

LANGUAGE INTERVENTION TO FACILITATE THE ACQUISITION OF
A SECOND LANGUAGE BY PRE-SCHOOL CHILDREN

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As a result of the official racial integration of South African schools since 1990, there is an increasing number of children who are learning in a language medium that is different to their home language. Many children are in this position from the start of their school careers. This is true also of children in a large number of Department of Education and Training Schools, where parents have voted for the use of English as medium of instruction from Sub A. The desirability of such an educational choice is fiercely debated (Mac Donald 1990), and the provision of mother-tongue and bilingual instruction continue to enjoy priority status in the formulation of an educational policy for a future South Africa.

In the interim, many black parents continue to enrol their children in traditionally white schools to ensure their academic, and long term educational and economic advancement. Coupled with this is their strong motivation for their children to become fluent in English, in particular. Although all the languages spoken in South Africa should in future enjoy equal status in all institutions of society, including education, this drive to learn English will remain a feature for a long time to come, possibly because English is a vertical medium of communication in Africa (Heine, 1992), and is viewed as the language of status and economic prosperity.

Since many schools have fairly strict admission criteria with respect to English proficiency, many parents enrol their children in English pre-schools to expose them to the language in good time. There is no doubt that the pre-school provides ideal opportunities for language acquisition because the input is

natural, context-bound and child directed. In fact, if all the languages spoken in the school are equally valued and accommodated, this is also the ideal time for white children to be acquiring the African languages. There are, however, a number of considerations regarding the language abilities of pre-school children that need to be taken into account. When children enter the pre-school at the age of three, they have acquired basic communicative competence in their first language (Kessler, 1984), but the process is by no means complete or stable. They continue to refine the content, form, and use of their language through the remaining pre-school years and into the school years, when they also begin to use language for instructional purposes. If a second language is introduced in the pre-school period, while the first language has not yet been consolidated, and the development of the first language is then neglected, the child may be at risk for suffering negative cognitive effects of becoming bilingual (Cummins, 1976; Skutnabb Kangas, 1981).

The first language must continue to mediate language-dependent thought processes (Lambert, 1990). Within the South African context, where children are predisposed to language disability through a variety of factors related to poverty and disadvantage, it is particularly crucial to be aware of the implications of second language exposure, and it may be necessary to delay the acquisition of the second language until the first is well established, and to pay special attention to the continued development of the first language.

In addition, research on the relationship between age and second language acquisition has shown that, while younger children, who begin the acquisition process early, may ultimately achieve high levels of proficiency, their initial rate of learning may be slower than that of older learners, (Krashen, Long and Scarcella, 1979), because of their inability to use their first language knowledge to construct second language utterances (Genesee, 1988). The question that arises is whether the acquisition process can be accelerated in young children, especially when there is some urgency in acquiring the language for instructional purposes.

It is a basic premise of this paper that one of the professionals, best qualified to identify and manage language disability in bilingual populations, as well as facilitate language acquisition in young children, is the speech-language therapist. The value of the speech-language therapist's contribution to developing second language proficiency in young children, lies not only in her thorough knowledge of the nature of language and the process of language acquisition, but also in her skill in applying this knowledge to assessment and intervention contexts.

This research study was therefore an empirical investigation of the effectiveness of intervention provided by a speech-language therapist in facilitating second language acquisition by pre-school children.

AIM

The specific aim of the study was to determine whether the comprehension and expression of English syntax and vocabulary improved significantly more as a result of intervention, than as a result of an increased quantity of input in English, and/or regular attendance at an English pre-school, in a group of three to six-year old second language learners.

SUBJECTS

Subject Selection Criteria

1. Subjects were to have achieved age-appropriate development of their home language. This was ensured through the following criteria:

- The case histories of subjects were to contain no at risk factors for language disability.
- Subjects were to be functioning age-appropriately in the developmental areas associated with language acquisition (cognitively, socially, and physically),

as reported by their teachers and as established on Scale E of the Griffiths test of nonverbal intelligence.

