'Talking to teacher' — using Incidental Teaching to encourage child initiations in the nursery classroom: a case study

Diane Dolley
and
Kevin Wheldall
University of Birmingham

Abstract

A nursery class teacher was introduced to and instructed in the use of 'Incidental Teaching' procedures designed to encourage child-initiated language interactions. Instruction took the form of oral and written explanation, formal exposition, and informal discussion. In addition, samples of teacher–child language interactions were used as examples of the technique operating in the natural classroom environment. Teacher-child language interactions were sampled using a radio-microphone throughout the study, and the teacher's responses to child initiations were recorded, together with all child initiations addressed to the teacher. After the training session was introduced, the teacher's use of Incidental Teaching procedures increased markedly. Children initiated more often, and fewer initiations were ignored by the teacher. During a second intervention the strategy was targeted on a group of four children who had previously made few initiations. The frequency of Incidental Teaching sequences involving this group increased considerably. Results are discussed in terms of the suitability of Incidental Teaching as a model for developing functional language in British nursery class settings.

Introduction

Recent studies of language acquisition have highlighted the importance of adult–child interactions which focus on a shared topic of interest. Any

Address for correspondence: Dr Kevin Wheldall, Centre for Child Study, Department of Educational Psychology, University of Birmingham, PO Box 363, Birmingham B15 2TT, UK.

discourse which results from such shared topics involves the child in communicating, as Wells (1984) puts it, about 'matters of greatest significance'. Bruner (1975) had earlier emphasized that any analysis of child language should take account of not only the language used, but also the situational context in which that language occurred. Tizard and Hughes (1984), like Wells, argued that successful language learning usually occurred 'in a context of great meaning to the child'. The results of their research suggested that such meaningful language-learning situations were more likely to occur in the home than in the school. Home settings provided the child with opportunities for spontaneous conversational sequences arising out of the familiar daily routines of the natural environment.

Colmar and Wheldall (1985), in an earlier article in this journal, have commented that language-learning programmes in educational settings have frequently been highly structured and adult dominated. Such programmes, they argue, ignore the many opportunities that exist for spontaneous language interactions, as the subject-matter is teacher-designed and teacher-directed. Programmes of this type also fail to allow the child to determine the topic for discussion. Colmar and Wheldall propose, as an alternative, behavioural language-teaching using the natural environment, and cite the work of Hart and Risley on INCIDENTAL TEACHING in support of this view.

Hart and Risley (1978) have demonstrated that naturalistic language 'programmes' can be successfully applied with preschool children in nursery settings. They describe Incidental Teaching as an approach which develops naturally from the child's own language initiations. Incidental Teaching requires the teacher to encourage the child to say more about a conversational topic the child has initiated. Colmar and Wheldall (*ibid.*) summarized the general incidental teaching model as follows:

> focus attention, model, ask for elaboration, prompt, instruct and confirm. For language learning, the incidental teaching model stresses the child's initiation, the adult's immediate response, followed by his prompting or modelling a language response which is slightly more elaborate or complex than the child's initial language. The child then tries to imitate the more elaborate response, and the adult reinforces the child's use by providing a required item, giving information or assisting with a task.

Hart and Risley suggest that this process is a naturally occurring one, and is likely to recur precisely because the language is functional for the child. As children begin to learn what language is, they also begin to understand

what language can do (Halliday, 1977). It is through such language experiences that young children learn how powerful language can be. They will learn that if language is appropriately used it will be rewarded with access to materials and information.

In an earlier paper, Hart and Risley (1968) described a procedure used to teach colour and number noun combinations to a group of 'disadvantaged' preschool children. Initially this skill was taught in small-group sessions, but observational analysis revealed that the skill, although successfully acquired in a group situation, did not become incorporated into spontaneous free-play activity. Their subsequent intervention strategy involved arranging the environment so that colour-naming became functional for the child. If particular materials were needed, children were required to request them by naming the object and its colour. This procedure resulted in colour-naming becoming naturally incorporated into free-play situations. Subsequent studies continued to use Incidental Teaching as an intervention strategy and set out to replicate this first investigation (Hart and Risley, 1974; 1975).

