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DIFFERENTIAL PARENTAL PARTICIPATION IN A COMPREHENSIVE
EARLY INTERVENTION PROJECT:
IS MORE ACTIVE BETTER?

by

Gary Percival

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah
1994

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Gary Percival

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ABSTRACT

Differential Parental Participation in a Comprehensive Early
Intervention Project: Is More Active Better?

by

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Utah State University, 1994

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Department: Psychology

The current study examined the level of participation by families who have been involved between 1 and 3 years with the Community-Family Partnership (CFP) project. The CFP project is 1 of 34 Comprehensive Child Development Projects funded by the Administration for Children, Youth, and Families through the Head Start Bureau. The CFP makes available comprehensive, on-going services to enrolled families. Twenty-six families were identified as the Low Participation Group. Twenty-three families were identified as the High Participation Group. Children from each group were tested using the Battelle Developmental Inventory on a yearly basis. Results of a repeated measures ANOVA indicated that children of families with high participation had better child BDI scores than children of families with low participation. No difference was found in the economic status of these families. Multiple regression analyses were conducted using family demographic characteristics and other measures to create a profile of an actively participating family.

(127 pages)

CHAPTER I

PROBLEM STATEMENT

Children living in poverty are at greater risk for biological, developmental, and medical delays than those not living in poverty. In the early intervention literature, the term used to describe families and children living in poverty is "disadvantaged" (Ramey & Ramey, 1992b). The biological, developmental, and medical delays disadvantaged children experience are believed to contribute to the continued cycle of poverty when these children become adults (Washington & Oyemade, 1985). With the establishment of the Head Start program in 1965, early intervention programs for disadvantaged children became the popular method for decreasing the risk of developmental delays and increasing the chance of breaking the poverty cycle. At first, early intervention programs removed children from the home for a few hours each day and provided services directly to the child without any parental involvement. In describing the conditions necessary for effective early intervention programs, Bronfenbrenner (1974) argued that "ecological intervention is necessary for millions of disadvantaged families in our country -- to provide adequate health care, nutrition, housing, employment and opportunity, and status for parenthood" (p. 301). For ecological intervention to be effective, families need to participate in intervention programs. Research findings demonstrate that quality intervention programs that attempt to follow Bronfenbrenner's model are effective in preventing or remediating developmental delays in children who are disadvantaged due to the income level of their families (Ramey & Ramey, 1992a).

The necessary components of an overall successful early intervention program for disadvantaged children have been refined since Bronfenbrenner's (1974) list. A major change in early intervention programs is the increasing use of parents for enhancing the development of their children. Early intervention programs are increasingly interested in making positive changes in the child's home environment by providing services to the whole family. These services help families meet basic needs such as: economic support, mental health, nutrition, and health. While early intervention programs show overall positive outcomes on developmental and intellectual measures for children who live in poverty, there are large differences in the amount of progress achieved by individual children in these programs. The outcomes achieved by families (i.e., economic and social self-sufficiency) as a result of these interventions have yet to be determined. With increasing family involvement in early intervention programs, the degree to which families are willing and able to participate with program requirements becomes an important family characteristic. The degree of family involvement might account for individual differences in gains made by children within programs and needs to be studied (Ramey & Ramey, 1992a). Guralnick and Bennett (1987) concluded that the role the family plays in early intervention programs is a crucial question to be answered in future research.

Studies that look at how individual family characteristics interact with intervention procedures in determining child development are needed. These studies may help future programs tailor intervention strategies so that all families have an

equal opportunity to maximize their children's development and provide them with the skills needed for economic self-sufficiency as they enter their adult years. This study examined the effects of differential parental participation with several intervention procedures on the welfare of the family and the development of their children.

CHAPTER II

REVIEW OF LITERATURE

To understand fully the term "parent participation" as used in this paper, it is necessary to define some other commonly used terms from the early intervention literature. Parent or family involvement in early intervention is a program characteristic usually defined to mean the manner in which intervention programs involve parents and families, not how involved parents and families are with those programs (McConachie, 1986; Peterson & Cooper, 1989; White, Taylor, & Moss, 1992). Parental compliance is defined in the literature to mean whether parents participate or allow their children to participate at some minimal level. Minimal parental compliance is deemed necessary in order for children to be included as subjects in studies' results (Saylor, Elksnin, Farah, & Pope, 1990). For example, parents who assure that their children attend a specified percentage of intervention sessions would be considered compliant, while parents whose children attended 1/2 less than the specified amount would be considered noncompliant.

Definition of Parental Participation

Parental participation was defined for this study as consisting of a continuum of parental involvement in intervention opportunities. This continuum ranges from the minimal compliance needed to remain part of the project; through parents requesting and helping develop individualized services to meet their specific needs; to parents being able to recognize, access, and follow through with services required to meet

their family's individual needs with minimal or no external assistance. The term differential parental participation refers to the fact that all parents do not participate equally. Parents with children in the same early intervention program may receive very different services based on individualized competing needs and/or their motivation to obtain services. Ecological intervention as used in this paper is intervention according to Bronfenbrenner's (1974) model that includes offering services to a child and their family in a broad range of areas (i.e., health, nutrition, child development, social support, income, etc.) to help provide an environment that will promote child development.

Hierarchy of Human Needs

Abraham Maslow developed a hierarchy of human needs that may explain differential parental participation based on the family's most urgent needs. He proposed that the lower needs had to be met before humans had the resources to meet the higher needs. The five levels of Maslow's needs hierarchy are (a) physiological needs, (b) safety needs, (c) social needs, (d) esteem needs, and (e) self-actualization needs (Liebert & Spiegler, 1987). According to Maslow's theory, if poverty-level families do not know where their next meal is coming from (physiological needs) and they do not have the money for next month's rent (safety needs), they will not have the resources to develop parental status (social needs) or to work on the achievement and mastery of parenting skills (self-esteem needs) needed to promote child development.

Halpren (1990) concluded that to promote developmental gains:

Children need to be protected from physical and psychological harm, and provided adequate nourishment. Beyond these basics, in infancy children need frequent holding, touching, smiling, and talking; in a word, nurturing (p. 7)

Dunst, Leet, and Trivette (1988) conducted a study of the needs hierarchy of low and middle income mothers whose young children were participating in an early-intervention program. They found that family demographic characteristics including income were not related to personal well-being or to the parents' adherence to intervention procedures. They concluded that to be effective, early intervention projects must be flexible and offer individualized family service plans that meet the family's basic needs.

Review of Literature Reviews

In 1974 Bronfenbrenner conducted an analysis of seven early intervention programs that served economically disadvantaged children. He concluded that effective early intervention programs are necessarily composed of three major components: (a) family involvement; (b) ecological intervention, including "adequate health care, nutrition, housing, employment and opportunity, and status for parenthood" (p. 301); and (c) long-range intervention consisting of five stages: (1) prenatal education; (2) prenatally, adequate housing and economic security; (3) home-based child-development education and activities for infants 0-to-3 years of age; (4) center-based preschool services added to on-going parent intervention for children ages 4-to-6; and (5) parental support of children's school activities for children 6-to-12

years of age. While Bronfenbrenner was one of the first to describe necessary early intervention program characteristics, he mentioned nothing about child or family characteristics that enhance or hinder the intervention effort or the effects of differential parental participation on child development.

Bronfenbrenner's conclusions are some of the most frequently cited in the early intervention literature. Yet, Bronfenbrenner used position papers by experts in early intervention and research from related areas to support his conclusions, not the data from the seven research studies serving economically disadvantaged youth cited in his review. Therefore, his conclusions are not persuasive. This author concluded from the data provided in the original seven studies that center-based early intervention programs working with poverty-level Black and American Indian families seem to have some positive effect on child development.

Halpren (1984) presented a narrative review of the literature on home-based, early intervention programs. Halpren argued that home-visited programs were specifically developed for intervention with socioeconomically disadvantaged families. He concluded:

Based on the evidence available in reviews and program reports, the potential benefits of home-based early intervention remain unmeasured and undefined. We have, at present, no reliable means of assessing the theoretical adequacy or even the inherent effectiveness of such programs. (p. 41)

While Halpren (1984) presented a logical argument for his conclusion, the data that support that conclusion are not presented. Halpren's conclusion seems logical and accurate. He also stressed the lack of measurement tools and thus the lack of

data as such, questions remain. Halpren also did not address how differential parental participation might affect the outcome of home-visited programs.

Bryant and Ramey (1987) conducted a review of 17 early intervention programs for environmentally at-risk children. They concluded that with environmentally disadvantaged children the intensity of the program should have a direct positive impact on the intellectual benefits for the children involved. Bryant and Ramey (1987) also concluded that intervention for disadvantaged children was effective for children from birth through school age. However, they questioned whether there was sufficient developmental risk during the first year of life to justify intervention with disadvantaged children. While Bryant and Ramey (1987) did not examine how differential parental participation affected outcomes, they speculated that programs that required more parent participation would experience higher attrition rates. To determine whether this might be so, they suggested that programs be tailored to fit the life styles of the participants. They further speculated that programs that could sustain parental involvement would have better long-term outcomes in terms of child development.

Dunst, Snyder, and Mankinen (1989) conducted an analysis of home and center-based early intervention research. They concluded that early intervention was effective in remediating child development and/or preventing overall delays.

Concerning ecological interventions, Dunst et al. (1989) reported:

A number of programs engaged in extensive efforts designed to mediate provision of support from both the programs and other social agencies. There were, however, no explicit attempts to evaluate the impact of these efforts.
(p. 284)

While Dunst et al. (1989) described in detail the studies in this group, they did not provide information on the results of the studies they described, nor did they describe how they arrived at their conclusions. Therefore, their conclusions are questionable. Dunst et al. (1989) also did not provide any data on the differential effects of parental participation with intervention procedures.

White et al. (1992) conducted an analysis of the literature on parent involvement in early intervention. They defined parent involvement as the methods by which intervention programs involve parents in interventions with their children, not the actual involvement of parents in terms of hours participated, education received, or motivation for involvement with the program. After computing and comparing standardized mean difference effect sizes for each of the original studies, they concluded:

For disadvantaged children, less high quality data is available, but the best studies suggest that the addition of parent involvement to existing early intervention programs, at least as parent involvement has been defined in past research, is of no benefit. (p. 119)

White et al. (1992) also demonstrated that in past studies, parent involvement usually means using parents only as an intervenor. From the data presented by White et al. (1992), it appears that the opportunity for parents to be involved in other ways (i.e., parenting skills, job training, emotional support, etc.) has in past studies played a minor role in intervention procedures.

Ramey and Ramey's (1992a) review is the only one that discussed the effects of differential parental participation in an early intervention project. They reviewed three early intervention projects. They concluded that intensive early intervention is beneficial to children who come from disadvantaged families. They also concluded

that differential parental participation affects the outcome in terms of children's intelligence. Children whose parents participate at a higher level perform better on intelligence tests than children whose parents participate at a low level. The data for Ramey and Ramey's (1992a) conclusion on the effects of parental participation on child intelligence came from only one of the three studies reviewed. The study that examined the effects of differential parental participation on children's intelligence (Ramey et al., 1992) used as its subject population, premature infants with low birth weights. No mention was made in Ramey and Ramey's (1992a) review or in the original article describing this project (STET) of the economic status of the families involved in the study. It is difficult to generalize the findings from early intervention with premature infants regardless of family economic standing, to the whole of children from disadvantaged homes.

