, they should necessarily produce a large number of breakdowns in conversations. This is the statement of those authors who defend that blind children are similar to autistic children (Brown, Hobson, Lee & Stevenson, 1997; Hobson et al, 1999; Hobson, 2002; James & Stojanovic, 2006; Tadic et al 2010), or those who claim that blind children's language is not fully communicative and presents restricted functions (Dunlea, 1989; Andersen, Dunlea & Kekelis, 1993).

We studied conversational interactions with four legally blind children and two sighted children and their mothers at different periods of time in monthly observations. One of the analyses performed was centered on the number of adequate participations for the continuation of conversations on one hand, and those participations producing a conversational breakdown, on the other.

The results, which correspond to different periods of development, are shown in Figures 2, 3, and 4, and they indicate in a clear way that all the children, including the blind children, produce a small number of conversational breakdowns. The percentage of breakdowns produced by the mothers was similar to those produced by the children, as well. This means that all the children, in general (including blind children), are competent speakers, and use conversationally appropriate language. One aspect of children's pragmatic competence is the purpose of their communicative acts. What do they use language for? What are the pragmatic functions they perform when they speak? It is well known that the proportion of

speech acts varies depending on the context of speech, the ongoing activity, etc. (Ninio & Snow, 1996). This makes comparisons between children difficult. For this reason the data we gathered with two twin sisters (fraternal twin sisters), are particularly interesting because the children shared the same family environment, context, and in many cases shared the activity since they were playing together. This privileged circumstance makes comparisons more pertinent.

The girls were followed from the age of 2;5.28 to 5;3.23, and they were recorded for 1 hour each month, approximately. The longitudinal data were grouped in periods of approximately 6 months. For the analysis we used a category system of pragmatic functions, similar to that used by other authors. (See Table 2)

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Each utterance produced by the girls was coded, and we calculated the proportion of use of each pragmatic function in relation to the total utterances produced (Castro & Pérez Pereira, 1996; Pérez-Pereira & Castro, 1997). In all there were 8.991 utterances produced by the blind child and 5.890 produced by the sighted one. Percentage of agreement between coders over a sample of 5% of the transcriptions reached 85%.

The results of the categories where the discrepancies between the two girls' results were high (or those more problematic categories) are presented in Figures 5 to 7. In the other categories no significant differences were observed.

A few categories are related with children's capacity to take into account and make reference to others and the external world (Offering, Attention/showing, Description). As expected, the sighted child (Andrea) used all these categories more frequently than the blind child (Sandra) (see Figure 5). The differences reach significance for the period up to 4 years of age, but not later. This means that, with

time, Sandra used these categories in a way similar to that of her sighted sister. The progressive increase in the use of Descriptions is particularly important. Traditionally (Dunlea, 1989) it has been considered that blind children do not use descriptions or if they do, they do it in a very limited way. The present data indicate a relatively high use and a clear developmental progression in the use of descriptions, and, thus, the use of a language more oriented towards the external world. As for the other categories, it is logical that blind children do not use so many offers and instances of showing as the sighted children, since they cannot see the interlocutor, and it does not make much sense to offer something or show something to somebody if we do not know if he/she is present. In blind children, the absence of gestures to show or offer is also noted in the prelinguistic period (Pérez-Pereira & Conti-Ramsden, 1999). The important role that sight plays in the use of these expressions is obvious.

Other categories are also related to the establishment of communicative links with others, and with the use of language to obtain information and to recognize and take into account the other's speech. The data in Figure 6 indicate that Sandra uses questions in the same way as her sighted sister. Something similar could be said in relation to acknowledgements, although this category, as is logical, is used much less frequently. Finally, responses are used significantly less by the blind child than by her sighted sister, but only until 3;6 years of age. From this moment onwards, both sisters responded to other's queries in a similar way, and the lines cross at the end.

Therefore, it seems that the developmental trend observed in the blind girl indicates progression towards a conventional use of language, in which she takes



into account the others' speech and responds, and also uses language to ask questions.