- normal hearing

- normal functioning in the home language on parent interview regarding the use of all language functions and conversational devices (Mattes and Omark,1984).

2. All subjects were to be selected from the same nursery school to ensure that school variables that could affect language learning were kept constant. These variables included: the amount and type of language input provided by teachers, and the ratio of English to Non-English-speaking children (Wong-Fillmore,1991).

Subject Description

Thirty, three-six year-old children participated in the study. Subjects spoke a variety of African languages, but all had a well developed dominant language. Half the subjects were not spoken to by their parents in English, while the other half were. Twelve subjects had attended an English pre-school for less than a year, fifteen had attended between one and two years of pre-school in English while three had been at pre-school for more than two years. All subjects were sequential learners of English, having only been exposed to the language after the age of three.

PROCEDURE

The study was conducted over three consecutive phases, using a pre-test, post-test, control group experimental design (Leedy,1985).

Phase 1

During this phase the subjects' initial proficiency in English was established. The following measures were used:

1. Percentage score on a modified version of the Test of Auditory Comprehension of Language-Revised (Carrow,1988)

2. Percentage scores on the receptive and expressive subtests of a newly devised vocabulary test (Jordaan, 1993).

Both the above measures were piloted to establish criterion related validity and test re-test reliability, using a sample of children, identical to the subjects in the main study.

3. Analyses of a spontaneous language sample obtained from a thirty minute interaction between subjects and their respective teachers in three sampling contexts: a personal narrative, a picture description, and a sequence story.

The sample was analysed according to the Profile in Lexical Semantics (P.R.I.S.M.-L) and the Language Assessment, Remediation and Screening Procedure (L.A.R.S.P.), both devised by Crystal (1982).

The measures of proficiency on the P.R.I.S.M. included:

- the number of major and minor types
- the number of semantic fields and subfields
- the major and minor type-token-ratio (TTR)
- the minor:major token ratio

Group means were calculated on all the above measures, and subjects were divided into two proficiency categories (low or high) on each measure, depending on whether their score on that measure fell below or above the average score, respectively.

The following measures were calculated from each subject's L.A.R.S.P. profile:

- the proportion (in percentage) of clause structures occurring at each stage of the profile
- the proportion (in percentage) of stage V structures that were co-ordinate, subordinate, or post-modifying clauses
- the proportion of noun, adverbial and adjectival phrases (in percentage) represented at each stage of the profile
- the proportion (in percentage) of the total number of verb phrases containing each of the verb phrase components
- the ratio of stage II and III clauses that were expanded
- the proportion of word endings (in percentage) representing each of the morphological markers on the profile

- the ratio of spontaneous sentences to responses
- the ratio of normal to abnormal responses
- the mean sentence length
- the mean number of sentences per turn

Subjects were further assigned a high or low proficiency rating depending on whether or not they used stage IV clause structures, subordinate clauses, and/or postmodification, stage VI phrase structures, and whether their expansion ratio, mean sentence length and mean number of sentences per turn, was above or below average.

Finally, each subject was allocated to the low or high proficiency group on the basis of where the majority of his/her proficiency ratings were located. Thus a subject was assigned to the high proficiency group if the majority of his/her proficiency ratings were high, and to the low proficiency group if the majority of his/her proficiency ratings were low.

The proficiency groups as well as the home and school exposure groups were then compared statistically, on the comprehension, vocabulary, and P.R.I.S.M.-L. measures, and found to differ significantly. The differences between groups on the L.A.R.S.P. measures were also marked. Subjects were thus assigned to three different treatment groups for the next phase of the project, so that there were equal numbers of subjects from each proficiency, home and school exposure group in each treatment group. This ensured that the groups were of equivalent proficiency before the next phase, during which the intervention group, A, and the two control groups, B and C were differently managed.

