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ABSTRACT

In order to increase statistical power, this study combined the data of three previous studies on the role of parent involvement in early intervention for children with disabilities. Each of the studies found a mixed pattern of positive results on child outcomes and, in two of the studies, on family outcomes. The combined subjects (n=181) had mild to severe disabilities, an average chronological age of 48 months, and an average developmental age of 29 months. Parents participated in 15 or 16 small group sessions facilitated by program support staff and organized around the Parents Involved in Education curriculum. Classroom teachers were only minimally aware of the goals and activities of the parent involvement program. The combined study data indicate that the supplemental parent involvement component had a small impact on children's developmental progress immediately after the intervention but effect size was small (average only .18). On family outcome measures only one statistically significant difference was found--in perceptions of family social support. Results raise questions regarding the efficacy of this form of parent involvement. (Contains 16 references.) (DB)

A Comparative Study on the Child and Family Effects of Adding a Parent Involvement Program to an Existing Early Intervention Program

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ABSTRACT

The belief that parent involvement is a positive aspect of early intervention programs for children with disabilities is widely accepted, but the empirical evidence to support this belief is limited (White, Taylor, & Moss, 1992). One mission of the Early Intervention Research Institute (EIRI) at Utah State University is to study issues related to parent involvement in early intervention. As part of this mission EIRI conducted three systematic replication studies examining the effects of adding a parent involvement component to an already existing early intervention program (Boyce, 1992; Boyce, White, & Kerr, in press; Innocenti, Hollinger, Escobar, & White, in press). Each of these studies found a mixed pattern of positive results on child outcomes and, in two of the studies, on family outcomes. The purpose of this study was to combine the data from the three studies to increase statistical power and determine if the positive results found in earlier studies were the result of random fluctuation or were reliable effects of intervention. The results indicate that the parent involvement intervention had a positive impact on child development outcomes and on parental perceptions of support. However, the practical significance of these impacts may be limited.

A Comparative Study on the Child and Family Effects of Adding a Parent Involvement Program to an Existing Early Intervention Program

It is widely believed that parent involvement is an essential component of successful early intervention programs. However, a recent comprehensive review of the parent involvement in early intervention literature by White et al. (1992) raised concerns that most of the previous research had focused on children who were disadvantaged, was of poor methodological quality, had defined parent involvement primarily as using the parent as a supplemental intervenor, and had not demonstrated the efficacy of this type of involvement.

The Early Intervention Research Institute has been, as part of it's mission, examining issues related to parent involvement in early intervention. As part of this effort, three systematic replication studies have been conducted that compared typical early intervention services to the same services combined with a group format parent involvement component focused on parent training, parent knowledge, and parent support (Boyce, 1992; Boyce, White, & Kerr, in press; Innocenti, Hollinger, Escobar, & White, in press). Each study found slightly different results in favor of the groups receiving the parent involvement component. All three studies found different positive results on child outcome measures, and two of the studies found positive impacts on family outcomes.

Although the methodological design of each study was rigorous (e.g., random assignment to group, diagnosticians blind to child group assignment, treatment verification measures) and statistical power was adequate, the possibility exists that because of the large number of outcomes measured, the results were random

fluctuations rather than impacts of intervention. Where the parent involvement component in each of the three studies was, essentially, the same and the outcome measures were the same, the data from these three studies has been combined to increase statistical power. The purpose of this study was, using this larger sample, to examine the effects of the parent involvement intervention on child functioning and family outcomes when compared to the group that did not receive the parent involvement component.

METHOD

Subjects participating in this study received early intervention services either through a school district program (Innocenti et al., in press) or through a private, non-profit agency that contracted with a state division of social services to provide intervention (Boyce, 1992; Boyce et al., in press). In each study, subjects were stratified and randomly assigned to groups.

Subjects

Subjects were 181 children with mild to severe disabilities and their families. Children were identified as disabled by their respective programs prior to study initiation. The average chronological age of the children was 48 months with an average developmental age of 29 months. More information on subject and family demographics is provided in Table 1.

Intervention Program

All children were involved in local classroom-based early intervention programs. The specific operation and staffing pattern of the programs varied depending on the study in which the children were involved. These programs can be generally described as: half-day, five-day-per-week; based on child individual education plans (IEP); therapists were available in classrooms to work with the teachers and children; classrooms used a mix of individual and small group

formats. Parents were only minimally involved in the classroom activities in all three studies.