The last categories I am going to discuss were considered to be typical of blind children's speech (Dunlea, 1989), and, to a certain point, aberrant or even characteristic of self-centered and autistic-like speech. The Personal category, a category firstly used by Halliday (1975), deals with the use of language related to the child's own participation in activities, words or expressions related to the action in course, or the determination to carry out an action, as well as refusals and protests. Internal reports is a subcategory of statements, which expresses emotions, sensations, and mental events including intents to perform future acts (for instance, *I want to put it there*, or *I like to swim*). Routines were frequently described as characteristic of blind children's language, as well as vocatives and calls.

In the case of Personal and Internal reports, there is a progressive convergence between both sisters' lines. It is certainly true that, at the beginning, the blind child produced many more Internal reports and Personal uses of language than the sighted child. However there is a progressive decrease of these self-centered productions, and after 3;6 or 4;0 years of age, the differences were not significant.

Calls were much more widely used by the blind girl. Again, we can observe a descent in the use of calls throughout time. The extreme use of calls has been considered an aberrant or non-normal feature of blind children's language (Dunlea, 1989). However, it is necessary to analyze these productions from the blind child's point of view, and in relation to the functions calls may serve for his/her adaptation to the environment. Young blind children, in particular, use calls to a great extent because they are a simple way to know if somebody is

present or not, or to get information of the location of other people. Obviously a sighted child does not need to use calls for this purpose. For blind children, the use of calls may be adaptive, up to a certain point (although they can also derive into a kind of formulaic speech). In any case, the important point is that the use of calls decreases with time, and they are probably substituted by more mature ways of getting information concerning the others' presence and location.

Finally, the use of Routines is greater in the blind than in the sighted child. However, the use of routines, and in general modeled speech, deserves an analysis on its own, and it is clearly related to the predominance of the gestaltic or holistic style in congenitally blind children (Peters, 1994; Pérez Pereira, 2004).

Therefore, although the speech of the sighted child seems to be more externally oriented than the speech of her blind twin sister, progressively the language of the blind child becomes more and more similar to that of her sighted sister, more externally oriented and less self-centered. At the end of the period studied, the blind child uses language in a way similar to that of her sighted sister.

Finally, I would like to discuss another kind of pragmatic ability, this time related to the understanding of language. One symptom of pragmatic linguistic deficit is that children have trouble understanding discourse (Leinonen, Letts & Smith, 2000)). Now I would like to present data we obtained in a larger study on text comprehension by blind and sighted children (González & Pérez Pereira, 2006). I am only going to select a few data, which may be useful to discern if blind people's ability to understand discourse is impaired.

Two orally produced texts were presented to 122 blind and 137 sighted participants; these texts were taken from the PROLEC-SE test (Ramos & Cuetos, 1999). Participants were selected from different academic levels and age, as

observed in Figure 8. Although not all the participants were congenitally blind, the results are indicative of blind people's ability to understand discourse. Ten questions were asked for each text, with a maximum total score of 20 for both texts. There were five literal and five inferential questions per text.

The results obtained, clearly indicate (see Figure 8) that blind participants from all groups got higher scores than the sighted participants. The differences reached statistical significance ( $F(9,249) = 3,233, p < .05$ ). Even though this research was not aimed at studying the pragmatic abilities of blind children, the results found may be clearly interpreted as indicative that blind people do not have trouble understanding discourse, and therefore seem to have good pragmatic capacity for comprehension.

With my talk, I hope to have convinced you that we need to study pragmatic abilities of blind children from a functional perspective. We have to study children's language in context, trying to discover the use and meaning of their productions not from an adult centered perspective, but rather from the speakers' point of view and communicational needs. This is even more important with blind children, because their position in the world and their needs are necessarily different from those of the sighted.

If we adopt this perspective, our conclusions are clearly different to those reported by authors who consider blind children in general to show autistic-like behaviors and exhibit limited linguistic abilities.