Ramey and Ramey (1992b) conducted a second narrative review of the early intervention literature. In this review, Ramey and Ramey (1992b) identified family income as the primary risk factor used in the early intervention literature to define disadvantaged children. They also recognized that low income does not necessarily mean an impoverished environment and individual family differences must be taken into account when developing individualized programming. Based on their review, Ramey and Ramey (1992b) identified six principles that they concluded were consistent across program that produced moderate to large effects on children's cognitive development. First, programs that began earlier and continued longer were better than those programs that began later and were shorter. Second, programs that

offered more hours per day of intervention produced greater positive effects. Third, direct services to the child were better than indirect services (i.e., parent training, home visiting). Fourth, programs that offered comprehensive services were better than those offering more limited services. Fifth, children benefit from early intervention differently. Sixth, those programs that offered support in maintaining an environment that supports continued development were better than those that did not offer support in environmental changes and maintenance. Based on these six principles, Ramey and Ramey (1992b) concluded:

For further research and program development, the goal is to optimize the match between the needs of children and families and the intensity and form of early intervention, thereby maximizing potential benefits to children, families, programs, and communities. (p. 135)

Following Maslow's guidelines, Ramey and Ramey (1992b) outlined a conceptual framework for the successful transition of disadvantaged children from their impoverished environment to school. This transition model takes into account differing levels of parental skills and requires active parental involvement with the intervention procedures. One of the assumptions of Ramey and Ramey's (1992b) model is that families will actively participate in early intervention programs. Yet, they provided no evidence that active participation is necessary in promoting child development or for increasing family self-sufficiency.

Saylor et al. (1990) conducted a survey in which they asked early intervention professionals and families involved in early intervention programs what techniques programs could use to entice parents into greater participation. They reported that the responses to this survey varied greatly from program to program and from family to

family. They also reported that many of the techniques rated by professionals as most useful in gaining parental participation were different from the techniques rated by families as most useful. Professionals reported that providing families with information packets, verbal praise and encouragement, audiovisual aids, an information library, a toy library, and social-support services were the top procedures for encouraging family participation. Parents, on the other hand, reported that reimbursement for travel, subsidized phone, meals and refreshments, medical services, one-on-one staff support, and social-support services were what would most encourage their participation in early intervention activities.

Research Literature

The major purpose of this section of the review is to determine if differential parental compliance with early intervention procedures has been considered as a factor that effects the outcomes of early intervention programs for disadvantaged children. An exhaustive search was made to find all research articles relating early intervention with economically disadvantaged children. ERIC, Psychological Abstracts, and Medline data bases were searched using the key terms: early intervention, preschool, home visiting, low SES, ecological intervention, and poverty. In addition, the article data base at Utah State University's Early Intervention Research Institute was accessed, and references were obtained for all early intervention articles that had been coded for disadvantaged children. References obtained from these searches were also used to locate additional articles.

Many articles were obtained that described early intervention programs with disadvantaged children. Most were descriptive in nature and offered no interpretable data in terms of family or child outcome measures. Strict inclusion criteria for this review were adopted to avoid unnecessary replication and to provide the best evidence of child or family characteristics. Articles were included in this review if the age of the target child at enrollment into the intervention program was 3 years old or less, if the treatment group was directly compared to a nontreatment control group, if the main risk for developmental delay of the target children was their family's economic condition, and if the data were presented in a manner in which standardized mean difference effect sizes could be computed or reasonably estimated. As a result of the literature search and the inclusion criteria, 16 studies were included in this review, producing 122 effect sizes on 13 outcome measures.

Coding

The 16 studies included in this review were coded on a number of parameters. Demographic data included: year of study, sample size, mean age of target children at beginning of study, whether the study took place in an urban or rural area, quality of study, and type of group assignment. The quality of the study was based on a combination of criteria that examined control procedures relating to the internal and external validity of each study. The major problems with most studies were attrition and sample selection. Good studies attempted to account for differences in groups based on the threats to validity. Fair studies tried to account for some of the differences in groups based on the threats. Poor studies assumed the groups were the

same without examining any pretest differences. Table 1 presents the demographic data for each of the 16 studies.

Based on the purpose of this study, Bronfenbrenner's (1974) description of ecological interventions, and the federal mandates for services to be provided by Comprehensive Child Development Projects (CCDP), the following types of interventions were coded for each study (these 13 interventions are also the core mandated services offered by CCDP projects):

1. Early Intervention: This included any services, except health and nutritional services, provided directly to children by trained persons to remediate or prevent developmental, biological, or medical delays.
2. Child Health Services: This included any health service that was provided to program children above what was provided for control children. For example, if both program and control groups were provided with well-baby care, then "Child Health Services" was not coded. If, on the other hand, only the program group was provided with well-baby care and the control group was left to obtain any such care themselves, then the service was coded.
3. Child Nutrition Services: This included the provision of any nutrition supplementation that occurred in a manner to assure that the child benefitted, that was provided to program children above what was provided for control children. For example, nutritious meals provided to the family would not be coded as child nutrition, while nutritious meals provided to the child in a setting that assured that the child ate the meals would be coded. If a child received snacks in a preschool

Table 1

Demographic Data from Reviewed Articles^a

	<u>N</u>	Mean Age	Demographic Area	Quality of Study	Group Assignment
Cappleman, Thompson, DeRemer-Sullivan, King, & Sturm (1982)	19	0	urban	good	random
Caruso (1989)	60±	0	na	fair	random
Dawson, Robinson, Butterfield, van Doorninck, Gaensbauer, & Harmon (1990)	67	0	na	fair	random
Field, Widmayer, Greenburg, & Stroller (1982)	35±	0	urban	fair	random
Gray & Ruttle (1980)	20-	20	na	fair	random
Madden (1984)	20±	27	urban	fair	random
Pfannenstiel & Seltzer (1989)	380	0	na	poor	convenience
Portes, Dunham, King, & Kidwell (1988)	19	24	na	good	random
Portes, Dunham, & Williams (1986a)	19	0	na	fair	matched
Portes, Dunham, & Williams (1986b)	30	12	urban	fair	random
Ramey & Gowen (1984)	50±	02	rural	fair	random
Ramey & Smith (1976)	25	02	na	poor	random
Rescorla, Provence, & Naylor (1982)	18	0	urban	poor	matched
Slaughter (1983)	26	22	urban	fair	random
Stone, Brendell, & Field (1988)	31	0	urban	poor	matched

^a Sample size, mean age in months of target children at beginning of study, whether the study took place in an urban or rural area, quality of study, and type of group assignment.

setting, but no mention was made as to the quality of the snacks, this service was not coded.

4. Child Day Care: Any provision of child care in which the focus of the placement was not to remediate or prevent developmental delays.

5. Family Income Support: Any intervention that increased families' income. Assuring that families were receiving income support from welfare agencies was coded. Suggesting that families apply for such support was not coded.

6. Family Health Services: Any health services provided to members of the target child's family, above the services provided to the control families.

7. Family Nutrition Services: Any nutrition supplement provided to the family, above the services provided to the control families. Education about nutrition was coded under parent education, not nutrition services.

8. Housing Services: Any service that maintained or improved the family quality of housing, for example, paying rent so a family is not evicted, is a housing service. Providing money for rent when the family has control over how it is spent is family income support. Referring a family to a shelter after the eviction would not be coded as a housing service.

9. Drug and Alcohol Education and Rehabilitation Services: Any services provided to program family members to educate about, prevent, reduce, or terminate the use of drugs and alcohol.

10. Parenting Skills Education: Any education provided to parents that helped to increase their awareness or skills in areas related to raising their children.

11. Prenatal Care: Any health care or health education directly relating to the fetus, provided prenatally to mothers that was not received by the control group.
12. Vocational Education and Training: Any education and training directly related to the parents' vocational skills or opportunities.
13. Social Skills Education and Training: Any education and training directly related to improving social skills. Social-skills education was not assumed to occur as a function of having home visitors.

Any reported differences in the amount or quality of services received or activities participated in, that occurred within the treatment group as a result of parents' cooperation with intervention procedures, were also recorded as "differential parental involvement." In addition, the average number of weeks of the intervention, the average number of months between intervention and follow-up studies, whether the intervention was home-based, center-based, or combined, and the type of outcome measure used was coded. The average number of intervention hours per week was considered an important datum to be compared across studies, but due to inconsistent reporting it was impossible to obtain sufficient data that could be reliably compared across studies. The types of outcome measures were divided into the following groups: child's motor skills, IQ, academic achievement, language skill, and other child measures (e.g., child stress, child's weight); and family income, parenting skills, family environment, mother returning to work, mother returning to school, repeat pregnancies, mother-child interactions, parents' compliance with treatment, and other

family measures (e.g., parental stress). Standardized mean difference effect sizes were computed for the reported outcomes of each study. For each study, the standard deviation of the control group was used for computation of the standardized mean difference effect size because it is the best estimate of the variance for the untreated population.

Results

None of the studies cited reported the effects of differential parental participation with early intervention treatment procedures. All studies reported some minimum participation requirements that parents had to comply with to be included as part of the study. None of the studies looked at the differences in participation levels of those families who met the minimal requirements. Consistent with the results of the review by White et al. (1992) (see Figure 1), most of these early intervention studies involved parents by educating them about child-rearing issues in the hope that this new knowledge would translate into behavior changes that would enhance child development. Fifteen of the 16 studies (92%) cited used parent education as an intervention, yet only 6 of the 16 (38%) used posttest measures of parent skills or parent-child interaction to compare groups on treatment effectiveness. Twelve of the 16 studies provided early intervention services directly to the child without the apparent aid of the children's parents in promoting the child's development. The other interventions required of CCDP programs were either not used in any of the 16 programs or were used as secondary interventions without any follow-up to examine how parents complied with these interventions. It is important to note that even

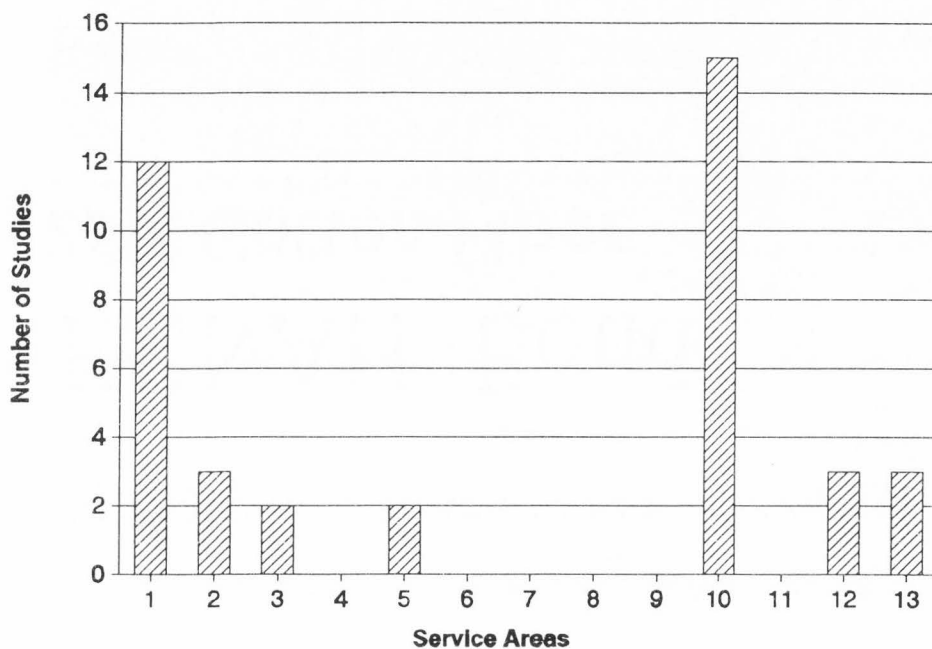


Figure 1. Number and type of interventions used per study.