In a recent experiment Charles, Glynn and McNaughton (1984) attempted to monitor and compare the success of child-care workers' use of Incidental Teaching (child-initiated) versus Talking Up (teacher-initiated) procedures. In their view the first strategy offered the children a means of gaining control over their environment, in contrast to the second approach which involved them responding to the adult's direction. The strategies were taught first using a 'standard training' package and secondly by means of a 'modified' (self-management) package. The results revealed that whilst both child-care workers increased their use of Talking Up, only one increased her rate of Incidental Teaching following the standard training package. After the introduction of the modified package, however, both child-care workers increased their use of Talking Up and Incidental Teaching. Interestingly, in both cases the increased rate of Talking Up resulted in a lower rate of child initiations. Since the first procedure involves the teacher in directing and questioning strategies, and therefore in more talk, it is not surprising that the children found few opportunities to initiate. The authors suggest that subsequent investigation should not attempt to examine the strategies concurrently.

The aim of the present study was to attempt to demonstrate the effectiveness of Incidental Teaching to increase the incidence of child-initiated language interactions within a British nursery class setting. To our knowledge this is the first reported application of these procedures in the United Kingdom. The study also attempted to demonstrate that

teacher use of Incidental Teaching leads to increases in the quantity of child language produced.

Method

Subjects and setting

This study was carried out in the nursery class of the Centre for Child Study at the University of Birmingham. The teacher-in-charge and the class of children attending were the subjects of the study. The children were aged between three and five years, and attended on a part-time basis (mornings only). Staffing provision included, in addition to the teacher-in-charge, a qualified nursery nurse, giving a pupil–adult ratio of 1:10. Sixteen children were regularly present during the period of this study. Many of the children in the class came from professional backgrounds. The nursery nurse was not included as a subject.

The nursery class facilities included a main classroom which housed both large and small table and floor equipment. Additional art and craft facilities were available in a separate room, as were toilet and cloakroom provision. The staff shared responsibility for activities on an informal basis.

Design

A simple ABC single-subject design was employed. During a baseline period of five observation sessions spaced over two weeks, the teacher's natural responses to child initiations were monitored and recorded. The teacher was then introduced to the procedure of Incidental Teaching and a further seven recordings/observations were made during an intervention period which lasted for three weeks. During the third phase, Incidental Teaching procedures were targeted on a group of four children who, on the evidence of existing analyses, had previously initiated few interactions. This phase lasted for a further two weeks, and five more observation sessions were recorded.

Observation and materials

Observation sessions were scheduled over a period of seven weeks. Twenty-five minutes of language data were sampled from the teacher during each observation session of free-play activity. The teacher wore a transmitter microphone so that language interactions occurring during the observation session could be accurately recorded on a high-quality

cassette recorder for subsequent transcription and coding. The transmitter was housed in the pocket of an overall and the microphone was attached discreetly to an item of clothing. Data were collected on 17 separate days.

During the observation sessions the first author also observed the teacher and class through a one-way mirror. The children were unaware that recordings were being made. Notes relating to setting and activity were made at the beginning of each session. As much as possible of the child language recorded was subsequently transcribed, together with all teacher language directed to children. In general, tapes were transcribed immediately following the observation session. Language behaviours were coded according to the categories of Charles, Glynn and McNaughton (1984) as follows:

AA = teacher to another adult
ch− = child initiation not answered
ch = child initiation responded to, but not by Incidental Teaching
ch+ = child initiation resulted in Incidental Teaching

This procedure allowed for detailed analyses of the teacher's use of the Incidental Teaching procedures.

Inter-observer agreement

When direct observations of classroom behaviour are made, it is clearly necessary to obtain some measure of inter-observer agreement to provide evidence for the reliability of the observations. In the present study, however, direct observation was supplemented with good-quality tape recordings of the interactions, and the subsequent transcripts of these recordings provided the data-base. Since the recordings could be repeatedly replayed and notes were taken when the recordings were made of the context of all utterances, there is clearly less need for inter-observer agreement data, in the strict sense, because an accurate transcript could readily be produced. However, an independent student observer provided simplified inter-observer agreement checks on 35% of the observation sessions. These six checks were made for two sessions in each phase of the study. Inter-observer agreement procedures involved the second observer checking the transcripts whilst listening to the tape-recorded sessions. (On two occasions the second observer was actually present during the recording sessions.) Any deviation between the transcript and the recording noted by the second observer was counted as a disagreement for that utterance. Agreed utterances over total utterances for each session multiplied by one hundred provided a simple index of

inter-observer agreement. No attempt was made to collect inter-observer agreement data for coding of utterances, which were based on clear and explicit categories.

Procedure

During baseline, observations and recording were taken on five occasions over a two-week period. The teacher was unaware of the language behaviours being coded. Following the collection of baseline data, a one-hour training session was provided for the class teacher. A summary of Incidental Teaching procedures was presented based on Hart and Risley (1978) together with a list of examples taken from baseline recordings. A simplified step-by-step version of the procedure was also supplied. After discussion of examples and further comment, the teacher agreed to attempt to implement the strategies during an intervention period. A further seven recordings were made over the next 11 days during which period the teacher was provided with regular feedback following the successful implementation of the procedure. Additional discussion took place regularly, but on an informal basis.