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## Results obtained by Tadic et al, 2010

CELF-3 – group mean and SDs			
Measure Mean (SD)	Visually Impaired	Sighted	p level
<b>CELF-3 (scaled scores)</b>			
<b>Receptive language subtests</b>			
Word Classes	11.4 (2.4)	10.04 (2.4)	n.s.
Listening to Paragraphs	9.9 (1.5)	8.8 (2.6)	n.s.
<b>Expressive language subtests</b>			
Recalling Sentences	12.6 (2.7)	9.8 (3.1)	**
Word Associations	11.9 (3.5)	10.7 (2.6)	n.s.
Total Language (sum of 4 scaled scores)	45.9 (8.2)	39.4 (6.6)	**
Note: n.s. = not significant, ** = significant at $p \leq .01$			

Table 1: Results obtained in the CELF-3

## Results obtained in the CCC-2 (Tadic et al, 2010)

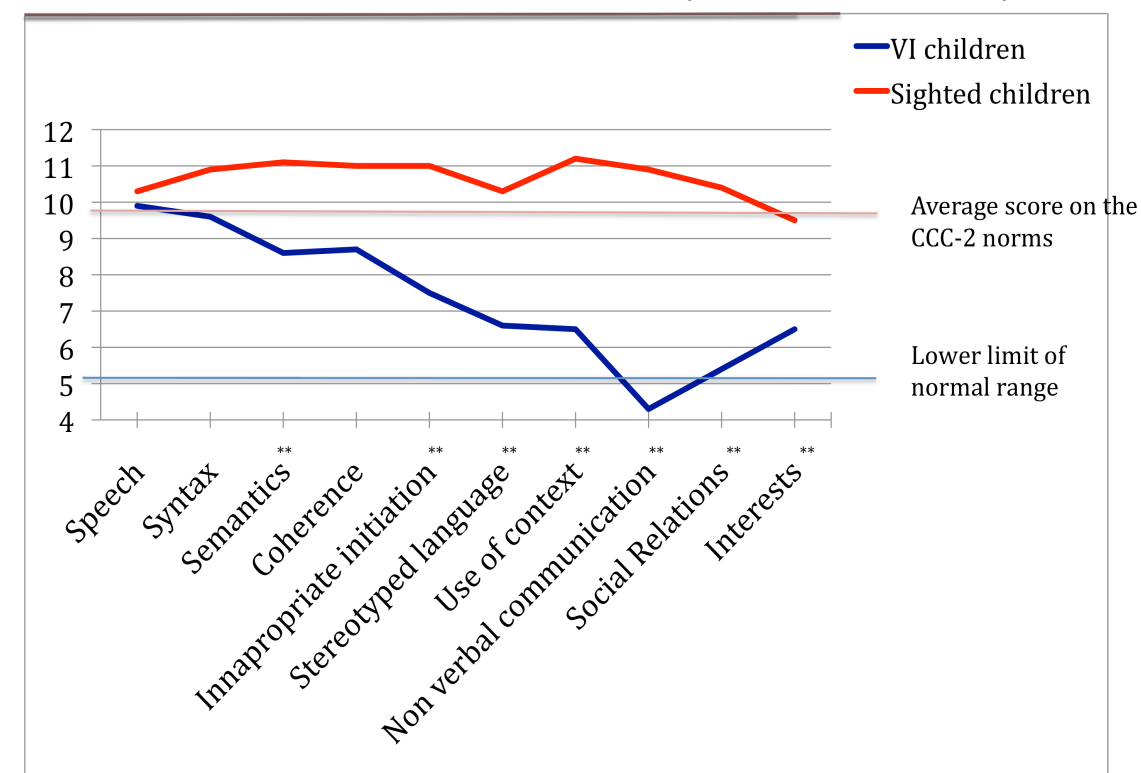
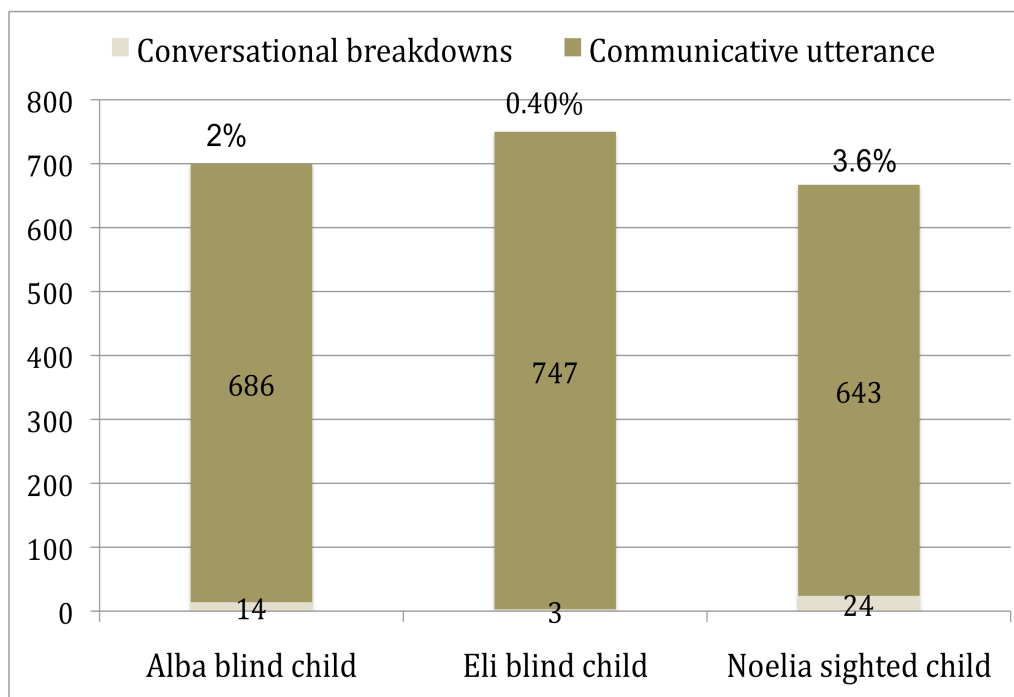