Phase 2

Group A

The ten subjects in group A received language intervention as a group, from a qualified language therapist three times per week for twelve weeks. Each session lasted approximately forty five

minutes. In accordance with the strategies employed by speech-language therapy, the following aspects were attended to in the management of group A:

Goals of Intervention

The vocabulary development of the children was stimulated by working in themes related to real events. The themes were selected from the P.R.I.S.M -L. Thus the theme " Clothes" for example, was taught through an activity, simulating the event: " Getting Dressed in the Morning".

The following L.A.R.S.P. structures were worked on to develop grammatical competence:

1. Stage IV clause structures.
2. Subordinate and postmodifying clauses.
3. Modal auxiliaries, negatives, verb+verb and verb+particle structures in the verb phrase.
4. Stage IV, V and VI phrase structures.
5. The morphological endings marking third person singular agreement on the verb, past tense, and plural.

The Intervention Context

Language therapists view language eclectically, and recognize that the form of language cannot be divorced from the meaning it represents or from the context in which it is appropriately used (Fey, 1986). The situation is manipulated by the therapist to create communicative contexts that are natural, and replicate real life interaction. To achieve this, the following principles are adhered to:

1. Informativeness: the use of novel, salient or uncertain aspects of a situation to increase the likelihood of the child's attention to it, eg. a single coloured picture among a group of black and white pictures to teach the word "pretty".
2. Creating the need to communicate using target forms eg. the use of a barrier to encourage the use of questions.
3. Encouraging the use of target forms as both responses and

spontaneously produced utterances.

4. Providing varied contexts in which the form is used, so that children may learn to express a variety of communicative functions.

5. Cohesion and topic maintenance, to match real communicative situations.

6. Facilitating the development of language awareness, by moving beyond "here and now" talk; deliberately mispronouncing words; segmenting words into syllables; introducing homonyms; and modelling and encouraging rhyming and alliteration (Constable and van Kleeck, 1984).

Features of the Input Provided by Interventionists

1. Focused stimulation: constant use of a particular language form to focus the learner's attention on it.

2. Vertical structuring: question asked by the therapist to elicit an elaboration of a previous utterance from the child.

3. Expansions: therapist responses that repeat a child's utterance, adding new information.

4. Expatiations: extensions of the child's meaning.

5. The forced alternative (Crystal et al. 1989): the basic form of the adult's input compels the child to produce a specific target.

6. Sentence completion: requires that the child fill in a missing part of a sentence spoken by the therapist.

Through the intervention, group A was exposed not only to qualitatively different input than that provided in the pre-school, but also to an increased quantity of input. To ensure that any improvements in their proficiency were due to the intervention, and not merely because they were hearing more English, control group B was included.

Group B

At the same time as group A was receiving intervention, Group B subjects were involved in talk sessions with a teacher, who knew that the object was to develop their English proficiency. The differences in the input given to group A and B were quantified by analysing three video-recorded sessions of the interactions with each group. There were more similarities than differences in that both the therapist and teacher structured their input according to themes, both manipulated the context, although the therapist did so more explicitly, and both used vertical structuring, expatiations and the forced alternative. There were also an number of differences, however, the most important being the therapist's use of focused stimulation to facilitate the acquisition of target structures. The teacher did not select specific language structures for her sessions, possibly because she did not know which to select. The teacher also did not use false assertions, expansions, sentence completion or language awareness cues. In addition, she asked more questions than the therapist, and her own language contained more complex sentences than that of the therapist.

Both groups A and B received more input in English than they would have by attending nursery school only, and control group C was therefore included.

Group C

This group of subjects was exposed only to the English input provided by the teachers and other children at the school. Group C were included to ensure that changes observed in the proficiency of group A and B subjects were due to the input they had received from the therapist or teacher, and would not have occurred as a result of their attendance at the nursery school only. Group C was not engaged in a language -related activity while groups A and B were interacting with the teacher or therapist. They painted or listened to music.