During the second intervention phase, the teacher was requested to target her use of Incidental Teaching strategies on a group of four children who had previously made few spontaneous initiations according to the transcripts analysed up to this point. The group was identified after discussion with the class teacher and following analysis of the results from the first intervention. The teacher continued, whenever possible, to respond to child initiations made by the larger group of children (12) but deliberately made herself more available to the target group of four by increasing the amount of time spent in their vicinity. A further five recordings were made over a two-week period.

Results

The simplified inter-observer agreement figures ranged from 98.9% to 100% with a mean of 98.9%. This is good evidence for the high overall accuracy of the transcripts and hence the reliability of the data.

The numbers of child initiations made over sessions are shown in Figure 1. It is clear that these data show a high degree of variability between sessions, suggesting that other naturally occurring variables are influencing this behaviour. Initiations ranged from 23 to 50 with a mean of 35.8 during baseline, from 17 to 54 (mean 40.4) during the first inter-

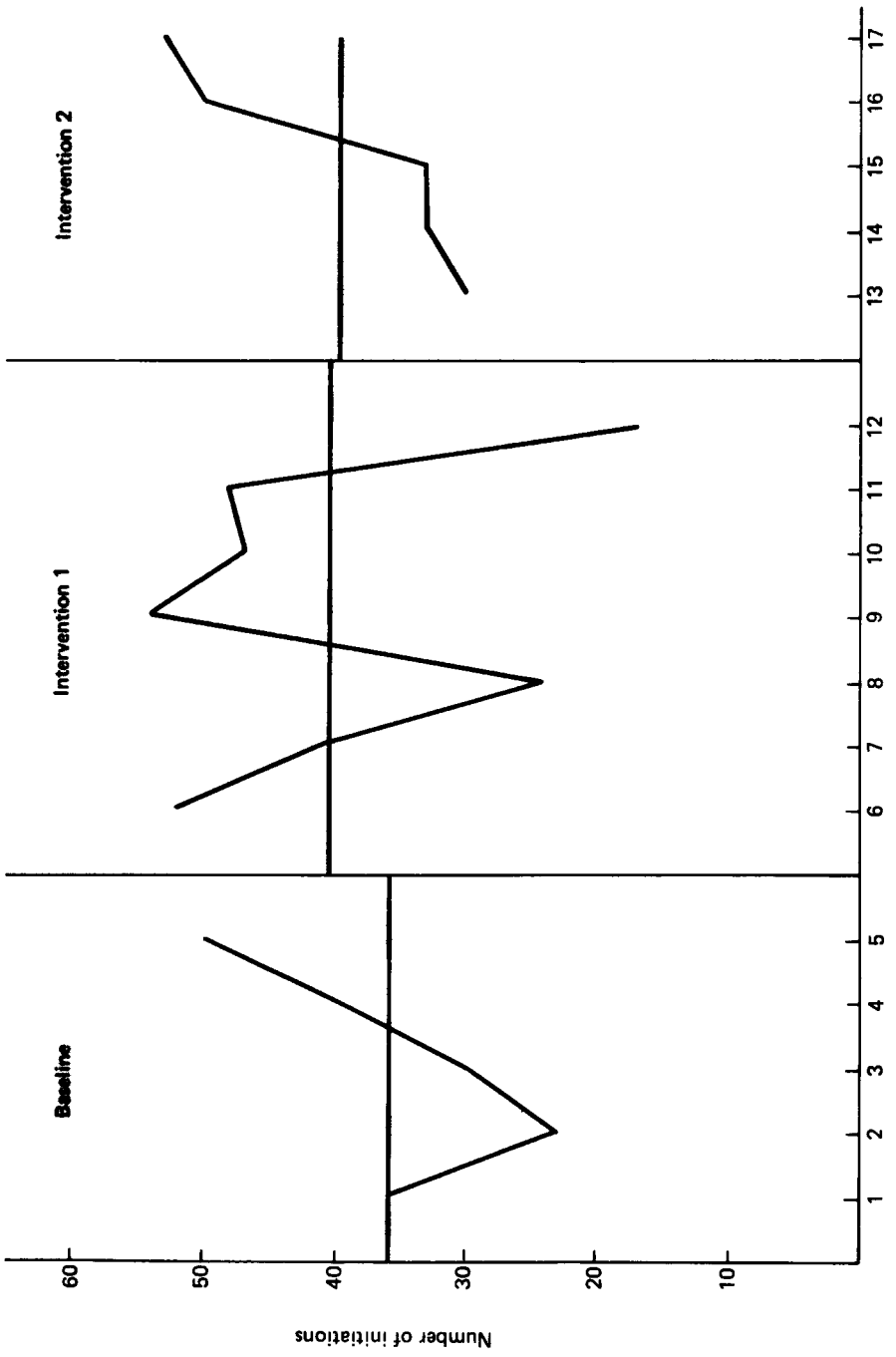

Figure 1 Total numbers of child initiations over the three phases

vention, and from 30 to 53 during the second intervention (mean 39.8). In view of this variability, this study provides only inconclusive evidence to suggest that Incidental Teaching increases the frequency of child-initiated interactions. However, there is evidence for an increasing trend in the last two sessions.

Figure 2 shows the percentage of child initiations responded to by the teacher over the three phases. The data are still variable, but there is stronger evidence for a positive effect following the training of the teacher in Incidental Teaching. The mean percentage of initiations responded to during baseline was already high at 76.1% (range 61–91%) but increased to 88.9% during the first intervention (range 75–97%) and was almost maintained at this level during intervention 2 (mean 86.4%, range 82–91%). Thus, the procedures effectively trained the teacher to respond to more of the initiations made to her by the children.