KEY TO SERVICE AREAS: 1. Early Intervention; 2. Child Health Services; 3. Child Nutrition Services; 4. Child Day Care; 5. Family Income Support; 6. Family Health Services; 7. Family Nutrition Services; 8. Housing Services; 9. Drug and Alcohol Education and Rehabilitation Services; 10. Parenting Skills Education; 11. Prenatal Care; 12. Vocational Education and Training; 13. Social Skills Education and Training

Note. The total number of service areas is greater than 16 due to 9 studies using more than one intervention.

though the CCDP intervention model has been promoted since 1974, none of the research studies cited here reportedly provided child day care, family health services, family nutrition services, housing services, drug and alcohol education or rehabilitation, or prenatal care.

The effects of the interventions on disadvantaged children and their families as they were implemented are presented in Table 2. The largest stable improvement (i.e., large standardized mean difference effect sizes across time with lowest standard deviations) for program children over control children is in the area of motor skills. While the standardized mean difference effect size was larger for gains in the children's IQ scores, there are also larger discrepancies between studies as seen by the large standard deviation scores. The program children's language skills showed a slight increase in scores over control children, while there was no difference in academic abilities once the children began school. Other child outcome measures reported no difference between groups in the children's height, behavior problems, or social emotional levels. Slight differences were reported between groups in the children's weight, perceptual and memory skills, and adaptive behaviors. Large differences were noted in the areas of child abuse and neglect. Because most of these results came from only one study, and given the large differences between studies on the more common outcome measures, it is difficult to determine the validity of the results in the "other child measures" category.

Family outcome measures include a slight gain in the parenting skills of the program parents over control group parents. This effect is more pronounced in center-based operations. Mothers of the target children returned to work more often, and had fewer repeat pregnancies within two years. Yet, consistent with the lack of comprehensive ecological intervention, there were no differences between groups in the families' environment or in parent-child interactions as measured by observation

Table 2

Mean Effect Sizes Based on Outcome Measures by Nature on Intervention

Outcome measure by nature of intervention	Mean ES	<u>SD</u>	<u>N</u>
Child's Motor Skills	.54	.13	10
Home Based	.53	.08	4
Center Based	.54	.16	6
Combined	na		
No follow-up	.47	.15	4
≤ one year	.59	.09	4
1 to 3 years	.58	.16	2
≥ 3 years	na		
Child's IQ	.65	.66	40
Home Based	.46	.80	17
Center Based	.79	.56	23
Combined	na		
No follow-up	.72	.72	31
≤ one year	.37	.29	6
1 to 3 years	.50	.17	3
≥ 3 years	na		

(table continues)

Outcome measure by nature of intervention	Mean ES	<u>SD</u>	<u>N</u>
Academic Achievement	.33	.40	6
Home Based	.45	.42	2
Center Based	.27	.44	4
Combined	na		
No follow-up	.60	.40	3
≤ one year	na		
1 to 3 years	na		
≥ 3 years	.05	.12	3
Child's Language Skills	.67	.34	10
Home Based	.53	.30	4
Center Based	.65	.22	5
Combined	1.39	.00	1
No follow-up	.67	.34	10
≤ one year	na		
1 to 3 years	na		
≥ 3 years	na		

(table continues)

Outcome measure by nature of intervention	Mean ES	<u>SD</u>	<u>N</u>
Other Child Measures	.60	.35	24
Home Based	.63	.57	9
Center Based	.57	.13	13
Combined	.60	.18	2
No follow-up	.67	.40	15
≤ one year	.41	.21	6
1 to 3 years	.46	.00	2
≥ 3 years	.74	.00	1
Parenting Skills	.43	.27	6
Home Based	.38	.32	4
Center Based	.54	.10	2
Combined	na		
No follow-up	.37	.31	4
≤ one year	.65	.00	1
1 to 3 years	na		
≥ 3 years	.46	.00	1

(table continues)

Outcome measure by nature of intervention	Mean ES	<u>SD</u>	<u>N</u>
Family Environment	.18	.40	9
Home Based	.27	.48	6
Center Based	.00	.00	3
Combined	na		
No follow-up	.07	.00	1
≤ one year	.07	.15	5
1 to 3 years	.41	.70	3
≥ 3 years	na		
Parent Stress	.18	.00	1
Home Based	na		
Center Based	.18	.00	1
Combined	na		
No follow-up	na		
≤ one year	na		
1 to 3 years	na		
≥ 3 years	.18		

(table continues)

Outcome measure by nature of intervention	Mean ES	<u>SD</u>	<u>N</u>
Mother's Return to Work	.59	.22	5
Home Based	.45	.16	3
Center Based	.79	.00	2
Combined	na		
No follow-up	.29	.00	1
≤ one year	.63	.23	2
1 to 3 years	.69	.13	2
≥ 3 years	na		
Mother's Return to School	.18	.11	2
Home Based	.18	.11	2
Center Based	na		
Combined	na		
No follow-up	.18	.11	2
≤ one year	na		
1 to 3 years	na		
≥ 3 years	na		

(table continues)

Outcome measure by nature of intervention	Mean ES	<u>SD</u>	<u>N</u>
Mother-Child Interactions	.09	.58	3
Home Based	na		
Center Based	.03	.80	2
Combined	.22	.00	1
No follow-up	.22	.00	1
≤ one year	na		
1 to 3 years	na		
≥ 3 years	.03	.80	2
Mother's Repeat Pregnancy	.59	.24	6
Home Based	.51	.26	4
Center Based	.74	.07	2
Combined	na		
No follow-up	.57	.45	2
≤ one year	.63	.23	2
1 to 3 years	.58	.16	2
≥ 3 years	na		

and questionnaires. There was also no difference in the number of mothers who returned to school after giving birth. Given human differences, it is interesting that none of the studies looked at the differential effect of parent compliance with intervention procedures.

Summary

Children who live in economically disadvantaged homes are at increased risk for biological, developmental, and medical delays (Fine & Swift, 1988; Honig, 1984; Washington & Oyemade, 1985). Much of this increased risk is because children who live in poverty are more often exposed to medical illness, lack of attention, family stress, parental depression, lack of social support, and maternal drug use (Kaplan-Sanoff, Parker, & Zuckerman, 1991).

Many researchers have proposed comprehensive ecological intervention that would assist families in meeting their physiological and safety needs while teaching them how to meet their belongingness and esteem needs (Bronfenbrenner, 1974; Kaplan-Sanoff et al., 1991; McConachie, 1986; Peterson & Cooper, 1989; Washington & Oyemade, 1985). According to Maslow's hierarchy of human needs, such intervention is essential before consistent positive results can be expected with early intervention programs for children from economically disadvantaged families. According to Ramey and Ramey (1992a), such intervention requires that parents participate in intervention procedures to maximize child development. While all the research studies cited above involved parents in some form or other, and they all had

some necessary compliance standards subjects had to meet to be included in the study, none of the studies examined the effects of differential parental participation.

The Comprehensive Child Development Act of 1988 provided the funding for 24 CCDDP projects to provide a 6-year service demonstration of comprehensive ecological interventions (Kaplan-Sanoff et al., 1991). One of the objectives of CCDDP projects is to develop and demonstrate efficient and effective service delivery programs. These programs offer low income families with infants and toddlers under age 5 individualized intervention in the 13 core service areas outlined above. The research and development cycle helps assure that when finalized, other agencies can efficiently implement the service-delivery model.

CCDDP projects are currently in the 4th year of their funding cycle. One of the CCDDP programs, the Community-Family Partnership (CFP) project, has been providing services to families for two-and-a-half years, yet no comprehensive studies have been reported to determine the impacts of this project. What is needed are well designed studies to evaluate the differences in child development and overall family welfare between program families who fully participate and those who minimally participate in intervention procedures. These studies would help assist CCDDP projects and other early intervention programs to work toward effective parental participation and improve chances of long-term effects.

The purpose of this study was to examine one of the CCDDP projects to determine the effects of differential parental participation in comprehensive ecological intervention in terms of child development and family self-sufficiency. The major

question explored by this study was: What is the effect of differential parental participation in early intervention programs on children's developmental gains? The second question answered was: What is the effect of differential parental participation in early intervention programs on families' economic self-sufficiency? It was expected, based on previous research (Ramey & Ramey, 1992b), that at the time of the initial testing all age-equivalent scores would be statistically equivalent and as time went on the families who participated more should have better child development scores. The third question explored was: What is the relationship between differential parental participation and other family-related variables?

The project examined was the Community-Family Partnership (CFP) project, housed at the Center for Persons with Disabilities, Utah State University, Logan, Utah. Family consultants work with families who are enrolled in the CFP project to obtain needed services in the 13 core service areas, either by working with families to access community agencies, by working with community agencies to create or pay for needed services, or by providing services or by working with other CFP staff to provide needed services. The major goals of the CFP project are to promote child development and to help families work toward economic self-sufficiency.

CHAPTER III

METHODS

Subjects

To be eligible for the CFP project, families had to have an annual income that was below the federal poverty guideline and have an infant under one year of age or a pregnant woman in the household. One hundred eighty families who met the eligibility requirements were initially recruited. Sixty families who met the eligibility requirements were then randomly selected from the subject pool and were placed in each of three groups, an intervention group to be served by the CFP program, a control group with which CFP staff is to have no contact, and a replacement group. When a family moves or chooses no longer to be involved with the CFP project, they are replaced with a family from the replacement pool who currently meets the original eligibility requirements. As a result of the attrition rate and the replacement process, 49 families have been served by the CFP project, for over a year, and 11 have been served for less than one year. The 49 families who have been served by the CFP for over one year served as the sample pool. The federal CCDP project officer has set minimum participation standards of three home-visits and 3 half-hours of child development activities (ECE) per month. At the beginning of the CFP project, the Management Information System (MIS) for tracking home-visit and child development data was not in place. To adjust for the manner in which home-visit and child development data were kept for the first 2 years of the CFP project, minimal

participation for this study is defined as an average of less than 5 home visits and child development activities per month over the entire project. Families were divided into two groups based on their participation level (i.e., those with an average of less than 5 home visits and ECE visits per month and those with an average of 5 or more visits per month). At the time the two groups were formed for this study, 26 of the 49 families were participating minimally; these families will be considered the Low Participation Group (LPG). Twenty-three families have surpassed minimum requirements and were considered actively participating in the project; these families constitute the High Participation Group (HPG).

Procedures

The proposal for this research was sent to the Utah State University Human Subjects Committee for approval and then was successfully defended before a formal dissertation committee. After approval by the Human Subjects Committee and dissertation committee, each family in the proposed sample pool was approached to determine their willingness to participate in this study. Those who agreed to participate signed an informed consent form (Appendix A). Participation in this study required additional time for filling out the survey and testing, above what families had already committed to as members of the CFP project. With the family's permission, the information obtained from the interviews and additional testing was shared with their current case worker after data were collected, to be used to help families in designing, implementing, and achieving individualized family-based support plans.