Figure 1. Results obtained in the CCC-2

## Conversational breakdowns: 1;10 to 2;1



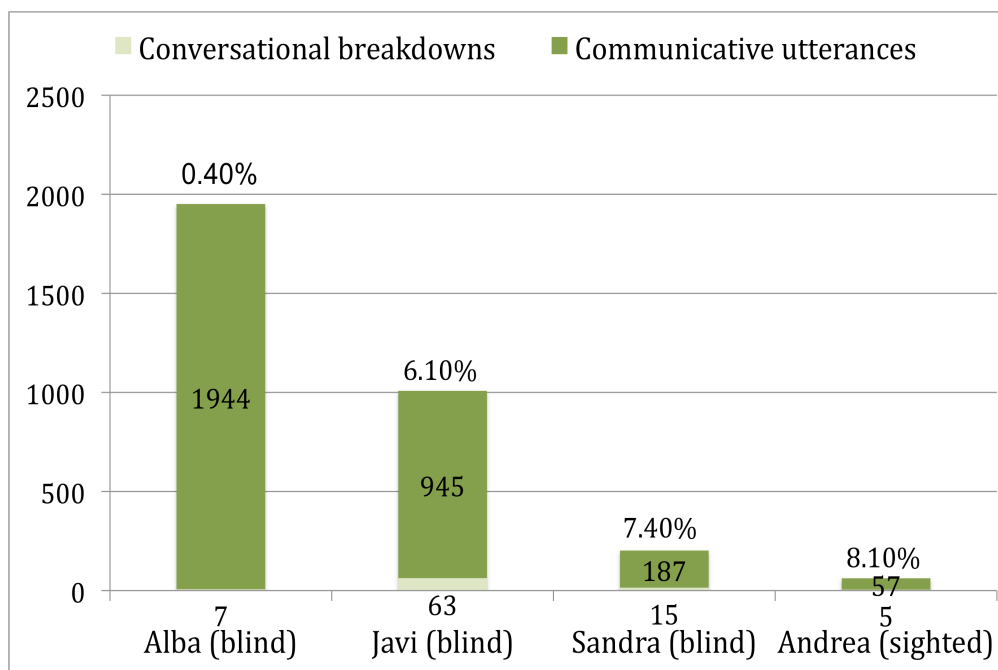
(Inter-rater agreement: 82%)

Adapted from Pérez Pereira & Conti-Ramsden, 2003

Figure 2.