It is the nature of the teacher's responses which is critical, however, and Figure 3 shows the percentages of child initiations responded to with Incidental Teaching procedures. It is clear that during baseline, very few initiations were responded to 'naturally' with Incidental Teaching (mean 6.6%, range 0–11%) but that following training (intervention one) this had increased markedly to 23.3% (range 13.5–47%) which was roughly maintained during intervention 2 (mean 22.5% range 7.5–40%). The sudden dip to 7.5% on the final day of the study is difficult to explain.

Turning now to a comparison of the performance of the target group of four children with that of the rest of the class (12), Figure 4 shows the number of initiations made by the two groups per session. The data show that during baseline the target group initiated on average only about 8% of all Incidental Teaching sequences (range 0–1). This increased slightly to around 10% (range 0–3 sequences) during the first phase of intervention. During this phase the gap between the target and main group widened considerably. This is shown clearly in Figure 4. During the third intervention phase, however, the target group increased their share of Incidental Teaching sequences to around 50% (range 2–7 sequences) so that the teacher's responses were being more evenly shared between the two groups. This represents an increase of more than five times the baseline rate.

If Incidental Teaching strategies encourage children to initiate, then we would expect some change in the occurrence of 'talk to teacher', and Table 1 shows the number of words and utterances spoken by children to the teacher. The data show that during the second intervention phase there was an increase in the mean number of words spoken from 510.6 to