Phase 3

Within a week after the last session, with groups A and B, all the subjects were re-assessed on the same measures used in the pre-intervention assessment phase.

Throughout the project, meetings were held with the parents and teachers at the school, and the importance of maintaining the home languages of the children was stressed.

DATA ANALYSIS

The difference between the pre- and post-intervention score was calculated for each subject on each measure.

The difference between the pre and post-intervention group means were then calculated. Using an analysis of variance, on the SAS General Linear Models Procedure (Cody and Smith, 1987) the groups were compared to each other statistically, for the comprehension, vocabulary, and P.R.I.S.M. results. The L.A.R.S.P. results were analysed descriptively.

RESULTS AND DISCUSSION

The differences between the pre- and post-intervention group means on the comprehension, vocabulary and P.R.I.S.M. measures are recorded in Table 1 below.

TABLE 1 DIFFERENCES BETWEEN PRE AND POST-INTERVENTION GROUP MEANS ON THE COMPREHENSION, VOCABULARY AND PRISM MEASURES.

COMPREHENSION (%)	17.43	9.14	5.91
RECEPTIVE VOCABULARY(%)	10.53	3.28	4.47
EXPRESSIVE VOCABULARY (%)	21.71	3.54	0
NUMBER OF MINOR TYPES	11.3	2.4	-4.0
NUMBER OF MAJOR TYPES	16.7	5.5	-8.1
MINOR TTR	0.06	-0.01	0.12
MAJOR TTR	0.14	0.04	0
FIELDS	6	1.6	-3.0
SUBFIELDS	10.4	4.4	-3.0
MINOR:MAJOR TOKEN RATIO	-0.18	0.13	-0.11

The results of the analysis of variance revealed significant differences between groups on most measures and Duncan's Multiple Range Test was used to locate the significant differences. A summary of the statistically significant differences are given in Table 2 below.

TABLE 2. SUMMARY OF STATISTICAL ANALYSIS OF RESULTS

MEASURE	COMPARISON BETWEEN GROUPS			STATISTICAL DATA	
Measure	A/B	A/C	B/C	F	Pr > F
Comprehension	*	*	—	7.03	0.0053
Receptive Vocabulary	*	-	-	3.36	0.0499
Expressive Vocabulary	*	*	-	8.29	0.0016
Minor Types	*	*	-	6.67	0.0044
Major Types	-	*	*	8.01	0.0019
Minor TTR	-	-	-	2.93	0.0704
Major TTR	-	-	-	1.14	0.3334
Fields	*	*	*	11.58	0.0002
Subfields	-	*	-	6.91	0.0038
Minor:Major Token Ratio	—	—	—	0.98	0.388

KEY: * = Statistically significant
 - = Not Statistically significant

The differences between groups on the changed minor and major TTR's and the minor:major token ratio were not statistically significant. These measures can not, therefore be said to have improved as a result of the intervention with group A, or as a result of the additional input received by group B. The minor and major TTR's were not however, found to be reliable indices of proficiency, in that high TTR's sometimes occurred when subjects produced very few utterances, resulting in the use of a limited number of types once or twice only. If the TTR's of these subjects are excluded from the analysis, then there are no differences between the two proficiency groups on the pre or post-intervention TTR measures.

The absence of statistically significant results on the minor:major token ratio was of no importance since all the group means

were close to the optimal range of 1,2 to 1,5 (Crystal,1982), in both the pre- and post-intervention analyses, suggesting that subjects were already using a suitable balance of content and function words.

If the TTR's and the minor:major token ratio's are therefore excluded, then the summary in table 2 shows that Groups A and B differed significantly on five out of the remaining seven measures. This confirms, for the most part, that the language intervention was more effective in facilitating the acquisition of English than an increased quantity of teacher input. The fact that the changed number of major types and semantic subfields in groups A and B were not significantly different, suggests that Group B acquired a similar number of new vocabulary items and word categories from their interaction with the teacher as group A did in their sessions with the therapist. This may have occurred because the two groups received similar input with respect to language content, in that the therapist and teacher both concentrated on vocabulary development through the use of themes, which would naturally be represented on the P.R.I.S.M. However, Group A improved significantly more than group B on the receptive and expressive vocabulary measures.