## Conversational breakdowns: 2;4 to 2;10

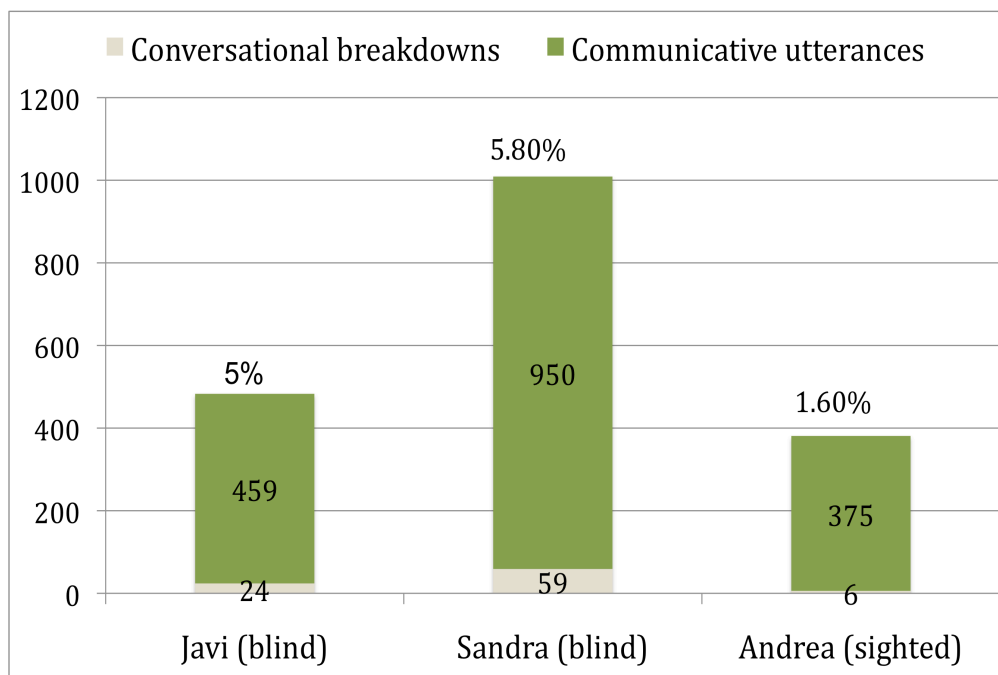


(Inter-rater agreement: 82%)

Adapted from Pérez Pereira & Conti-Ramsden, 2003

Figure 3.

## Conversational breakdowns: 2;11 to 3;4



(Inter-rater agreement: 82%)

Adapted from Pérez Pereira & Conti-Ramsden, 2003

Figure 3.

## Categories used for the pragmatic analysis

- Personal+
- Request +
- Action
- Permission
- Offering
- Attention/showing
- Descriptions +
- Statements +  
(Internal Reports)
- Acknowledgements +
- Performatives +
- Organizational Devices +  
(Calls/vocative)
- Questions
- Answer/responses
- Repetition/imitation
- Elicited identification
- Routines
- Exclamations
- Unclassified
- Double Coded

(Inter-rater agreement: 85%)

