

Current Canadian Clinical Concepts

Herein the authors review the second year of a longitudinal study that focused on the effectiveness of language intervention with language delayed kindergarten children. The children were matched on language performance and chronological age, then randomly assigned to either the control or experimental group. The language delayed children in the experimental group made significant gains in all expressive language areas as predicted from the model and technique used in intervention. They also made significant gains in one area of receptive language. The control group made significant gains in one area of receptive language as well. The implications arising from this and other language intervention studies should assist the speech-language pathologist in evaluating the effects of his/her intervention efforts. The research was supported by a major grant from the Department of Education, Province of Saskatchewan.

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Intervention Effectiveness with Language Delayed Kindergarten Children

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Virtually every professional who is involved in intervention programming asks the question, "Was the intervention effective?". Few ask a second equally important question, "Why was it effective?". If the answer to the first question is "Yes" then it must be clear that the influence of the intervention was powerful enough to move the child significantly beyond that which could be expected from maturation alone. The answer to the second question, "Why was it effective?" is somewhat more complex.

Baer (1981) and Illerbrun & Leong (1981), have addressed some of the issues arising from the intervention studies that have attempted to determine "Why" language intervention

was effective. Baer (1981) states that researchers/clinicians deliberately design intervention to maximize the effects of the program for those who seriously need language intervention. In doing so they include a number of variables that are known or thought to contribute toward the success of the intervention. Unfortunately, the results of such clinical studies confound the influence of these variables. It is not possible to state whether variable A, B, C, or D was responsible for the success of the program or if success was obtained because of some combination of these four variables.

The following report on the second year of a longitudinal study (Illerbrun, Greenough, Haines, & McLeod, 1982), was designed to

investigate the effects of language intervention programming with language delayed kindergarten children. The primary emphasis was on answering the first question, "Is language intervention effective?" with an attempt to control some of the variables that could influence the answer to the second question, "Why?".

The sample consisted of all children enrolled in regular kindergarten programs from the Battlefords area in west central Saskatchewan. The 272 children who were screened for language delay using the Language Identification Screening Test for Kindergarten (LIST-K) (Illerbrun, McLeod, Greenough, & Haines, 1984) came from 17 classrooms in 10 different schools. Forty-two children were identified for further assessment. Six children were unavailable for further study for various reasons. The remaining 36 language delayed children were matched on the basis of their composite LIST-K score and chronological age, then randomly assigned to either the experimental or control group for further study.

The 36 matched subjects were administered a core diagnostic speech and language battery which consisted of the Test of Language Development (TOLD) (Newcomer & Hammill, 1977), Test for Auditory Comprehension of Language (TACL) (Carrow, 1973), and the Carrow Elicited Language Inventory (CELI) (Carrow, 1974). In addition, each subject was administered the Stanford-Binet Intelligence Scale (Terman & Merrill, 1960) and the Coloured Progressive Matrices (Raven, 1965). Further individual assessment was conducted with each child depending on their particular needs (Illerbrun, 1977). The children's total raw scores for each instrument were subjected to t test analyses. There were no significant differences between the two groups on these instruments. It might be noted that the children placed at the lower boundary of -1 standard deviation on both tests of intelligence: one a linguistically oriented instrument and the other a

culture-fair and linguistic free measure. Finally, the children scored 2 to 3 standard deviations below the mean on each of the three speech and language measures mentioned above.

The language intervention model employed in the present study was based on two interactive components: Process and Program (adapted from Ruder, 1978). The teaching method was a modification of the Waryas and Stremel-Campbell (1978) program. The goal of language training was to provide the children in the experimental group with a means of "cracking the code" of language, and the framework of the code was the structure. The language program emphasized the development of expressive grammar, i.e., syntax and morphology. A concerted effort was made to control the variables of phonology, semantics, and pragmatics by not providing direct intervention related to these three elements in an attempt to reduce the number of confounding variables. Secondly, the children received direct one-on-one language intervention twice weekly, in half hour sessions for a possible maximum of 40 sessions. An attempt was made to control the variables of parent and/or teacher involvement by not including them directly in the program. Finally, the children received language intervention that emphasized natural communicative situations in which a number of modelling and prompting techniques were used to encourage the production of better, more complete grammatical utterances (Leonard, 1981).