Since these tests covered a wider range of fields and major lexical types than the language sampling context, it could be argued that group A still acquired more vocabulary than group B. Group A also acquired significantly more semantic fields than group B, suggesting that they improved more than group B, with respect to the number of broad topics that they could converse about within the sampling context.

If the TTR's and the minor:major token ratio are excluded once again, then group A improved more than group C on six out of the remaining seven measures, confirming that the language intervention was more effective at facilitating the acquisition of English than the input provided in the nursery school environment. The absence of significant differences between groups A and C, and between groups B and C on the changed receptive vocabulary scores, may be an indication that the

nursery school environment provides sufficient opportunities for the development of comprehension, and that additional input is not required. The additional input of the type provided by intervention, does however, allow for more rapid acquisition of the ability to use the newly learned vocabulary, expressively. This may be due to the actual use of new vocabulary during intervention and would confirm Swain's output hypothesis, which states that second language learners need as much practise in using the the new language as they need comprehensible input, if acquisition is to occur (Swain,1985).

Group A's significant improvement over the other two groups on the comprehension test, suggests that intervention is most beneficial in developing comprehension of grammatical forms, which is in line with Fey's (1986) theory that the focused stimulation of particular linguistic forms facilitates linguistic comprehension.

Group A also acquired significantly more minor types, i.e. function words, than both the other groups, suggesting that the positive effects of intervention may be extended to expressive syntax.

Group B improved significantly more than group C on only two measures, viz, the number of major types and the number of semantic fields, which indicates that there are limited advantages to increasing the amount of input only.

The improvement shown by group B on most of the measures was nevertheless encouraging, and suggests that if teachers are provided with direction, they could achieve good results in developing second language competence in children.

Group C on the other hand made no progress on the expressive measures, over the twelve week period, confirming that young children are slow language learners under the normal conditions of nursery school exposure to a second language.

Results of the L.A.R.S.P. Analysis

The differences between the pre and post intervention group means

on the L.A.R.S.P. structures targeted in the intervention with group A are presented in table 3 below.

TABLE 3. DIFFERENCES BETWEEN PRE- AND POST-INTERVENTION GROUP MEANS ON L.A.R.S.P STRUCTURES TARGETED IN INTERVENTION

LARSP MEASURES				GROUP A	GROUP B	GROUP C
Clause Structure:	Stage IV	-		4,9	4,7	2,1
Stage V:	Sub-ord	*		26,2	13,4	1,8
	Post-mod	-		1,3	6,3	0,3
Phrase structure						
Other:	Stage IV	*		7,4	3,0	2,2
	Stage V	-		0,2	0,3	0,4
	Stage VI	*		2,6	0,3	0,6
Verb Phrases:	VV	*		10,1	1,1	2,1
	Vpart	-		1,3	9,1	2,1
	Auxm	*		5,8	-1,3	-1,0
	Neg V	*		2,9	0,4	-1,7
	Complex VP	*		8,4	2,0	4,9
Word Structures:	ing	*		-12,9	-4,2	12,4
	pl	*		12,5	-7,7	-2,5
	-ed	-		4,1	5,7	-3,4
	3s	-		-6,3	2,1	0,7
Expansion Ratio		*		0,7	0,3	0
Mean Sentence Length		*		1,4	0,3	0,5
Mean no. of sentences per turn		*		1,3	0,3	0,04
Spontaneous: Response ratio		*		0,8	0,3	-0,1
Normal:Abnormal Response ratio		*		1,6	0,2	-1,2

The results of the L.A.R.S.P. analyses revealed that group A improved more than groups B and C on a substantial number of the structures that were targeted in the intervention, confirming that the intervention was effective in facilitating the acquisition of many, but not all syntactic structures.