Table 2

### Use of pragmatic functions by the sighted and the blind sisters

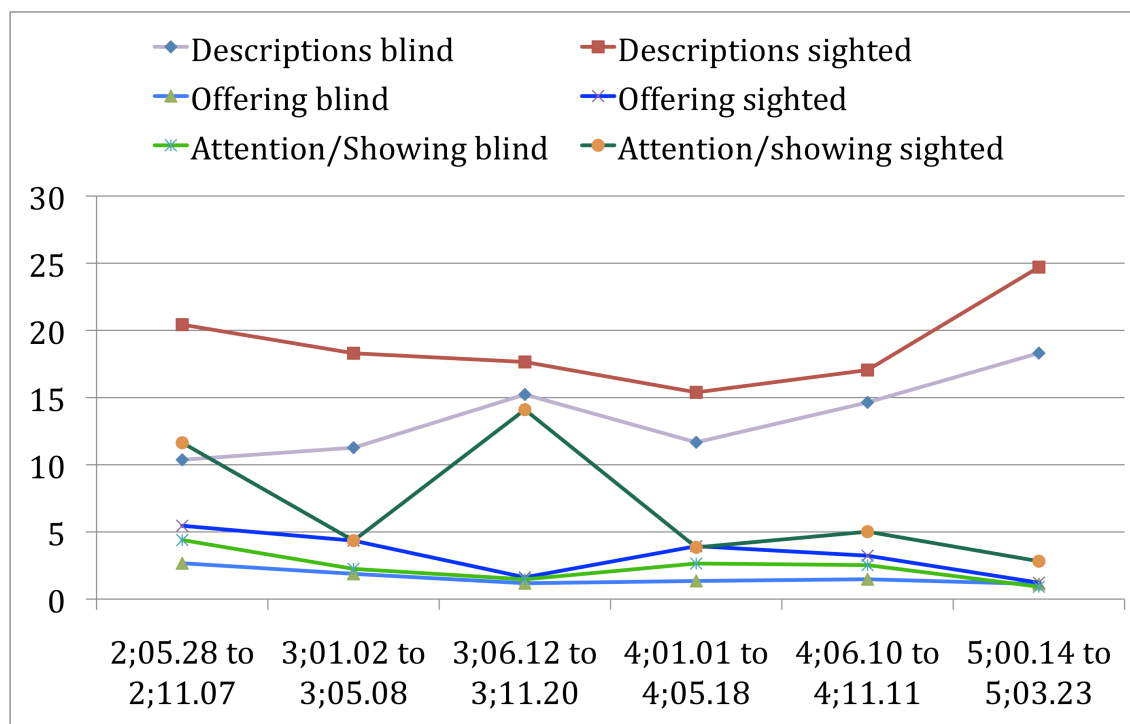


Figure 5.

## Use of pragmatic functions by the sighted and the blind sisters

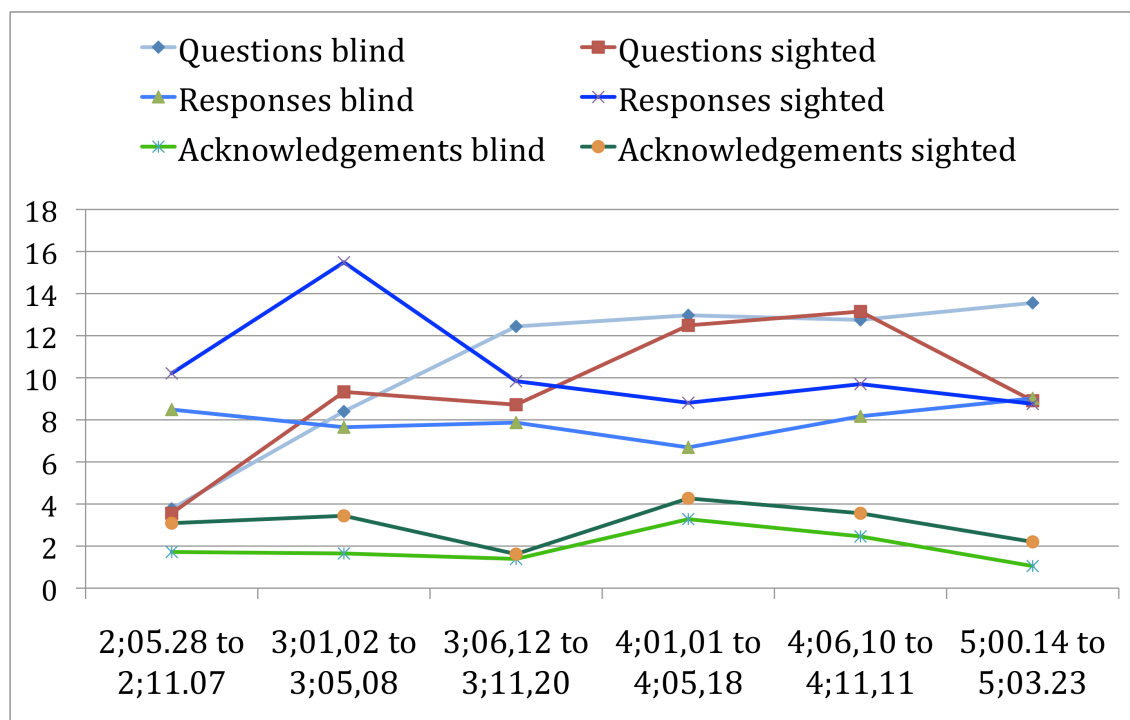


Figure 6.