Parent involvement program. The parent involvement program was similar in all three studies. Parents participated in sessions that were: small group (8-12 parent); 15 or 16 sessions; presented roughly once per week; 90-120 minutes in duration; and facilitated by program support staff (not teachers). Classroom teachers were only minimally aware of the goals and activities of the parent involvement program and children were not segregated by classroom based on study condition.

Parent sessions were organized around the Parents Involved in Education (PIE; Pezzino & Lauritzen, 1986) curriculum. These sessions were characterized by the following activities: (a) Training parents to provided intervention for their child; (b) Providing parents with information to allow them to become more informed advocates for their child; (c) Allowing parents an opportunity to address social support issues; and (d) Requesting parent to conduct a home intervention activity with their child.

Measures and Data Collection

Assessment data for this study were collected when the study began (pretest) and at the end of the academic year in which intervention occurred (posttest); approximately seven months. A brief description of the measures of child and family functioning is presented in Table 2.

All diagnosticians were certified as competent test administrators through formal training, which included a minimum of three test administrations, two of which were observed for quality control. Diagnosticians remained uninformed about individual subject's group assignment and specific study hypotheses. In addition, approximately 10% of all test were "shadow scored". Interrater

reliability data consistently revealed interrater agreement coefficients above .90.

Treatment Verification

Within each of the studies combined for this analysis, a variety of treatment verification measures were obtained. These data included: length of child intervention in program days, parent attendance at parent involvement meetings, and parent performance on a test designed to assess parent knowledge of information presented as part of the PIE curriculum.

In addition, contextual data that could impact on treatment were also obtained. These data included: child health, parent satisfaction with intervention, parent perception of resources, life events occurring to families during intervention, and parent report of additional services the child may have received outside of the study intervention.

RESULTS

Treatment Verification

No statistically significant differences were found on any of the treatment verification or contextual variables.

Comparability of Groups

Information on comparability of groups on demographic characteristics is presented in Table 1. Information of comparability of groups on pretest measures is presented in Table 3. All analyses were conducted using t-tests. No differences were found on the majority of variables. A statistically significant difference was found on the FILE and the FSS at pretest. These results indicate parents in the classroom + parent involvement condition had more life events occur during the previous year and also perceived more sources of support as

being available. Note that these two measures were not administered to all parents. Overall, these data suggest the groups were comparable at pretest.

Effect on Measures of Child and Family Outcome

Results of analyses on measures of child and family outcomes are presented in Table 4. All analyses were conducted using Analysis of Covariance (see Taylor & Innocenti, in press, for more information on the use of analysis of covariance in randomized design studies). Statistically significant differences (at $p \leq .05$) were found between the groups on the Battelle Developmental Inventory Personal/Social and Adaptive Behavior Domains. These results indicate that children in the classroom + parent involvement group performed better in these domain areas as a result of intervention. However, the average effect size for the difference in these domains was only .18. This indicates that the children in the classroom + parent involvement group performed less than one-fifth of a standard deviation better on these domains than children in the classroom-only group. The average effect size for all child measures was .08.

On the family outcome measures, a statistically significant result was found only on the Family Support Scale, with families who were involved in the classroom + parent involvement group reporting more perceived support. The average effect size for all family outcome measures was .09.

DISCUSSION

This study investigated the effect on children, parent, and families of placement in a preschool early intervention program supplemented by parent attended meetings focused on training intervention skills, advocacy knowledge, and social support, compared to the same program without the parent component. Results of this study indicate that the supplemental parent involvement component had a small impact on children's developmental progress immediately after

intervention. Perceptions of family social support were also impacted positively by the parent involvement component.

However, the results also suggest that the magnitude of the child effects was small. In child areas where statistical significance occurred, the average effect size was only .18. Although clear consensus does not exist on what constitutes an educationally significant effect size, effect sizes of .50 are generally considered educationally meaningful (Cohen, 1977; Glass, 1976; Tallmadge, 1977). The small effect sizes in this study do not approach this level. If these small differences persist longitudinally, then they may become meaningful. Also, remember the effect size for all child outcome measures was only .08.

On family outcome measures only one statistically significant difference was found. This difference on perceptions of support is consistent with the intent of this intervention. However, no other impacts on family functioning occurred.

This study raises some issues regarding the efficacy of this form of parent involvement. Overall, the impacts on child and family outcomes was limited. Information on the costs of this type of intervention indicate that intervention costs are increased by an average of 10% per child (Boyce, 1992; Innocenti et al., in press). This type of intervention also has a cost to parents in terms of their time and energy. This cost is best demonstrated by parent attendance figures in the individual studies, which was slightly more than half of possible sessions. Finally, the small effects of intervention raise questions regarding the durability of this type of intervention. It may be wishful to think that 15 sessions of intervention will have a lasting impact on parent behavior. Given these considerations, it may be beneficial for researchers and practitioners to

investigate other types of parent involvement that overcome some of these limitations.