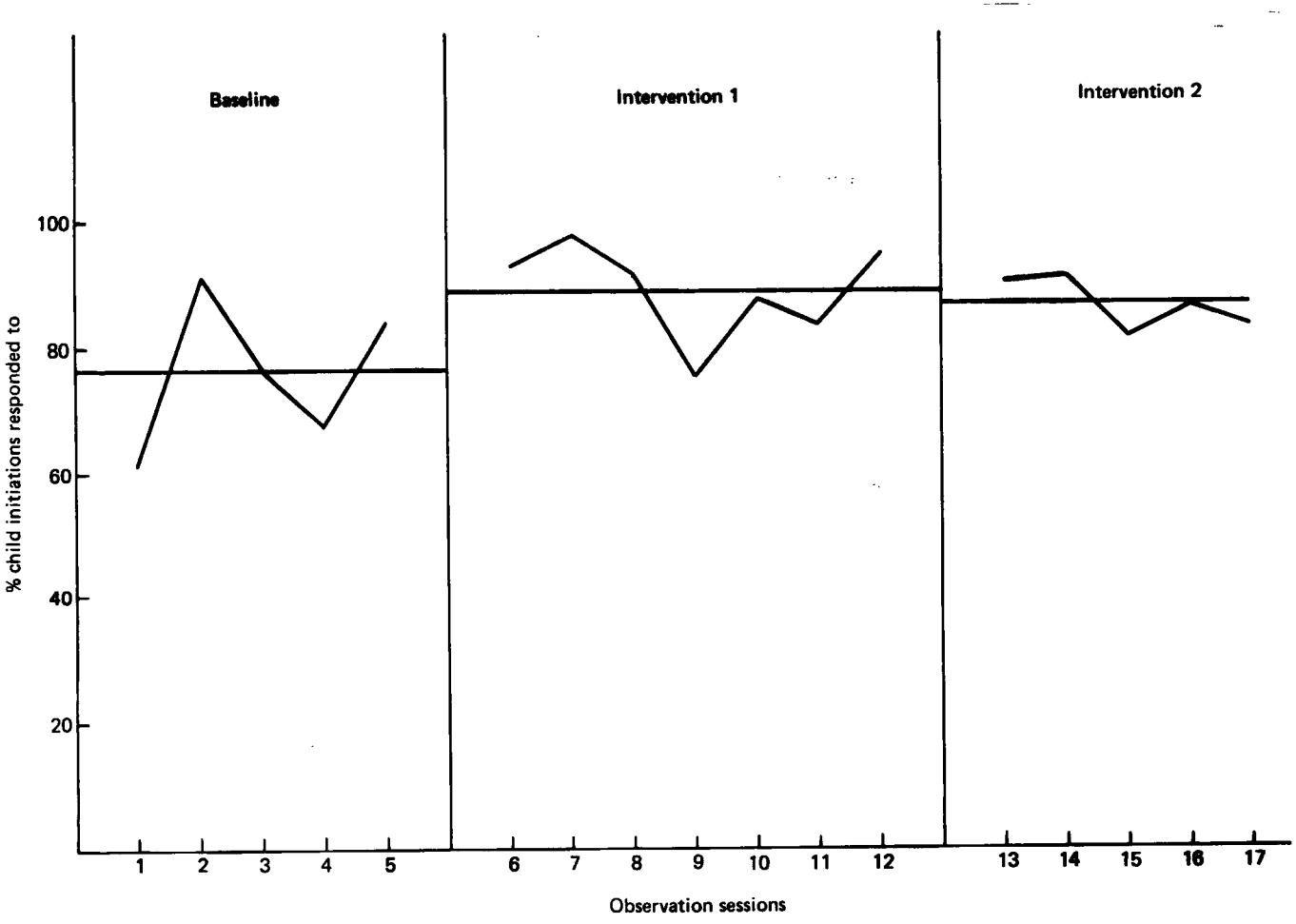

Figure 2 Percentage child initiations responded to by the teacher

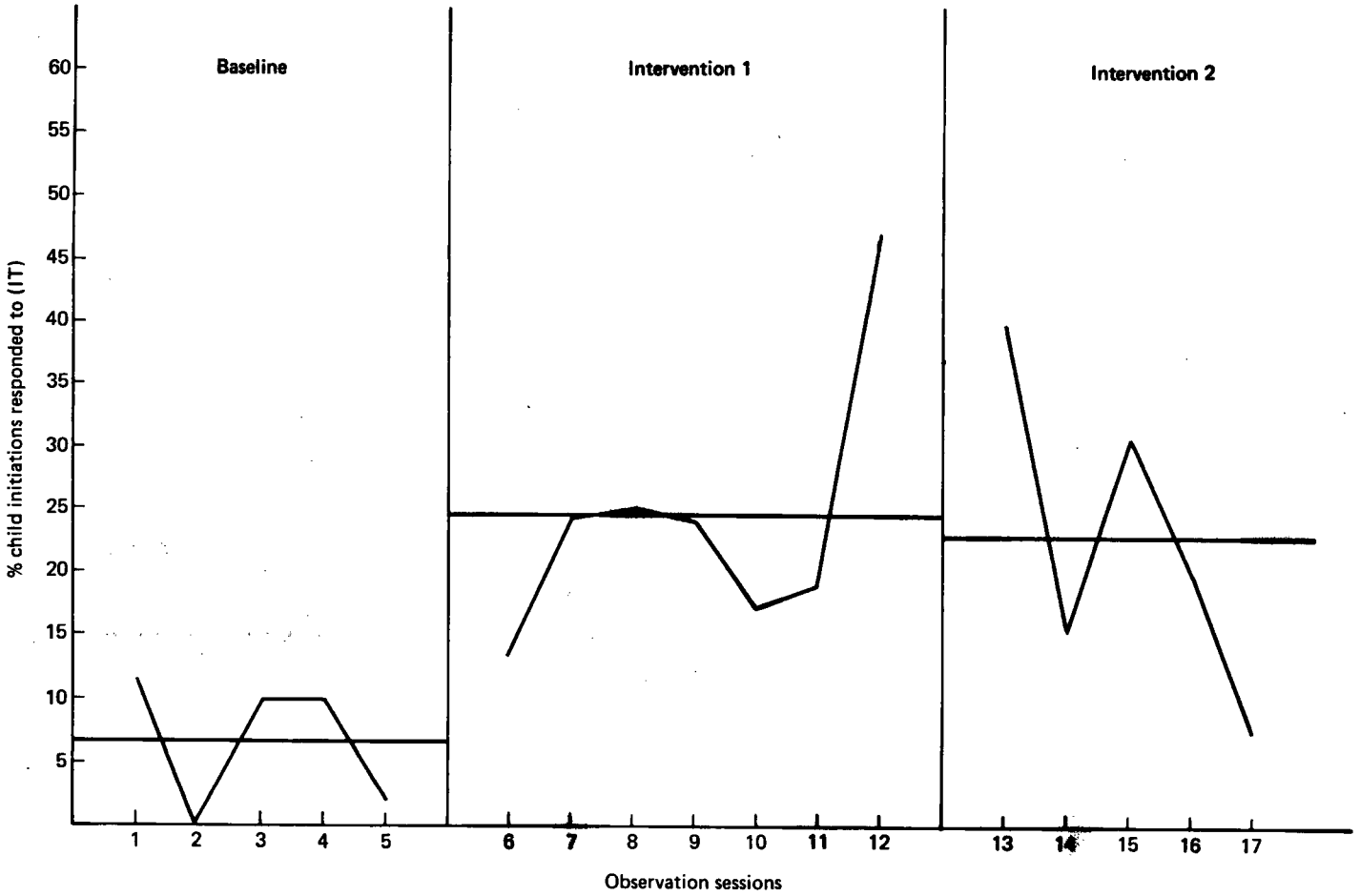

Figure 3 Percentage child initiations responded to with Incidental Teaching

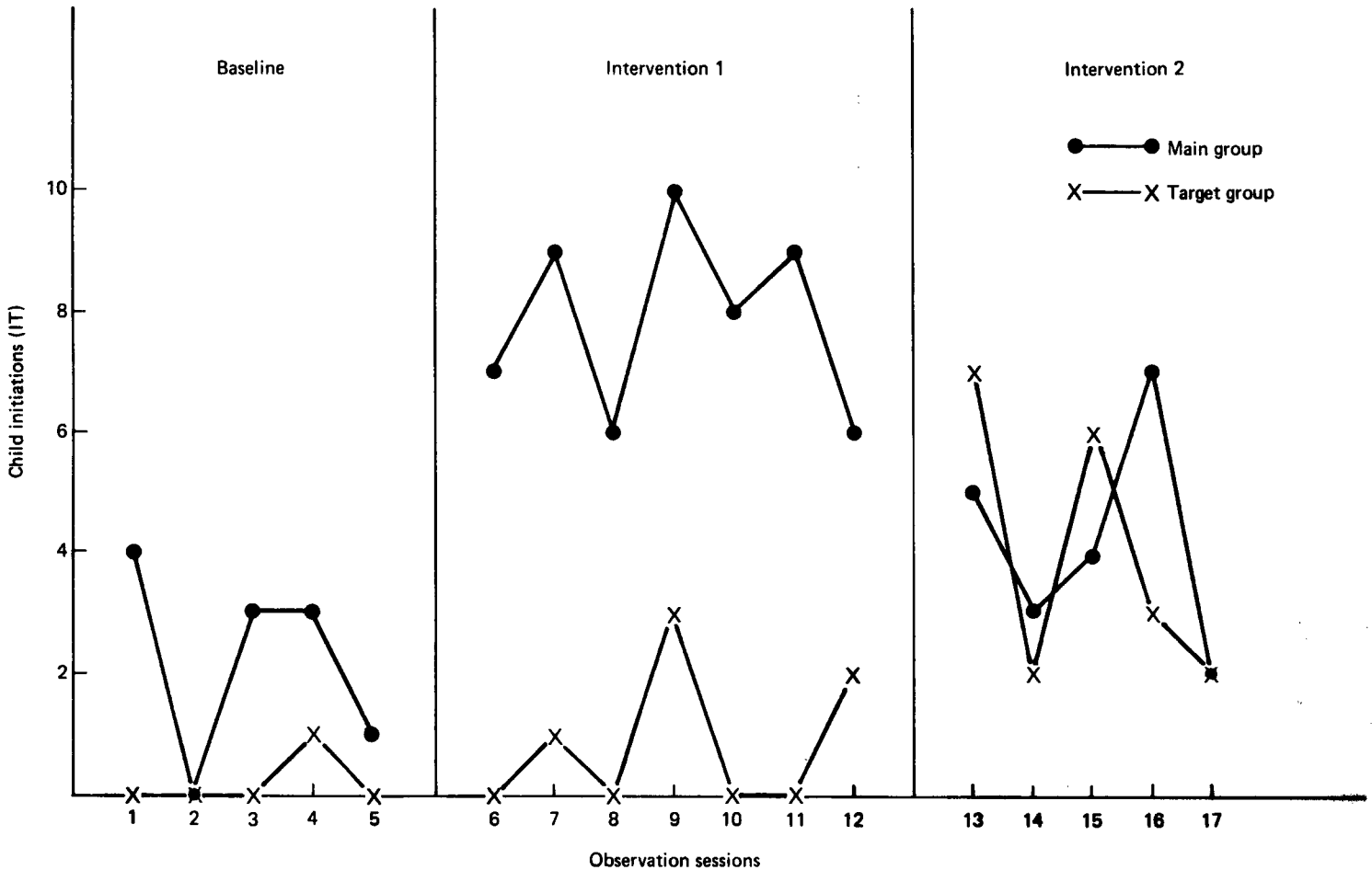

Figure 4 The number of child initiations resulting in Incidental Teaching (main and target groups compared)

550.85 whilst the mean number of utterances remained similar (144.8 and 141.28 respectively). The mean length of utterance increased from a baseline level of 3.59 to 3.91 during the first phase of intervention. Although during the second intervention phase the mean number of words spoken fell to 474.8, and the mean number of utterances to 111.2, this is not surprising since during this phase Incidental Teaching strategies were targeted on a group who had previously made few initiations.

Table 1 Number of words spoken to teacher

	Baseline	Intervention 1	Intervention 2
Mean number of words	510.6	550.85	474.8
Mean number of utterances	144.8	141.28	111.2
Mean length of utterance	3.59	3.91	4.25

Discussion

This study has demonstrated that Incidental Teaching procedures can be taught and applied in the nursery setting with moderate success. It seems likely that all teachers make use of such techniques quite naturally, some of the time. Whilst generalizations cannot be made from so small a study, the evidence suggests that changes in behaviour were brought about both for the teacher and, less so, for the children. As the successful implementation of Incidental Teaching procedures is determined by the number of spontaneous initiations, and as Incidental Teaching should increase child initiations, then the level of child initiations across each phase of the study was of particular