Post-test analyses by test and process using gain scores were conducted at the end of the five month intervention period. The results indicated significant gains for the experimental group in expressive language as measured by the pre- and post-test CELI scores [$F(1,34)=4.08$; $p < .05$], and TOLD speaking subtests (Grammatical Completion + Sentence Imitation + Oral Vocabulary) [$F(1,34)=7.31$; $p < .01$]. In addition, the experimental group made significant gains in receptive language as measured by their mean gain score in months on the TACL [$F(1,34)=4.08$;

$p < .05$]. Finally, the control group evidenced significant gains in receptive language as measured by the TOLD listening subtests (Grammatical Understanding + Picture Vocabulary) [$F(1,34)=7.31$; $p < .01$]. This latter result was somewhat surprising since both groups initially presented with better receptive language skills than expressive. It was expected that since the experimental group made significant gains in all other areas that this area too would show significant growth. It may be the case that primarily expressive intervention programs somehow interfere with the development of receptive language skills either during certain phases of the expressive program or throughout.

The clinical implications of the present study may be summarized as follows:

1. The characteristics of the language intervention model appear critical to obtained results. If the model emphasizes expressive elements of grammar then the results are likely to be in that direction. Clinicians must carefully consider which model they should choose that most closely matches the individual child's needs.

2. The selection of appropriate pre- and post-test measures that both identify the child's program needs, as well as measure that which has been taught in the intervention program is critical. Goal selection, task analysis, and mastery learning must be important parts of the system.

3. It is not only possible to answer the question, "Was the language intervention effective?" but also to provide important data on "Why?". The present study used an experimental/control matched subjects design, so it is clear that the intervention was powerful enough to move the child's language development well beyond that which could be expected from just maturation alone. In addition, by attempting to control such variables

as process and program components, number of personnel involved and level of involvement, strategies used in teaching, amount of time provided for intervention, and length of the program, it is possible to state that the success of the intervention was related to a small, rather select group of variables. Further study in this area may lead to more valid, reliable, efficient, and effective intervention programs.

4. Speech-language pathologists must evaluate the effects of each and every intervention effort by attempting to answer fully and completely each of the two questions posed throughout this paper: "Was the intervention effective?" and "Why was it effective (or not effective)?"

January 23, 1984.

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Calendar

- **Counselling in Communication Disorders: Theory and Practice for Professionals**
September 14, 1984 Ottawa
Contact: Zachary Muroff, Ottawa Regional Group - O.S.H.A., 17 Wade Court, Nepean, Ontario, K2G 4C1. Phone: (613) 283-1200, Ext. 107.
- **Eastern Canada Conference in Communication Disorders**
September 14 and 15, 1984 Moncton
Contact: Debbie Barton, Conference Coordinator, 88 Humphrey St., Moncton, N.B. Phone: (506) 855-1600, Ext. 425 or (506) 855-0434.
- **Not Me - Not My Child - Parenting Impaired Children**
September 15, 1984 Ottawa
Contact: Jennifer Cantello, Communication Development Program, 2660 Southvale Crescent, Ottawa, Ontario, K1B 4W5. Phone: (613) 523-5774.
- **9th Annual Conference on Language Development**
October 12-14, 1984 Boston, Massachusetts
Contact: Language Development Conference, School of Education, Boston University, Boston, MA, 02215.
- **Third International Conference on Augmentative and Alternative Communication**
October 18-20, 1984 Cambridge, Massachusetts
Contact: Dr. Howard C. Shane, Vice President Elect, ISAAC Convention Committee, The Children's Hospital Medical Center, 300 Longwood Ave., Boston, Massachusetts, 02115.
- **Advanced Auditory Brainstem Response (ABR) Workshop**
October 20 and 21, 1984 New Orleans, Louisiana
Contact: Course Coordinator, Kresge Hearing Research Laboratory of the South, 1100 Florida Ave., Bldg. 124, New Orleans, LA, 70119. Phone: (504) 947-6641.
- **Second Annual Conference for Hard of Hearing People- "A Sound Beginning"**
October 19-21, 1984 Toronto
Contact: Tani Nixon, Program Committee, The Canadian Hearing Society, 60 Bedford Rd., Toronto, Ontario, M5R 2K2. Phone: (416) 964-9595.