Regardless of arguments for or against this type of parent involvement, this study demonstrates that questions regarding parent involvement can be addressed with methodologically sound experimental studies. Research such as this will help to define not only what types of parent involvement "work", but will also help the field of early intervention elucidate its arguments for involving parents. Whatever the role of parents is determined to be, it should be one that is both empirically and logically defensible.

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Table 1

Comparability of Groups on Demographic Characteristics for Parent Involvement Study

	Center Only			Center + PIE				
	$\bar{x}$	(SD)	n	$\bar{x}$	(SD)	n	Value	ES^
• Age of child in months at pretest	48.6	(11.3)	94	47.6	(11.6)	87	.54	-.09
• Child developmental age	29.5	(10.1)	94	28.3	(10.1)	87	.44	-.12
• Age of mother in years at pretest	31.2	(6.4	87	31.1	(4.9)	81	.92	-.02
• Age of father in years at pretest	33.4	(7.2)	79	33.0	(5.7)	75	.75	-.06
• Percent Male*	63		94	62		87	.92	.04
• Years of Education for Mother	12.8	(2.4)	94	12.9	(1.8)	87	.72	.04
• Years of Education for Father	13.3	(2.4)	83	13.7	(2.4)	84	.30	.17
• Percent with both parents* living at home	76		94	84		87	.16	.20
• Percent of children who are* Caucasian	88		92	92		86	.40	.12
• Hours per week mother employed	6.1	(11.6)	91	5.8	(10.1)	87	.87	0.03
• Hours per week father employed	38.4	(17.1)	70	36.5	(17.4)	79	.51	-.11
• Percent of mothers employed as* technical/managerial or above	8		92	6		86	.64	.14
• Percent of fathers employed as* technical/managerial or above	44		77	44		79	.99	.00
• Total household income	21,172	(18,106)	90	25,697	(19,606)	86	.11	.25
• Percent with mother as* primary caregiver	97		68	98		62	.61	-.06
• Percent of children in daycare*	37		67	34		62	.69	-.07
• Number of siblings	1.9	(1.4)	93	1.8	(1.0)	87	.68	-.04
• Percent with English as* primary language	99		93	100		87	.61	.08

* Statistical analyses for these variables were based on a t-test where those children or families possessing the trait or characteristic were scored "0."

^ $ES = \frac{\bar{x}\text{ (center + PIE)} - \bar{x}\text{ (center only)}}{\text{SD (Center Only)}}$

ESs for percentage values are based on a probit transformation. The sign of the effect size only indicates direction of result, no value judgments are intended

Table 2

Description of Tests Administered and Schedule of Administration

MEASURES	DESCRIPTION
CHILD MEASURES	
Battelle Developmental Inventory (BDI)(Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984)	A norm-referenced test of developmental functioning completed through child administration and parent interview. Assesses personal/social, adaptive, motor, communication, and cognitive skills, and provides a total score.
FAMILY MEASURES	
Parent Stress Index (PSI (Abidin, 1990)	Assesses parent perceptions of stress on the parent-child system. The two main domains are child-related factors and parent factors.
Family Support Scale (FSS) (Dunst, Jenkins, & Trivette, 1984)	Assesses the availability of sources of support as well as the degree to which different sources of support provided are perceived as helpful to families rearing young children.
Family Resource Scale (FRS) (Dunst & Leet, 1985)	Assesses the extent to which different types of resources are perceived as adequate in households with young children. Factors include: General Resources, Time Availability, Physical Resources, and External Support.
Family Inventory of Life Events and Changes (FILE) (McCubbin, Patterson, & Wilson, 1983)	Assesses life events and changes experienced by a family unit during the past 12 months. The specific areas of potential strain covered by the scale include: intra-family, marital, pregnancy and childbearing, finance and business, work-family transitions, illness and family "care," losses, transitions "in and out," and legal.
Family Adaptability and Cohesion Evaluation Scale - III (FACES) (Olson, Portner, & Lavee, 1985)	Provides a general picture of family functioning by assessing the family's level of adaptability and cohesion. Family cohesion assesses degree of separation or connection of family members to the family. Adaptability assesses the extent to which the family system is flexible and able to change in various situations. The scale also has a perceived as well as ideal form that provides an indication of the extent to which current family functioning is consistent with the family's expectations for ideal family functioning.
CES-D Depression Scale (Radloff, 1977)	This scale is a short self-report test designed to measure depression-symptomatology on the general population.