Instrumentation

In an attempt to standardize parental participation, two mean participation indices were created. The first index of parental participation was created using the CCDP standards for participation. The CCDP federal project officer has defined the level of parental participation as the number of case management home visits plus the number of early childhood education sessions (in home and/or center based). To create the first index of parental participation a monthly average was obtained by adding the number of case management home visits to the number of early childhood education sessions and dividing by the number of months the family has been in the project. The second index of parental participation used the definition of differential parental participation cited in the early intervention literature (Ramey et al., 1992; Ramey & Ramey 1992a). This definition sums all the opportunities each family has for equal participation in early intervention activities. The opportunities families have for equal participation in early intervention activities in the CFP project are: (a) the number of case management home-visits a family received, (b) the number of early childhood education sessions the child has received, and (c) the number of CFP parent skill education programs the parents have attended. In addition to the two indices of parental participation, other measures of parental participation, data were gathered on the average number of sessions per month parents participated in education courses taught by other agencies; the average effort families expended in reaching goals as rated by the family's family consultant; the average progress families made in reaching goals as rated by the number of goals completed or partially completed; the average

number of medical, dental, and mental health visits per family member per month; the average number of services obtained from the CFP in the other core service areas per month; the average number of other core services obtained from other agencies per month; and finally, the average number of weeks per month the mother and father worked.

In addition to the above parental participation data, to answer the question, What is the effect of differential parental participation on children's developmental gains?, standardized child development measures were obtained for each child in the study. Child development was measured by yearly administrations of the Battelle Developmental Inventory (BDI). The BDI yields five subdomain scores (personal/social skills, adaptive functioning, motor skills, communication skills, and cognitive), and a total developmental score. The total developmental score is the focus of this study. As most other studies in the early intervention literature only use a cognitive measure to measure childhood gains, the children's cognitive scores were also computed.

To answer the question, What is the effect of differential parental participation on families' economic self-sufficiency?, the change in each families' income over the course of their involvement in the CFP project was calculated. This change in income was calculated by subtracting the families' verified yearly income at enrollment in the CFP project using their yearly gross income from their 1992 tax forms.

To answer the question, What is the relationship between differential parental participation and other family related variables?, family demographic information

(ethnicity, marital status, mother's age, family size, mother's education level, and parent and staff attitudinal measures) was collected. Family information was gathered from the existing data base or from the use of the established semistructured interview format used by the CFP project to gather family data (Appendix B). Attitudinal measures were collected using the scales presented in Appendix C.

Reliability and Validity of Data

To assure that accurate data were collected, the following measures were taken. All reported medical, dental and mental health contacts were double checked with the provider to assure that intervention had taken place. Income was verified through documentation (i.e., pay stubs, tax returns) at enrollment and in January, 1993. Attendance records were obtained from early education providers and for all CFP activities and educational services provided by other agencies. BDI examiners were trained until a minimum intertester reliability coefficient of $r = 0.85$ was obtained. Each BDI given was scored by the original examiner and double checked by a different examiner to assure that scoring was accurate. In addition, examiners met on a monthly basis to review and discuss testing procedures.

CHAPTER IV

RESULTS

The initial intent of this study was to determine the effects of differential parental participation in an early intervention project on gains in child development and changes in economic self-sufficiency as measured by changes in family income. The initial analysis of the study was to compare the two parental participation indices. To make this comparison, a Pearson product-moment correlation coefficient was calculated to determine the relationship between the two indices. The correlation coefficient obtained was $r = 0.97$. Due to the high correlation between the two measures of parental participation, only the participation index derived from the federal mandates (case management home visits plus early childhood education sessions) was used in the rest of the analyses as the parent participation index.

Group Demographic Characteristic

The demographic characteristics of the two groups are presented in Table 3. T tests conducted on the demographic data of the two groups show that the groups were statistically similar except for years of education, highest degree obtained by the mothers as of March 31, 1993, and the parental participation index. The low participating mothers averaged 1.72 years more education ($p = 0.019$), more often had high school diplomas/GED or above ($p = 0.042$), and averaged 1.7 fewer activities per month that factored into the parent participation index ($p = 0.000$), than the high participating group.

Table 3

Family Demographic Data by Group

Characteristic	Low Participators	High Participators
Number of Families in each Group	26	23
Mean Family Size	5.66	5.00
Recruitment Income	\$7618	\$8521
Mean Mother's Age in Years	30.5	28.4
Mean Years of Mother's Education*	12.71	11.00
Mean Participation Index*	4.10	5.82
Percent of Fathers in Home		
1. No	23	22
2. Yes	77	78
Mother's Ethnic Status		
1. American Indian	2	3
2. Asian	1	1
3. Black	0	0
4. Hispanic	1	0
5. White	22	19

table continues

Characteristic	Low Participants	High Participants
Mother's Marital Status		
1. Married	17	17
2. Single	3	1
3. Widowed	0	0
4. Divorced	1	3
5. Separated	1	0
6. Single, Living with Partner	0	1
Mother's Education Level*		
1. Less than HS/GED	6	10
2. HS/GED	17	12
3. Voc. Cert./Diploma	1	0
4. Associate Degree	1	0
5. B.S.	1	0
6. M.S.	0	0

* Significant differences at the $p < .05$ level

Initial BDI Similarities

To assure the equality of the two groups, BDI test scores, for the first time a child was tested, were analyzed using a one-way analysis of variance (ANOVA). Factor one was group membership (high participation group and low participation group), and the dependent variables were the adjusted total age-equivalence scores and cognitive age-equivalence scores from the children's first test on the Battelle Developmental Inventory (BDI). To adjust for variations in the children's ages at

testing, the age-equivalence scores were adjusted to represent the total number of months the child's score is above or below his/her chronological age. For example, an age-equivalence score two months above the child's actual age would be recoded as +2, while a score two months below the child's actual age would be recoded as -2. A score of 0 would represent a child whose age-equivalence score and chronological age are equal. Age-equivalent BDI scores were used instead of z-scores, as age-equivalent scores more accurately reflect the child's current skill level (Boyd, 1989). No statistically significant differences were found between the adjusted cognitive and total BDI score of children of low participators and high participators at the $p < .05$ level.

Differential Parental Participation

Versus Child Development

To begin to answer the question, What is the effect of differential parental participation in early intervention programs on children's developmental gains?, an initial analysis consisted of a repeated measures ANOVA comparing the two groups across time of testing on the adjusted total and cognitive age-equivalence BDI scores. Factor one was group membership (high participation group and low participation group), and the repeated measure was the time of child developmental testing (second, or third testing). The dependent variables were the adjusted total age-equivalence scores and cognitive age-equivalence scores from the first, second, and third testing on the BDI. All children less than 5 years of age at enrollment in the CFP project were included in the initial analysis. The comparison of interest was the group by time

interaction. As can be seen in Table 4, there were significant interaction effects of group by time on cognitive and total BDI scores. Children of high participating parents scored an average of 1.90 months (cognitive scores) and 0.79 months (total scores) lower on the first BDI than did their low participating counterparts. Over time this trend reversed and they scored significantly higher (an average of 2.10 months higher on cognitive scores and an average of 1.44 months higher on total BDI scores) than children of low participating parents.

Children Less Than 3 Years and Children 3 to Less Than 5 Years at Enrollment

Although the CFP project works with all family members, different types and levels of intensity of intervention were provided for those children less than 3 years old at the time of their enrollment in the CFP project versus those children who were 3 to less than 5 years old at time of enrollment (i.e., home-based intervention versus center-based intervention). To examine the differences by group for those younger children who have received intervention from the CFP project and the older children who have received services, the repeated measures ANOVA, as described above, was repeated with children less than 3 years of age and with children 3 to less than 5 years of age at time of enrollment. Table 4 presents the results of these procedures. Over time, the children less than 3 years old of high participators scored significantly higher for both the adjusted total and cognitive BDI scores (3.11 months higher on the third cognitive BDI testing and 2.69 months higher on third total BDI testing) than did the children of low participators. For children less than 3 at enrollment, there were

Table 4

Average Number of Months Difference of Cognitive and Total BDI Scores from
Children's Chronological Age

Age of Children Used for Each Analysis	Cognitive Scores			Total Score		
	1st test	2nd test	3rd test	1st test	2nd test	3rd test
Children 0 to 5 years at enrollment						
Low Participators (n=34)	-0.54	-1.57	-4.44	-0.11	-0.84	-2.63
High Participators (n=46)	-2.44	-2.36	-2.34	-0.90	-1.27	-1.19
Difference	-1.90	-0.79	2.10	-0.79	-0.43	1.44
Group by Time Interaction						
(p =)			0.004			0.017
Children 3 to 5 years at enrollment						
Low Participators (n=6)	-2.76	-4.83	-3.55	-1.43	-0.83	-1.39
High Participators (n=20)	-3.53	-3.44	-3.42	-1.23	-0.78	-2.47
Difference	-0.77	-1.39	-0.13	-0.20	-0.05	-1.08
Group by Time Interaction						
(p =)			0.650			0.735
Children less than 3 at enrollment						
Low Participators (n=28)	-0.06	-0.87	-4.62	0.17	-0.84	-2.89
High Participators (n=26)	-1.60	-1.53	-1.51	-0.64	-1.65	-0.20
Difference	-1.54*	-0.66	3.11*	-0.81*	-0.81	2.69*
Group by Time Interaction						
(p =)			0.005			0.000

* Significant differences at the $p < 0.05$ level

statistically significant differences between the low and high participators on the first and third testing, in both the cognitive and total BDI scores. It is noteworthy that these differences are in the opposite direction. Children less than 3 years at enrollment of high participators scored lower on the first BDI test and higher on the third BDI test than did children of low participators. For children 3 to less than 5 years old at enrollment, there were no statistically significant differences for the adjusted cognitive STET and total BDI scores between high and low participators (an average of 0.13 months higher on the third cognitive BDI testing and 1.08 months lower on third total BDI testing).

Family Demographic Variable Versus Parental Participation

To determine if family demographic variables and other measures of parental participation correlated with the differences observed in the above ANOVAs, several multiple regression analyses were conducted. The first multiple regression equation used parental participation as a dependent variable and family demographic characteristics (family size, mother's ethnic group, marital status, mother's age, mother's education level, highest degree earned by mother, yearly income of family at enrollment, father present in the home, and time enrolled in project) as independent variables. Marital status was recoded as a 1 if the mother was married or had a partner living in the home, and 2 if the mother was single, divorced, widowed, or separated. Mother's ethnic group was recoded as a 1 if the mother was nonwhite, and 2 if the mother was white. A significance level of $p < .05$ was used as a cutoff with a

stepwise procedure for entry into the regression formula. Table 5 presents the multiple R and the ANOVA table for the multiple regression equation. Table 6 presents the order and relative weights of each variable that was entered into the regression equation.

Table 5 shows that the highest educational degree earned by the mother and the time the family has been enrolled in the CFP project account for 26% of the variance in parental participation. The other variables used in this regression equation do not significantly explain any of the variance in parental participation. Table 6 shows that the highest educational degree earned by the mother and the time the family has been enrolled in the CFP project are negatively correlated with parental participation. That is, families who have been in the project longer and mothers with higher educational achievements tend to participate less in the CFP project. Table 6 also shows that "time in project" enters the equation first and receives almost twice the weight of the highest educational degree earned by the mother in accounting for the variance explained by the two variables.

Other Participation Measures Versus Parental Participation

To determine if participation in other activities provided by the CFP and community agencies predicts families' participation in the early intervention activities, a second multiple regression analysis was conducted.

The second multiple regression analysis used parental participation in program requirements as a dependent variable and used the level of participation in other

Table 5

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of Parental Participation by Family Demographic Characteristics

<u>R</u>	<u>R</u> ²	Adjusted <u>R</u> ²	Standard Error
0.516	0.266	0.233	0.983

Analysis of Variance				
	<u>df</u>	Sum of Squares	Mean Square	
Regression (TIP, MDEG)	2	15.434	7.717	
Residual	44	42.551	0.967	
<u>F</u> = 7.980				Significance of <u>F</u> = 0.0011

KEY: TIP = Time in Project; MDEG = Mother's Degree

activities (i.e., number of education courses offered by the CFP, number of education courses offered by other agencies, the number of medical, mental and dental health services used, the number of other CFP services used, the number of community services used, average effort towards reaching goals, average progress on family's goals, and the average weeks per month the mother has worked) as independent variables. A significance level of $p < .05$ was used as a cutoff with a stepwise procedure for entry into the regression formula. Table 7 presents the R and the ANOVA table for the multiple regression equation.