interest. Once the strategies had been implemented there was a small increase in the number of child initiations to just over 5% above baseline, but it was disappointing that this increase was not greater. It should be noted that the children were already initiating at quite a high level during the first phase of the study. Nevertheless a much more significant change was anticipated. It should be emphasized that no attempt was made to change the environment, so that the availability of certain materials became contingent on the appropriate request being made (Hart and Risley, 1968). Perhaps if children had been required to request permission to use small equipment by providing a description of the materials required, many more initiations would have been forthcoming. This factor should be borne in mind and may need to be considered in further studies.

As far as the teacher was concerned, the results reveal that during baseline she was already responding to more than 75% of child initiations. She was able to increase this quite substantially when implementing Incidental Teaching procedures and, on average, responded to almost 90% of all child initiations during the second phase of the study. As was expected, this teacher was quite naturally making some use of Incidental Teaching strategies during the baseline period. When this strategy was targeted, however, she was able to increase her rate of implementing these procedures from just under 7% to almost 25%. She was able to do this quite rapidly by making a deliberate effort to follow up child initiations consistently. She quite simply asked the children, whenever possible, to say more about their chosen topic of interest. If they were unable to comment without assistance, she modelled or prompted the appropriate response. The teacher was able to observe for herself, and comment to the first author, that the successful outcome for one child (i.e. approval after the request, leading to the material being provided) frequently resulted in other children modelling similar responses.

The results for the target group suggest significant changes in behaviour across the three conditions. It should be emphasized that the decision to target the strategy on a small group was made after discussion with the class-teacher. This conclusion was arrived at after consideration of other options such as the targeting of specific language structures. Whilst the success of the intervention strategy for this subgroup as a whole seems impressive, it is less so when judged at the individual level. When Incidental Teaching sequences were focused on the target group, their share of involvement in such sequences increased to almost half. Whilst all of the group increased their share of conversational sequences during this phase, for three of the children the increases were modest. For one child, however, the increase in involvement was enormous, so much so that she became the third highest ranked in the class (in terms of child initiations followed up successfully). This level of increase was achieved simply by requesting the teacher to target the strategies specifically on this group. She therefore made salient her availability as a willing conversationalist, by her readiness not only to contribute, but also to listen, and perhaps most importantly of all, she learned to wait for the moment the child would choose to initiate. When this occurred, on almost all occasions, she was able to elicit elaborated language from the child by following the agreed procedure.