Table 3

Comparability of Groups on Pretest Measures

	Classroom-Only			Classroom + Parent Involvement				
	$\bar{x}$	(SD)	n	$\bar{x}$	(SD)	n	p-value	ES^
Battelle Developmental Inventory								
Personal/Social	97.8	(29.5)	94	94.9	(26.8)	87	.50	-.10
Adaptive Behavior	63.0	(16.1)	94	60.1	(16.8)	87	.25	-.18
Motor	87.0	(25.4)	94	84.6	(26.6)	87	.54	-.09
Communication	46.2	(16.2)	94	44.4	(16.7)	87	.46	-.11
Cognitive	37.4	(13.3)	94	37.1	(15.6)	87	.88	-.02
TOTAL	331.3	(88.7)	94	321.1	(91.1)	87	.45	-.11
Parenting Stress Index								
Child-Related	120.5	(20.4)	92	119.5	(21.2)	86	.76	.05
Parent Related	131.5	(25.8)	92	135.0	(26.7)	86	.38	-.14
Family Resource Scale	117.1	(16.3)	60	114.7	(18.9)	60	.44	-.38
Family Inventory of Life Events and Changes	9.4	(6.0)	69	11.9	(7.2)	60	.03	-.42
Family Adaptation and Cohesion Evaluation Scales								
Cohesion	37.6	(7.4)	69	39.1	(4.8)	61	.16	.20
Adaptation	22.8	(6.5)	69	23.3	(4.7)	61	.64	.08
Family Support Scale	1.9	(.7)	66	2.1	(.7)	58	.05	.29

Table 4

Results on Measures of Child and Family Outcomes

Variable	Covariates♦	Classroom Only				Classroom + Parent Involvement				ANCOVA F	p Value	ES^
		x̄	(SD)	Adj.x̄	n	x̄	(SD)	Adj.x̄	n			
Battelle Developmental Inventory* (BDI)												
Personal/Social	1,6	105.9	(29.7)	104.6	94	109.0	(28.8)	110.3	87	4.6	.03	.19
Adaptive Behavior	2,6	67.1	(16.8)	65.9	94	67.6	(18.5)	68.8	87	4.7	.03	.17
Motor	3,6	95.4	(26.7)	94.3	94	92.9	(28.5)	94.1	87	.01	.91	-.01
Communication	4,6	51.9	(18.2)	50.9	94	51.3	(19.4)	52.3	87	1.4	.23	.08
Cognitive	5,6	43.6	(17.1)	43.4	94	42.8	(17.3)	43.0	87	.10	.75	-.02
TOTAL	1,6	363.6	(96.1)	358.5	94	363.7	(99.0)	368.7	87	3.6	.06	.10
Parenting Stress Index (PSI)												
Child Related	8	119.1	(22.6)	118.6	91	117.8	(20.0)	118.3	86	.02	.90	-.01
Other Related	9	134.1	(27.6)	135.3	91	134.2	(23.7)	133.0	86	1.0	.33	-.08
Family Support Scale (FSS)												
Total	10	1.6	(.7)	1.7	64	2.0	(.6)	1.9	58	7.32	.01	.27
Family Adaptation and* Cohesion Evaluation (FACES)												
Cohesion	12	37.6	(6.6)	38.1	68	39.3	(5.5)	38.8	60	.65	.42	.11
Adaptation	13	23.0	(6.4)	23.1	68	23.3	(4.8)	22.7	60	.28	.60	-.06
CES-D Depression	7	33.7	(10.8)	33.6	68	30.6	(10.4)	30.6	61	2.95	.08	.28

* Statistical analysis for the BDI was conducted using raw scores for each of the scales and these are presented.

♦ Covariates: 1 = BDI Total, 2 = BDI adaptive; 3 = BDI Motor, 4 = BDI Communication, 5 = BDI Cognitive, 6 = Age of child at pretest, 7 = PSI total, 8 = PSI child, 9 = PSI other, 10 = FSS Total, 11 = FRS Total, 12 = Adaptation, 13 = Cohesion

^ Effect Size = $$\frac{\text{Adj}\bar{x}\text{ (classroom + parent involvement)} - \text{Adj}\bar{x}\text{ (classroom only)}}{\text{SD (classroom only)}}$$