Table 6

Order and Relative Weight of Each Variable Entered into the Multiple RegressionEquation of Parental Participation by Family Demographic Characteristics

Variable	B	SE B	Beta	T	Sig T
TIP	-0.074792	0.022838	-0.423261	-3.275	0.0021
MDEG	-0.239101	0.110831	-0.278821	-2.157	0.0365
(Constant	7.820087	0.769971		10.156	0.0000

KEY: B = standard score used for analysis; SE B = standard error of standard score;

Beta = multiple regression weights for the standard scores; TIP = Time in Project;

MDEG = Mother's highest educational degree

Table 7 shows that the average number of other core services offered by the CFP that the family used per month accounted for 31% of the variance in parental participation. The number of other core services is positively correlated with the parent participation index ($r^2 = 0.556$, see Appendix D). That is, the more services a family receives from the CFP project, the more parents participate in early intervention services. The other participation variables as described above did not significantly explain any of the variance in the parental participation index.

Parent and Staff Attitude Measures Versus
Parental Participation

To determine if family or staff attitudes about perceived progress in the CFP project accounted for the differences in the parental participation index, a third set of

Table 7

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of Parental Participation by Other Participation Measures

<u>R</u>	<u>R</u> ²	Adjusted <u>R</u> ²	Standard Error
0.556	0.310	0.289	0.937

Analysis of Variance				
	<u>df</u>	Sum of Squares	Mean Square	
Regression (TCFP)	1	13.777	13.777	
Residual	35	30.730	0.878	
<u>F</u> = 15.691		Significance of <u>F</u> = 0.0003		

KEY: TCFP = average number of other CFP core services used by family members per month

multiple regression analyses was conducted. The third multiple regression used parental participation as a dependent variable and used parent and staff subjective attitudinal measures of family involvement as independent measures. A significance level of $p < .05$ was used as a cutoff with a stepwise procedure for entry into the regression formula. Table 8 presents the R and the ANOVA table for the multiple regression equation comparing family attitudinal measures and parental participation. No staff attitudinal measures or other family attitudinal measures explained any of the

variance in the parental participation index.

Table 8 shows that the family's perception of their participation in the project explains 22% of the variance in the parental participation index. Families' perception of their level of participation is positively correlated with the parent participation index ($r^2 = 0.472$, see Appendix D). That is, the more parents believe they are participating in the CFP project, the more they are according to the parent participation index.

Children's BDI Scores Versus Components of Parent Participation Index

To determine if the components of the parent participation index explained any differences in the children's adjusted and total BDI scores, a fourth series of regression analyses were conducted. The fourth series of multiple regression equations used the children's adjusted total and cognitive BDI domains on their third BDI test as the dependent variable and the components of the parent participation index (the monthly average number of home visits, individual and group early childhood education [ECE] services received from CFP, and individual and group early intervention services [EIE] received from other agencies) as independent variables. These regression equations were conducted for the total sample, for children 3 to less than 5 years of age, and for children less than 3 years of age. A significance level of $p < .05$ was used as a cutoff with a stepwise procedure for entry into each regression formula. Tables 9 and 10 present the R and the ANOVA tables for the multiple regression equations using the children's adjusted cognitive BDI scores.

Table 8

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of Parental Participation by Family Attitudinal Measures

<u>R</u>	<u>R²</u>	Adjusted <u>R²</u>	Standard Error
0.472	0.222	0.196	1.042

Analysis of Variance

	<u>df</u>	Sum of Squares	Mean Square
Regression (Item # 2 ^a)	1	8.998	8.998
Residual	29	31.457	1.085
<u>F</u> = 8.295	Significance of <u>F</u> = 0.0074		

^a Item 2 from the Family Attitudinal Measure (See Appendix C)

Table 9 shows that for all children less than 5 years old at enrollment, the number of group early childhood intervention sessions (EIE) accounted for almost 7% of the variance in the difference scores based on BDI cognitive scores. Group EIE was negatively correlated with adjusted cognitive scores. That is, the more special needs early intervention that was provided, the lower the children scored on the cognitive section of the BDI. Table 10 shows that for children less than 3 years old at enrollment, the number of group early childhood education sessions (ECE) offered by

Table 9

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of Third Test Cognitive BDI Scores by Components of Parental Participation for Children less than 5 Years Old at Enrollment (N=80)

<u>R</u>	<u>R²</u>	Adjusted <u>R²</u>	Standard Error
0.257	0.066	0.054	6.156
Analysis of Variance			
	<u>df</u>	Sum of Squares	Mean Square
Regression (GOTEIE)	1	209.300	209.300
Residual	44	2955.890	37.896
<u>F</u> = 5.523		Significance of <u>F</u> = 0.0213	

KEY: GOTEIE = # of group EIE sessions by others

the CFP accounted for nearly 14% of the variance in the adjusted cognitive scores. Group ECE offered by the CFP was positively correlated with cognitive difference scores. That is, the more the children attended the preschool provided by the CFP, the higher their cognitive scores. For children 3 to less than 5 years old at enrollment, no variables entered the multiple regression equation. None of the other components of the parent participation index significantly accounted for the variance in children's adjusted cognitive BDI scores at any age.

Table 10

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of Third Test Cognitive BDI Scores by Components of Parental Participation for Children less than 3 Years Old at Enrollment (N=54)

<u>R</u>	<u>R²</u>	Adjusted <u>R²</u>	Standard Error
0.371	0.138	0.121	5.036
Analysis of Variance			
	<u>df</u>	Sum of Squares	Mean Square
Regression (GCFPECE)	1	210.538	210.538
Residual	52	1318.715	25.360
<u>F</u> = 8.302		Significance of <u>F</u> = 0.0057	

KEY: GCFPECE = # of group ECE sessions by CFP

Differential Parental Participation
Versus Family Self-Sufficiency

To answer the second question, What is the effect of differential parental participation in early intervention programs on families' economic self-sufficiency?, an

initial analysis compared the number of weeks worked by mothers and fathers from the two groups. Table 11 presents the average number of weeks worked by mothers and fathers in each of the groups. There is no statistically significant difference in the number of weeks worked by mothers and fathers ($p = 0.909$ and $p = 0.630$, respectively).

The second analysis compared the two groups against the difference between families' current income and their income at recruitment into the CFP project. Factor one of the ANOVA was group membership (high participation group and low participation group), and the dependent variable was the difference between families' current income and their income at enrollment into the CFP project. Table 11 presents each groups' average number of weeks worked by mothers and fathers, the average enrollment income, their average current income, and the average difference between incomes. Group average incomes were determined by adding yearly incomes of each family in each group (including nonworkers) and dividing by the number of families in the group. There were no statistically significant differences in the changes in income between the two groups ($p = 0.682$). As can be seen on Table 11, both groups had large gains in income.

Family Demographics Versus Income

To determine if the gains in income could be accounted for by family demographic characteristics, a multiple regression was conducted using the change in income as the dependent variable and the family demographic characteristics

Table 11

Difference Between Families' Number of Weeks Worked, Current Income, and Enrollment Income

	Group	
	Low Participators	High Participators
Average # of weeks worked by Mothers ^a	39.04	37.45
Average # weeks worked by Fathers ^a	54.60	62.61
Current Average Yearly Income	13817.96	13343.33
Average Yearly Income at Enrollment	7618.23	8521.13
Average Yearly Change in Income	6199.73	4822.52

^aAverage number of weeks worked during the families enrollment in project.

mentioned above as the independent variables. Table 12 presents the R and the ANOVA table for the multiple regression equation. Table 13 presents the order

Table 12

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of
Difference in Income by Family Demographic Characteristics

<u>R</u>	<u>R²</u>	Adjusted <u>R²</u>	Standard Error
0.532	0.283	0.235	9301.858
Analysis of Variance			
	<u>df</u>	Sum of Squares	Mean Square
Regression (MStat, RINC, Ethnic)	3	1536981874.13	512327291.377
Residual	45	3893605500.40	86524266.676
<u>F</u> = 5.921		Significance of <u>F</u> = 0.0017	

KEY: MStat = Marital Status; RINC = Family's recruitment income; Ethnic =
Mother's Ethnic group

and relative weights of each variable that was entered into the regression equation.

Table 12 shows that the family's marital status, their recruitment income, and the mother's ethnic group explained 28% of the variance in the difference in income.

Table 13 shows that family's marital status, their recruitment income, and the mother's

ethnic group are negatively correlated with the difference in income. In other words, single parent, nonwhite families with lower recruitment incomes had larger increases in their income since enrollment in the CFP project.

Other Participation Measures Versus Income

To determine if the gains in income could be accounted for by other participation factors, a multiple regression analysis was conducted using the change in income as the dependent variable and the family participation variable mentioned above as the independent variables. Table 14 presents the R and the ANOVA table for the multiple regression equation. As can be seen on Table 14, the average number of weeks worked by the mother per month accounted for 20% of the variance of the differences in income. The average number of weeks worked by the mother per month is positively correlated to the difference in family income ($r^2 = 0.449$, see Appendix D). In other words, families with mothers who worked more had larger increases in income since enrollment.

Income Versus Child Development Gains

To determine if child development scores could be accounted for by the family's income, a multiple regression analysis was conducted using the third test cognitive and total BDI scores as the dependent variables and the family's income at recruitment, last year's annual income, and the difference in income as the independent variables. The results of this analysis indicate that family income does not explain any of the

Table 13

Order and Relative Weight of Each Variable Entered into the Multiple Regression Equation

Variable	B	SE B	Beta	T	Sig T
MStat	-11320.5364	2873.0880	-0.4858	-3.940	0.0003
RINC	-0.6573	0.1937	-0.4213	-3.393	0.0015
Ethnic	-7129.9712	3490.0901	-0.2503	-2.043	0.0469
(Constant)	39292.0238	8367.5085		4.6963	0.0000

KEY: B = standard score used for analysis; SE B = standard error of standard score; Beta = weights for the standard scores; MStat = Marital Status; RINC = Family's recruitment income; Ethnic = Mother's Ethnic group.

variance in child development scores. The correlation matrices used for each of the above multiple regression analyses are available in Appendix D.

Table 14

Multiple R, R², and Analysis of Variance for Multiple Regression Analysis of
Difference in Income by Other Family Participation Measures

<u>R</u>	<u>R</u> ²	Adjusted <u>R</u> ²	Standard Error
0.449	0.202	0.179	8707.692
Analysis of Variance			
	<u>df</u>	Sum of Squares	Mean Square
Regression (MWork)	1	670906197.58	670906197.58
Residual	35	2653836797.13	75823908.49
<u>F</u> = 8.848		Significance of <u>F</u> = 0.0053	

KEY: MWork = Average # of weeks/month mothers worked

CHAPTER V

DISCUSSION

In this chapter, the general findings of the study are discussed. The limitations of the study including threats to internal and external validity will be presented. The chapter will conclude with recommendations for the use of the results of this study in the CFP and similar projects and with recommendations for future research.