During this phase the teacher was still required to apply the strategy to the group as a whole, and this she was able to do consistently until the final

observation. It is difficult to explain the sudden return to baseline levels during this final session. Importantly, the teacher was aware of her failure to follow up sequences consistently, and communicated this to the first author immediately after the final observation. Whilst the initial training procedures seemed adequate, it would probably have been wiser to reinforce the agreed strategies with written and verbal feedback after each observation. Similarly it would have been appropriate to continue the observations a little longer and, had time permitted, this would have been considered.

Although individual analyses of initiations were collated, no analysis of content was attempted. We did, however, attempt to demonstrate that the application of Incidental Teaching procedures might lead to increases in the quantity of language used. The results suggest that some increase in 'talk to teacher' was in evidence during the first intervention phase when the mean number of words spoken increased by nearly 50 words. The increase, however, is small and we can only tentatively suggest that the application of the procedures resulted in more words being spoken. The fall in number of words being spoken during the final condition can be explained by the fact that previously non-initiating children were now being persuaded to participate. More children were actually talking to the teacher more often. Interestingly MLU rose to 4.25 during the final condition which could suggest that the procedures resulted in children using longer sentences when engaged in conversational sequences. Wells (1984) reminds us however that MLU is a rather crude measure (particularly when calculated across a group) and suggests that the 'mastery of a new linguistic system can actually lead to a decrease in MLU'. Crystal (1974) even questions the appropriateness of using this measure in any circumstances.

Further investigation may focus on the content of the language used and target specific language behaviours. Hart and Risley (1974) report on a successful long-term study of twelve children which was designed to teach (*a*) the use of nouns, (*b*) the use of adjective–noun combinations, and (*c*) the use of compound sentences. Again the emphasis was not only on increasing the amount of language used but, importantly, on making language functional for the child. Hart and Risley (1980) argue that the more words a child uses the greater the opportunity for the child to experiment with newly acquired words. As Ervin-Tripp (1971) puts it, our concern is with 'saying the right thing the right way at the right time'. If language is to become functional, then opportunities for its spontaneous use must be created within the natural environment of the nursery class-

room which will enable the child to speak in an appropriate way at the appropriate time. As Colmar and Wheldall (1985) put it: 'Language is embedded within and inseparable from our nature as social beings . . . social interaction is what makes us human, and the motivation to be part of our essentially verbal culture is what promotes the rapid learning of language'. If functional language is to be taught in the natural environment then clearly a change of emphasis is required. It is a change which will result in the child gaining greater control over his environment (Charles, Glynn and McNaughton, 1984). Teachers will need to re-examine the communicative intentions of the children in their care if they are to encourage them to discover quite naturally more about how language can work for them.

References

Bruner, J. S. 1975: Communicative intentions. In Brown, H. and Stevens, R., editors, *Social behaviour and experience*, London: Hodder and Stoughton.

Charles, H., Glynn, T. and McNaughton, S. 1984: Childcare workers' use of talking up and incidental teaching procedures under standard and self management staff training packages. *Educational Psychology* **4**, 199–212.

Colmar, S. and Wheldall, K. 1985: Behavioural language teaching: using the natural environment. *Child Language Teaching and Therapy* **1**, 200–15.

Crystal, D. 1974: Review of Brown, R., *A first language*. *Journal of Child Language* **1**, 289–306.

Ervin-Tripp, S. 1971: Sociolinguistics. In Fishman, J. A., editor, *Advances in the sociology of language*, The Hague: Mouton.

Halliday, M. A. K. 1977: *Explorations in the functions of language*, New York: Elsevier.

Hart, B. and Risley, T. R. 1968: Establishing the use of descriptive adjectives in the spontaneous speech of disadvantaged preschool children. *Journal of Applied Behavior Analysis* **1**, 109–20.

—— —— 1974: Using preschool materials to modify the language of disadvantaged children. *Journal of Applied Behavior Analysis* **7**, 243–56.

—— —— 1975: Incidental teaching of language in the preschool. *Journal of Applied Behavior Analysis* **8**, 411–20.

—— —— 1978: Promoting productive language through incidental teaching. *Education and Urban Society* **10**, 407–29.
—— —— 1980: In vivo language intervention: unanticipated general effects. *Journal of Applied Behavior Analysis* **13**, 407–32.
Tizard, B. and Hughes, M. 1984: *Young children learning*. London: Fontana.
Wells, G. 1984: *Language development in the preschool years*. Cambridge: Cambridge University Press.

(*Received* 9 *June* 1987)