Clause Structures

All three groups increased their use of stage IV clause structures, with no marked differences between groups. Despite the fact that these structures were targeted in the intervention with group A, they did not increase their use of these structures more than the other two groups and the small increase that they did

achieve cannot unequivocally be attributed to the intervention. However, group A increased their use of stage V structures substantially more than groups B and C, and it seems that this can be attributed to the intervention, because they used fewer co-ordinate clauses and more subordinate clauses, which were among the structures targeted in intervention. The groups do not differ markedly in their changed use of postmodification, suggesting that the intervention was not effective in facilitating acquisition of this complex sentence type.

Phrase Structures

Group A, it seems, were using more stage IV and VI phrase structures as a result of the intervention, since the differences between groups are substantial on the changed use of these structures. Again, the intervention was not effective in facilitating the acquisition of postmodifying phrases (stage V), suggesting that postmodification is difficult for second language learners. Suzman (1992) postulates that this may be due to the fact that prepositions and pronouns are used to introduce these structures, and because of the variety of contrasts expressed by pronouns and prepositions in English, which are not expressed in the African languages, postmodification is not easily used by speakers of these languages.

Group A also increased their use stage VI structures a little more than the other two groups.

It would appear from table 3, that with the exception of the verb+particle structure, the intervention was effective in facilitating the acquisition of all the targeted verb phrase components.

Expansion Ratio

Group A seemed to have learned from the intervention to expand the elements of clause structure, in that their mean expansion ratio increased by 0.65, which was more than the increase achieved by group B, (0.33) and group C (-0.03). Nine out of the

ten group A subjects increased their expansion ratio, while six group B and five Group C subjects increased their ratio's, thus confirming group A's better performance.

Word Structures

The intervention aimed at decreasing the over use of the present progressive word ending -ing, in the is...ing construction, by increasing the use of the other verb phrase components, seemed to have been successful, in that group A reduced their use of this structure substantially more than the other two groups. Group A also used more plurals as a result of the intervention, but the same cannot be said of the other two morphemes targeted. The mean sentence length; mean number of sentences per turn; spontaneous:response ratio; and normal:abnormal utterance ratio all improved considerably as a result of intervention.

CONCLUSION

The results of this study support the conclusion that, when examined over a twelve week period, language intervention is more effective in facilitating the acquisition of a second language than an increase in the quantity of language input, and/or attendance at an English pre-school.

The important role of speech-language therapists in the area of second language acquisition is thus confirmed.

The approach used by the thrapists can be applied to the teaching of any language to any group of learners. The only proviso would be that the interventionist is competent in the language being taught. Speech-language therapists who are competent in the African languages could facilitate the acquisition of these languages in both the pre-school and junior primary phases of education, thus ensuring

that more people learn these languages, particularly within the context of a new South Africa.

A logical extension of this study would be to develop training programmes for teachers who would like to extend their skills in

this area. This study was conducted at an integrated pre-school, where the teachers were all native speakers of English. There are however, many pre-schools in South Africa, attended by second language learners only, and where the teachers are non-native speakers of English. Many of the parent communities of these schools put pressure on the teachers to teach the children English. Teacher training in these schools is of paramount importance. Personal experience has shown that the teachers in this system, have a dearth of experience on how to develop language in natural, communicative contexts, and tend to rely heavily on the use of imitation drills to "teach" language, rather than facilitate it's acquisition. This particular pre-school context provides fertile grounds for further research, and should yield interesting comparative results regarding the effects of intervention without the support of native-speaker input from teachers and peers.

It is hoped that speech-language therapists will make their expertise available in the area of second language learning, and that such expertise will be recognized by employing authorities, so that posts are effectively utilised, or new posts are created. Finally, it is of vital importance to remember that the object of teaching a second language should always be to promote bilingualism, and that the home language may never be de-valued or allowed to fall into non-use.

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