Definition of Parental Participation

The federal government has operationalized the level of parental participation for parents involved with the CCDP projects. This definition includes the number of case-management home visits a family receives and the number of early childhood education services the family's children receive. Ramey et al. (1992) developed a logical operational definition of the level of parental participation in an early intervention project for premature infants. Their definition consisted of summing the number of home visits, attendance at parent group meetings, and days children attended child development centers. For the CFP project, these two definitions appear to be almost identical ($r^2 = 0.97$). There are two possible explanations for this correlation. First, families who have more direct contact with CFP staff through home visits or early childhood education visits also have more reminders of other CFP events and more encouragement to attend those events. Second, families who are high participators with the CFP project are high participators with services from other

agencies as well. The first explanation is supported by this study in that when families' participation with other CFP services and services provided by other agencies is compared to the parental participation index, only participation in other CFP services is significantly correlated with the parental participation index.

The finding that families who have more contact with CFP staff tend to be more active in CFP activities is consistent with Ramey et al. (1992). Ramey et al. (1992) are the only other authors who have reported the effects of differential parent participation with an early intervention program. They reported that, other than their level of participation and child development outcomes, there were no significant differences between families. Ramey et al. (1992) did not look at parents' level of participation in services provided by other agencies.

The Effects of Parental Participation

on Child Development

Early intervention studies with low income families have shown that some parental participation is better than no parental participation (White et al., 1992). The current study goes beyond this finding to examine whether differences in parental participation within an early intervention project can account for differences in child development scores. The statistical differences reported, and shown in Tables 4 and 5, indicate that the children, less than 3 years old at the time of their enrollment into the CFP, whose parents have a high level of participation in the CFP project obtain better scores over time on cognitive and total BDI domains. This finding is consistent with

Ramey et al. (1992), who reported that higher parental participation in an earlier intervention project for premature infants resulted in better gains on an intelligence measure. One possible explanation why children less than 3 at enrollment performed better over time on the BDI might be that these children performed significantly worse on their first BDI test and their mothers may have been motivated to participate more in early intervention programs given their children's initial delays. This explanation needs to be considered when examining the profile of a high participating family and is worthy of future research. The explanation that mothers were more motivated to participate in early intervention activities does not explain why these parents participated more overall in the CFP project, and it does not compromise the validity of this study's conclusion on the effects of parental participation on child development.

For children 3 to less than 5 years of age at enrollment in the CFP project, the level of parental participation seemed to make no difference on total and cognitive BDI domains. This finding is contrary to the conclusions drawn by Bryant and Ramey (1987). They found after reviewing 17 early intervention projects that intervention for infants and preschool children was effective regardless of the age of enrollment in an intervention program. These findings from the current study also lend support to the argument that the earlier the intervention, the better appearing to contradict Bryant and Ramey (1987). Bryant and Ramey (1987) questioned "...whether sufficient risk exists during the first year of life for most disadvantaged infants to warrant intensive educational efforts during the first 12 months" (p. 71-72).

There are several possible explanations for the apparent conflict in the results of the current study with previous studies. First, in the infant (children 0 to 3 years) early intervention programs cited by Bryant and Ramey (1987), the mother was the primary target of intervention, while in the preschool programs cited, the child (children 3 to 5 years) was the target of intervention. In the current study, both the mother and child are primary targets of intervention. The child was a primary target of all early childhood educational interventions, and the mother was a primary target for education and training. The efficacy of providing intervention directly to the child or primary caregiver for children of different ages is a research question that has yet to be answered. Second, the difference in the intensity of the interventions between the studies could account for the differences found. In the studies cited by Bryant and Ramey (1987), older preschool children (3 to 5 years) received a minimum of 2 hours of direct intervention per day. In the current study, the minimum participation in early intervention activities was defined as 3 half-hour early childhood education sessions per month with mothers in the home for infants birth to 3 years, or 3 and a half hours of center-based preschool intervention 4 days a week for 3- to 5-year olds. It may be that children who enter early intervention programs after age 3 are already more delayed (see Table 4) and require more intense intervention than was offered to the CFP program families, or they may need services over a longer period of time to remediate their delays. Third, as can be seen in Table 4, children 3 to less than 5 years of age at enrollment in the CFP project, "maintained" about the same level of performance across the three tests. Perhaps these children require less parental

participation to maintain developmental gains. Another explanation is that the CFP is very efficient at assessing and providing the services children need to maintain skills. All of these are questions that need to be examined in future research.

Some early intervention programs serving children 3 to 5 years of age have demonstrated positive results in terms of children's IQ (Ramey & Ramey, 1992a, 1992b) while others have shown no differences (White, 1991). The studies reported by Ramey and Ramey (1992a) offered very intense direct services to children 3 to 5 years old (a center-based preschool, 5 days a week, 8 hours a day, 50 weeks a year), while the studies cited by White (1991) served children with handicaps and did not offer 5-day-a-week services. From the results cited by Ramey and Ramey (1992a, 1992b) and White (1991), it seems as though older preschoolers need very intense intervention procedures to remediate developmental delays. This could be because without intervention older children have greater developmental delays. This conclusion is supported by the current study. As seen in Table 4, children from 3 to less than 5 years at enrollment had greater delays than the younger children.

Contradicting these findings, other studies have shown that weekly or bimonthly home visits are effective early intervention for economically disadvantaged preschoolers (Burkett, 1982; Powell & Grantham-McGregor, 1989). Yet, even among these studies there is much contradictory evidence on the most effective model. Powell and Grantham-McGregor (1989) found that weekly home visits were superior to bimonthly home visits in remediating developmental delays in 2-year-olds, while Burkett (1982) found that bimonthly home visits were better than no intervention and

just as effective as weekly home visits in remediating delays with 4- and 5-year-old children.

There are differences in the early intervention needs of young children. These differences seem to be related to the child's age (Bronfenbrenner, 1974; Ramey & Ramey, 1992b). The differences also seem to be related to children's risk factors for delay (i.e., poor environment versus medical disabilities). Yet the reviews of the early intervention literature commonly mix and combine the results from early intervention programs serving children of various ages with different risk factors (Ramey & Ramey, 1992a, 1992b; White, 1992). As long as the early intervention literature continues to mix and match the results of intervention programs serving different groups of children, the results reported in literature reviews will continue to be confusing.

Bryant and Ramey (1987) reviewed the early intervention literature for environmentally disadvantaged children and reported:

From these studies, we have learned that the function of early education is not to primarily enhance intellectual development to above or average levels of performance, but rather to prevent or slow the declines from average performance. (p. 72)

Bryant and Ramey (1987) further concluded that more intense intervention, in terms of the number of services provided and the breadth of the services provided to the child and their family, would positively effect the intellectual development of disadvantaged children. Bryant and Ramey's (1987) conclusions would support the notion that the children age 3 and over at enrollment in the CFP project did not show significant differences between groups because these children were typically involved in

preschool, which requires less parental involvement than the intervention provided to the younger children. Bryant and Ramey's conclusions would suggest that the goal of intervention was reached with all the older children in the CFP project, in that further declines in the children's performance on the BDI were prevented or slowed.

Family Demographics Compared to Parental Participation Index

The family demographic characteristics that are important in predicting the level of parental participation are the time the family has been enrolled in the project and the highest educational degree the mother has earned. Both of these variables are negatively correlated with parental participation. Ramey and Ramey (1992b) proposed that early intervention procedures were more effective with children whose mothers had lower IQs. If you assume that mothers with lower IQs tend to have less educational achievement, then the data from the current study supports Ramey and Ramey's (1992b), in that mothers with lower educational achievements participate in early intervention at a higher level and their children show greater developmental gains. Ramey and Ramey's (1992b) and the current study's conclusion that the children of less educated mothers benefit more from early intervention services appears contrary to the conclusions of other authors (Allen, Affleck, McGrade, & McQueeney, 1984; Dunst, Leet, & Trivette, 1988), who propose that higher education leads to better success. One possible explanation for this apparent conflict is to examine the outcome measures from which the conclusions were reached. Ramey and Ramey's (1992b) conclusion is based on data that young children (0 to 3 years old) of

parents with less education benefit more from early intervention services, while other authors (Allen et al., 1984; Dunst et al., 1988) base their conclusions on parents' reports. It could be that parents with more education who have younger children (0-to-3 years) are better able to report what they have learned in parent training.

The CFP project and the programs described by Ramey and Ramey (1992b) provided a combination of parent education and direct services to the children, and examined the results of their interventions in terms of childhood development. The programs described by Allen et al. (1984) provided education and training to parents and examined their results in terms of parents' abilities to learn the skills taught, rather than changes in child development. Dunst et al. (1988) described early intervention programs that provided interventions in a variety of areas, but measured results by parental compliance to intervention recommendations, not child development. The discrepancy between who benefits more from early education programs, the children of lower educated or higher educated parents, would perhaps disappear if the results of all these studies had used the same outcome measures.

The second demographic variable that predicts parental participation in the CFP project is the time the family has been enrolled in the project. The longer families have been enrolled in the project, the less they participate. One explanation for this result is that over time the CFP has become more effective in recruiting and providing services to families. Another explanation is that the longer families are enrolled in the CFP project, the more they are encouraged to spend time in pursuit of financial stability. As families spend more time gaining job skills through education and

training, finding work, and working, they have less time to participate in the early intervention activities provided by the CFP. Evidence for the first explanation is logical. As the CFP staff became better acquainted with their jobs and the community, they were able to be more efficient in providing services to families and in encouraging families to use those services. Over the long term this would mean that families who were enrolled at the beginning of the project received fewer services per month than those who were enrolled later. Evidence against the second explanation comes from the families' written responses to the family attitudinal survey. Of the 31 parents who responded, only one indicated that he/she wanted to participate less in the CFP project, while 15 indicated he/she wanted to participate more. One of the 31 parents suggested that the requirements of the project be reduced because they simply did not have the time. It is noteworthy that while high subject attrition rates are a common problem in the early intervention literature, the relationship between the length of time a family participates with an early intervention project and their level of participation within that project has not been examined.

Other Participation Measures Compared to Parental Participation Index

Families in the CFP had the opportunity to participate in a wide variety of activities other than those used to develop the parental participation index. Table 16 in Appendix D shows that with the exception of participation in other core services offered by the CFP, participation in other services does not significantly correlate with the parent participation index. Table 17 in Appendix D shows that the number of

services that meet family needs outside of traditional early intervention services (e.g., rent payments, education classes, etc.) obtained from the CFP project accounts for 31% of the variance in the parent participation index. Parents who participate most in the CFP also participate more with early intervention procedures and their young children have better child development outcomes. These data support Bronfenbrenner's (1974) theory of ecological intervention and the intervention model developed by Ramey and Ramey (1992b), which implies that families' physical needs must be met before they can help their children with developmental gains. It is noteworthy that the CCDP policy on the provision of services states that the CFP project can only provide services that are not available from the community. In other words, families who benefitted most from the CFP project are those families who, for some reason or another, do not qualify for services from existing community agencies, or where needed services were not available in other existing community agencies.

Parent and Staff Attitudes Compared to Parent Participation Index

Overall, parent and staff attitudes about the families' participation in the CFP project do not predict differences in parental participation. The families' responses to item 2 on the family attitudinal survey ("I feel I have participated in the CFP Project" with response options from "not at all" to "more than I like") explained 22% of the variance in the parent participation index. Staff responses to the same item did not explain any of the variance in the parental participation index. It seems from these responses that families are more accurate than staff in their perceptions of the parents'

level of involvement in the CFP project. Perhaps the family and staff response patterns to item 2 can be explained best by Gallagher (1991) and Paget (1991). They suggested that, typically, the professional staff involved in early intervention have been trained to work with individuals and not with family systems, thus professional staff lack some basic knowledge of working in family systems. Due to this "lack of knowledge," professional staff may not be able to accurately judge family participation and progress.