## Use of pragmatic functions by the sighted and the blind sisters

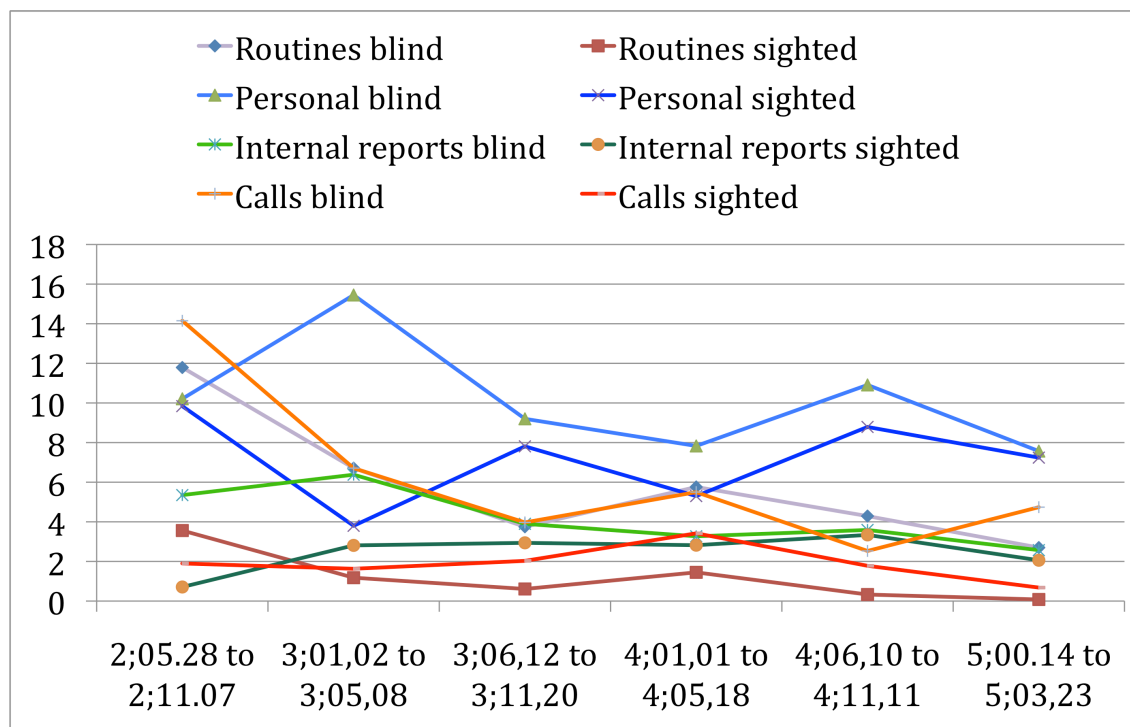
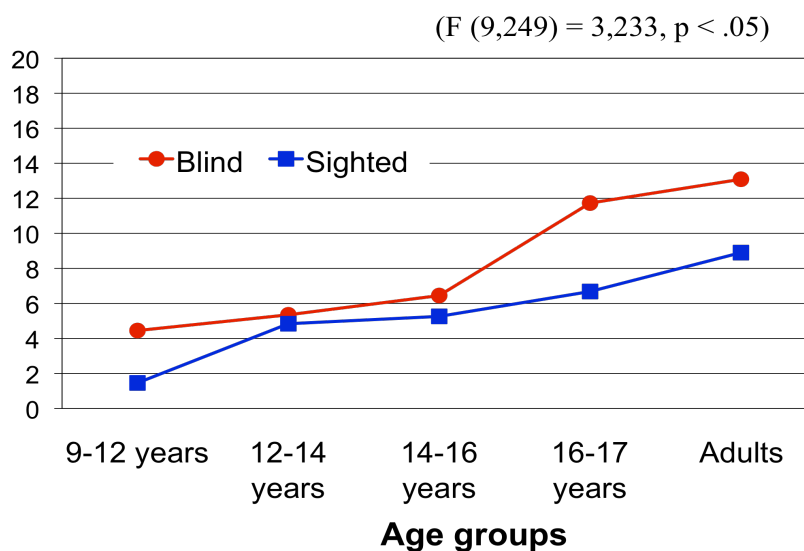


Figure 7.

## Comprehension of orally produced texts

- 122 blind and 137 sighted participants.
- Comprehension of 2 orally produced texts.
- 10 literal and 10 inferential questions per text.
- Maximum score: 20
- Significant differences between blind and sighted participants.



(González & Pérez Pereira, 2006)

Figure 8.