Child Development Compared to Components of Parental Participation

It is important for early intervention projects to know what aspects of the parent participation index are predictive of child development gains. This knowledge could help in program development. For all children less than 5 years old at enrollment in the CFP project, the number of group early childhood intervention sessions for special needs children is negatively correlated with cognitive scores on the third BDI test. Table 9 shows that group EIE accounts for 6% of the variance in adjusted cognitive BDI scores on the third BDI test. To qualify for Group EIE, children must score 2 standard deviations below the norm for their age range on one domain of the BDI, or 1 SD below the norm on three domains on the BDI. It is logical that if children are referred for early intervention services for identified developmental delays, then being referred for group EIE would be negatively correlated with BDI scores. What is more clinically significant is that the BDI scores for children referred for individual EIE sessions are not significantly negatively correlated with BDI outcomes. This would

indicate that individual EIE sessions are working at preventing or slowing delays, which is the goal of early intervention projects (Bryant & Ramey, 1987).

For children 3 to less than 5 years old at enrollment, there were no early intervention or home-visit variables that significantly accounted for any variance in adjusted cognitive and total BDI scores. As there is no control group in this study, it is impossible to determine whether the interventions offered by CFP are not effective with these older children, or if the intervention offered is just as adequate in remediating delays in low participators as it is in high participators. The children who were 3 to less than 5 years old at enrollment were all 5 to 8 years old at the third test. A factor that needs to be considered when attempting an explanation for the BDI results for these older children is the assessment instrument. The BDI is standardized for children from birth to 8 years of age. Yet, as children get older (6, 7, and 8 years old), there are fewer test items given to discriminate developmental levels. In some cases, one point is the difference between significantly delayed and normal (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1988). Another consideration on the BDI is that 7- and 8-year-old children can be delayed up to 18 months and still be considered "normal" according to the z-scores (Newborg et al., 1988). These test characteristics make BDI scores for 6-, 7-, and 8-year-old children difficult to interpret.

The Effects of Parental Participation on Family Income

There were no statistically significant differences between high participators and low participators on income measures. The parents from both groups worked about

the same number of weeks throughout their time in the project and made about the same amount of money. This supports the conclusions by Dunst et al. (1988) that income is not related to treatment adherence. One explanation of these results is, as can be seen in Table 2, high participating parents were less likely to have a GED or high school diploma than were low participating parents. This creates a condition where high participating parents may need to participate more in order to make the same income gains as the low participating parents.

As can be seen in Table 11, both groups had large differences in average annual income (average increase of \$5,553.29). Tables 18 and 19 in Appendix D show that being from a single, nonwhite family with lower income at the beginning of the project accounts for 28% of the variance in the difference between their enrollment income and their 1992 annual income. One explanation for these results is that families who had zero income at the beginning of the project (or families who are not working) have better chances of showing larger increases in annual income simply by getting a job. Single and nonwhite families had a greater likelihood of being unemployed at enrollment in the CFP project. The data for ethnic groups should be interpreted carefully given the small number of CFP families from different ethnic groups. No other studies have reported the effects of participation in a comprehensive early intervention project on families' economic self-sufficiency as measured by changes in their income.

Of the other participation measures, the average number of weeks that the mother works per month accounts for 28% of the difference in income. No other family

participation variable is significantly related to difference in income. As there was no difference in the amount of time that mothers spent working across groups, this would seem to indicate that the CFP project is able to provide needed support so mothers can find and maintain jobs regardless of their participation in other CFP activities. At first glance, these data also seem to indicate that the quality of jobs is not improving, simply that mothers are working more. An area that will be important to consider in future studies is not only the annual income of families, but also the quality of the work place (i.e., opportunity for advancement, benefit packages, etc.). While many authors have written about the necessity to improve the home environment providing job training and support (Bronfenbrenner, 1974; Bryant & Ramey, 1987; Ramey & Ramey, 1992b), this is the first study to report the effects of such support on family economic self-sufficiency as measured by income.

The Interaction Between Income and Child Development

Allen et al. (1984) reported that early intervention is more effective with higher income families. Yet, Allen et al. did not define "higher income." The families with the highest incomes in the current study did not have better child development outcomes. Honig (1984) suggested that working mothers of poverty-level families predicts poor child development. Yet, the current study shows that while the amount of time mothers work is positively predictive of increases in annual income, it is not related to child development.

Dunst et al. (1988) and Halpren (1990) suggested that perhaps income is not as important as the way in which families use their resources. Families in the current study did not differ in their income status, yet they did differ in child development gains. Perhaps families in the current study differ in their skills in managing their available financial resources, and this difference may account for child development differences. This is a question that should be answered in future research.

Limitations and Reliability of the Current Study

The major limitation of this study is there was no control group available for comparison. As such, nothing can be said of the overall developmental status of children who receive some intervention compared to children who receive no intervention. When the federal officer releases the CCDP final report, the results of this study could be compared to developmental and demographic data of the control group being monitored by the independent CCDP evaluator. Another limitation of this study is that the sample is limited to a conservative, rural, predominately white demographic area. This is a limitation for how reliably these results can be generalized to other poverty populations. Yet, rural populations are understudied in the early intervention literature, and the results are needed to add to our knowledge about serving rural children and families. While most of the data collected were confirmed as accurate from outside sources, there is a possibility of parents under-reporting the services they received. If families did not report receiving services, data

collection staff did not know to contact providers to determine the type of service received. This is a potential confound for the results of the current study. To attempt to control for underreporting, parents were surveyed each week as to the services they had obtained the previous week or the services they were about to obtain. An indication of how well the parents responded to these surveys is the correlation between the parent participation index and parents' perception of how much they have participated in the CFP project. Parents were more accurate than staff in their response to this item, indicating that, for the most part, parents attempted to accurately portray their involvement with the CFP. The final major limitation of this study is the exclusive use of the Battelle Developmental Inventory for measuring child development. Because of the age of the children being tested, many children topped out on the BDI and the results do not depict actual abilities, especially in the older children. This is a only a concern when interpreting the results for children who were 3 to less than 5 years old at enrollment. The younger group of children were well within the age limits of the BDI and did not top out on the test. The results for these children should be an accurate reflection of their abilities as measured by the BDI.

Recommendations for Practice and

Future Research

There are several major recommendations that would allow the CFP project to better serve project families and promote quality research in the area of early intervention with rural, economically disadvantaged children. Before children enter

school at 5 years, and every year thereafter, they should be given a standardized IQ test (such as the Stanford-Binet or WISC-III). This measure should more accurately reflect cognitive skills and abilities by providing more test items and better normed standards. IQ tests have been shown to be fairly predictive of school performance and would give an indication of how well early intervention procedures have prepared children for the academic aspects of school. In addition, all of the studies in the literature review of this document that measured children's cognitive abilities used a standardized IQ test as their outcome measure. The addition of an IQ measure to the CFP test battery would better allow the results to be compared across studies.

Second, as seen in the results of this and other studies (Ramey, Yeates, & MacPhee, 1984), not all children from low income families are equally at risk for developmental delays. From the current study we learn that part of the variance in children's risk seems to be related to family participation measures. Others have suggested that part of the variance in children's developmental risk factors is related to the family's skills in using their available resources (Dunst et al., 1988; Halpren, 1984). The CFP and some other early intervention projects (Dunst et al., 1989) provide comprehensive ecological services which help families better manage their resources (i.e., budgeting classes, housing forums, support groups). As in the current study and the studies cited by Dunst et al. (1989) the outcomes of these family-focused interventions are often measured in terms of child development. Theories such as Maslow's hierarchy, which equates better management of survival and safety needs to more resources available for social and academic needs (Liebert & Spiegler,

1987; Ramey & Ramey, 1992b) are used as a rationale for the use of child development as outcome measures. The current study went one step further and examined how participation related to changes in annual income. Other authors (Dunst et al., 1988; Halpren, 1984) have suggested the need to examine how families use their resources in a more detailed fashion to determine if families' abilities in resource management can account for differences in child development. Perhaps an additional emphasized objective for the CFP and other early intervention projects that provide comprehensive services to help families reach economic self-sufficiency and program evaluation should be not only to teach families proper use of resources, but to measure how well they adapt the new skills into their lifestyle. In other words, simply helping families increase annual income without monitoring families' skills in the use of resources may not help reduce financial instability (Dunst et al., 1988; Halpren, 1990).

Third, Gallagher (1991) concluded that to make significant gains in early intervention practice, researchers need to take small steps in research instead of trying for the "magic bullet." There seems to be a tendency in the early intervention literature to directly compare the results of early intervention projects with a particular population with the results of intervention projects conducted on different populations. As mentioned above, this trend adds to the confusion in early intervention outcome studies and hinders progress in determining which treatment is most effective for which population. To assist in this research effort, early intervention projects need to follow the CFP's lead and gather explicitly detailed data to allow for the small step-

by-step analyses that Gallagher (1991) suggested and that were conducted in the current studies. It would be beneficial if information in the same amount of detail could be gathered on a control group. As this is not possible at this point for the CFP project, other early intervention projects should gather the same information in detail on both program families and comparison or control families.

Fourth, the multiple regression analysis that compared the components of the parent participation index with child development outcome raises the question of quality versus quantity. There were many early intervention services available to children. Each child under the age of 5 years in the CFP Project was assessed and interventions were recommended based on the child's needs, parent's desires, and availability of services. Yet, for each age group analyzed in the current study, only one specific type of intervention correlated with child development (i.e., group preschool offered by the CFP for children 0 to less than 3 years at enrollment and group early intervention for children 3 to less than 5 years at enrollment [See Tables 9 and 10]). There are many factors that could account for these results, ranging from the type of assessment data used to make recommendations, to whether or not parents followed through with child development activities. The following are recommendations that will help the CFP and others to answer the quantity versus quality question.

First, intervention projects need to be aware of the quality of the programs they use for intervention. That is, does the intervention program provide the services they advertise? Second, intervention projects also need to assure that the services provided

match the needs of children. Third, providers of early intervention services cannot assume that because a child is attending, he/she is receiving needed services; some form of assessment or outcome measure is needed to assure that children are receiving the services they need, regardless of their placement. Finally, it would be beneficial to have some sort of data on how well parents follow through with child development activities in the home. As families work to gain skills and education needed for meaningful employment, they have less time to spend in the home with their children. The impact of day care and the quality of the time that parents do spend with their children will be important information for early intervention projects to gather.

Finally, there remain many questions on the timing of effective intervention. Many studies, including the current study, support the notion of the earlier the better, while other studies conclude that intervention is not necessary with infants. However, if parents are to learn appropriate child development skills and how to have a good relationship with their child, which both take time to accomplish, earlier is better. To assist in answering this question as well as to help with all the above research questions, research on effects of long-term intervention should be conducted.

Summary

The initial approach for intervention with children at risk for developmental delays was to remove the child from the home and provide training directly to the child. Later approaches relied on training the parent to be the intervenor with the child (White et al., 1992). Currently, the trend is to provide ecological interventions

to all family members. The current study has emphasized the importance of parental participation by showing that the level of parental participation in the CFP project does affect child development measures. Children who were less than 3 years old at enrollment in the CFP project and whose parents, on the average, participate at a higher level, demonstrate more abilities on the Battelle Developmental Inventory. The current study failed to show any effect of parental participation on differences in family income. Families in the CFP project have dramatically improved their income, regardless of participation level. Perhaps an analysis of whether or not they accessed vocational related activities would be necessary to tease out differences.

To effect long-term changes, some authors have suggested that disadvantaged children need ecological intervention throughout their childhood or until their socioeconomic status has improved (Bronfenbrenner, 1974; Gallagher, 1991). The provision of services to family systems has led to a situation in which professionals who are trained to deal with individuals are now faced with working with systems (Gallagher, 1991; Paget, 1991). Paget (1991) concluded:

Perhaps the ultimate challenge for professionals is to grasp the social, cultural, systemic, and developmental complexities well enough to facilitate the development of a workable intervention plan that is characterized by simplicity for a given family. (p. 14)

The challenge for those working with disadvantaged children will be to continue to motivate parents to participate at a level that will maximize their children's development and allow them to move up the socioeconomic ladder. Yet, some questions remain: What do you do with families who do not participate when

services are offered based on their identified needs? Do you drop them from the program, or do you keep trying to get them to participate?

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APPENDICES

APPENDIX A:
Informed Consent Form

Consent for Participation
and
Release of Information

The Community-Family Partnership Project is currently undergoing and internal research project. This research is being conducted by Dr. Sebastian Striefel (Director of the Community-Family Partnership project) and Gary Percival (Psychoeducational Specialist of CFP) at Utah State University. By signing this Consent for Participation and Release of Information form, I _____ hereby consent for myself and family members to participate in the aforementioned research project, and authorize the Community-Family Partnership project to release my family's records to the above named researchers. I understand that I can withdraw this consent at anytime, either through verbal or written communication with the above named researchers.

I understand that the purpose of this study is to assess families' of different levels of participation, in the CFP project activities and other related activities that help meet my families FBSP goals, on the achievement of family and individual family member's goals. I understand that participation in this research project will include providing demographic information (i.e., ethnicity, family size, family income, etc.) about my immediate family and myself, with much of this information coming from family members' existing CFP files. I understand that participation may also require myself of my children to receive developmental and/or intellectual testing using standardized tests. I understand that any information gathered about myself or my family will be kept confidential and will not be given to anyone else unless I request it. I understand that any reports or papers written for this research project will maintain my and my family's anonymity. I understand that I can refuse to participate in any aspect of this research project and that this decision will not effect my standing with the CFP project.

I understand that there are no known risks associated with participation in this research project. The benefits to my family may include an increased knowledge about my family and their abilities by being able to receive the results of any testing completed. Benefits from participation may also include improvement in the manner in which the CFP project provides services to families and an increase in the knowledge base which effects future planing and funding of family service programs on a local and national level.

Signature of Parent

Signature of Parent

Signature of Witness

Date

APPENDIX B:
Demographic Data Collection Form

OMB-0980-0226
BOTH

CCDP FAMILY PROFILE

This form is used to collect information on characteristics of program and comparison families and individual family members. It should be updated as needed. Part 1 collects information on the family unit. Part 2 is used to collect information on individual CCDP family members and other household members. It should also be completed for all comparison group family members who provide major nurturance for the child.

PART 1
Family Information1. Date Form Completed: ___/___/___
MM DD YY2. Family ID: _____
(3. ID on Recruitment Form: _____)4. Street Address: _____ Apt. No.: _____
City: _____ State: _____ Zip: _____
Area Name: _____ Phone: (____) _____-_____

5. Emergency Contact:

Name: _____ Phone: (____) _____-_____
Name: _____ Phone: (____) _____-_____
Name: _____ Phone: (____) _____-_____

6. Ethnicity: _____

1. American Indian or Alaskan Native
2. Asian or Pacific Islander
3. Black, Not of Hispanic Origin
4. Hispanic
5. White, Not of Hispanic Origin

7. Family's Primary Language: _____

Family's Secondary Language: _____

1. American Indian
2. Asian
3. English
4. Spanish
5. Other

OMB-0980-0226

CCDP FAMILY PROFILE (Continued)

8. Type of Housing: _____

- | |
|----------------|
| 1. House |
| 2. Apartment |
| 3. Mobile Home |
| 4. Shelter |
| 5. Other |

Number of Rooms: _____

Number of Beds: _____

Public/Subsidized Housing (Y/N): _____

9. Does family have own transportation (Y/N): _____

10. Staff Member Assigned: _____

ID: _____

11. Family Status: _____

- | |
|---------------|
| 1. Program |
| 2. Comparison |

Replacement (Y/N): _____

12. Date Enrolled: ____/____/____
MM DD YY

13. Reason for Termination: _____

14. Date Terminating Project: ____/____/____
MM DD YY15. Date Returned to Project: ____/____/____
MM DD YY

- | | |
|--|--|
| 1. Death of Focus Child | Does not wish to remain enrolled due to (positive reasons): |
| 2. Death of Family Member | 14. enrollment in job/skills/technical training |
| 3. Relocation of Focus Child | 15. obtaining employment |
| Relocation of Family/Member out of service area due to (positive reasons): | 16. enrollment in educational program/school |
| 4. jobs/skills/technical training | 17. improved housing |
| 5. obtaining employment | 18. marriage |
| 6. educational program/school | Does not wish to remain enrolled due to (negative reasons): |
| 7. improved housing | 19. lack of interest in program |
| 8. marriage | 20. unwillingness to participate or comply with requirements |
| Relocation of Family/Member out of service area due to (negative reasons): | Terminated by Program for: |
| 9. loss of job | 21. lack of participation |
| 10. loss of housing | 22. inappropriate behavior |
| 11. incarceration/prison | Terminated by Program because: |
| 12. poor health | 23. primary caregiver abandoned family |
| 13. Relocation of Family/Member out of service area due to neutral reasons (joining other family; change of lifestyle) | 24. primary caregiver was removed from family |
| | 25. disappeared |
| | 26. other (please describe) |
| | 27. Inactive Status (specify reason) |

CCDP FAMILY PROFILE (Continued)

OMB-0980-0226

11. Health Insurance Type: _____

- | |
|--|
| 1. Medicaid |
| 2. Commercial |
| 3. Medicare |
| 4. State Program for Special Diseases/
Disabilities |
| 5. None |

12. Health Insurance Name: _____ ID: _____

13. Last School Grade Completed: _____ Highest Degree: _____

- | |
|---------------------------|
| 1. None |
| 2. GED |
| 3. High School
Diploma |
| 4. Voc. Cert/
Diploma |
| 5. AA |
| 6. BA/BS |
| 7. Masters |

14. Current or Most Recent Employment: Never been employed

Starting Date: ___/___/___ MM DD YY	Ending Date: ___/___/___ MM DD YY	Current Job (Y/N): ___						
Position: _____	Occupation Code: _____	Industry Code: _____						
Salary: \$ _____ per _____	<table border="1"> <tr><td>1. Hour</td><td>4. Two Weeks</td></tr> <tr><td>2. Day</td><td>5. Month</td></tr> <tr><td>3. Week</td><td>6. Year</td></tr> </table>		1. Hour	4. Two Weeks	2. Day	5. Month	3. Week	6. Year
1. Hour	4. Two Weeks							
2. Day	5. Month							
3. Week	6. Year							
Average Hours per week: _____								

Starting Date: ___/___/___ MM DD YY	Ending Date: ___/___/___ MM DD YY	Current Job (Y/N): ___						
Position: _____	Occupation Code: _____	Industry Code: _____						
Salary: \$ _____ per _____	<table border="1"> <tr><td>1. Hour</td><td>4. Two Weeks</td></tr> <tr><td>2. Day</td><td>5. Month</td></tr> <tr><td>3. Week</td><td>6. Year</td></tr> </table>		1. Hour	4. Two Weeks	2. Day	5. Month	3. Week	6. Year
1. Hour	4. Two Weeks							
2. Day	5. Month							
3. Week	6. Year							
Average Hours per week: _____								

15. Previous Year's Earned Income: \$ _____ Year: _____

CCDP FAMILY PROFILE (Continued)

OMB-0980-0226

16. Unearned Annual Income: amt \$ _____ source _____
 amt \$ _____ source _____
 amt \$ _____ source _____

17. Reason for Termination: _____

18. Date Terminating Project: ____/____/____
MM DD YY19. Date Returned to Project: ____/____/____
MM DD YY

- | | |
|--|--|
| 1. Death of Focus Child | Does not wish to remain enrolled due to (positive reasons): |
| 2. Death of Family Member | 14. enrollment in job/skills/technical training |
| 3. Relocation of Focus Child | 15. obtaining employment |
| Relocation of Family/Member out of service area due to (positive reasons): | 16. enrollment in educational program/school |
| 4. jobs/skills/technical training | 17. improved housing |
| 5. obtaining employment | 18. marriage |
| 6. educational program/school | Does not wish to remain enrolled due to (negative reasons): |
| 7. improved housing | 19. lack of interest in program |
| 8. marriage | 20. unwillingness to participate or comply with requirements |
| Relocation of Family/Member out of service area due to (negative reasons): | Terminated by Program for: |
| 9. loss of job | 21. lack of participation |
| 10. loss of housing | 22. inappropriate behavior |
| 11. incarceration/prison | Terminated by Program because: |
| 12. poor health | 23. primary caregiver abandoned family |
| 13. Relocation of Family/Member out of service area due to neutral reasons (joining other family; change of lifestyle) | 24. primary caregiver was removed from family |
| | 25. disappeared |
| | 26. other (please describe) |
| | 27. Inactive Status (specify reason) |

CCDP FAMILY PROFILE (Continued)

OMB-0980-0226

20. Services Received in the Past 12 Months:

Adult/Primary Caregiver:

- Health Screening
- Acute Health Care
- Chronic Health Care
- Smoking Cessation
- Alcohol Abuse Treatment
- Drug Abuse Treatment
- Family Planning
- Nutritional Counseling
- Prenatal Care
- Respite Care
- AIDS Treatment
- Stress Counseling
- Dental Health Care
- Mental Health Care
- Job Training
- Employment Counseling
- Vocational Training
- Parenting Skills Training
- Household Management
- Basic Life Skills
- Literacy Programs
- ESL/Language Skills
- Education
- Other _____

Child:

- Health Screening
- Acute Health Care
- Chronic Health Care
- Well Baby Care
- Drug Abuse Treatment
- Nutritional Counseling
- Special Education
- Dental Health Care
- Mental Health Care
- Child Care/Day Care
- Early Childhood Education
- Head Start
- Foster Care
- Juvenile Justice
- Child Protective
- Other _____

CCDP FAMILY PROFILE (Continued)

OMB-0980-0226

21. Assistance Received:

In the Past

Currently:

Twelve Months:

- | | |
|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> AFDC/Welfare |
| <input type="checkbox"/> | <input type="checkbox"/> SSI |
| <input type="checkbox"/> | <input type="checkbox"/> Food Stamps |
| <input type="checkbox"/> | <input type="checkbox"/> Energy Assistance |
| <input type="checkbox"/> | <input type="checkbox"/> Medicaid |
| <input type="checkbox"/> | <input type="checkbox"/> Medicare |
| <input type="checkbox"/> | <input type="checkbox"/> WIC |
| <input type="checkbox"/> | <input type="checkbox"/> Child Support |
| <input type="checkbox"/> | <input type="checkbox"/> Temporary Housing Assistance |
| <input type="checkbox"/> | <input type="checkbox"/> Housing Subsidy |
| <input type="checkbox"/> | <input type="checkbox"/> Food Assistance |
| <input type="checkbox"/> | <input type="checkbox"/> Private Assistance |
| <input type="checkbox"/> | <input type="checkbox"/> Child Care/Day Care |
| <input type="checkbox"/> | <input type="checkbox"/> School Financial Aid |
| <input type="checkbox"/> | <input type="checkbox"/> Legal Assistance |
| <input type="checkbox"/> | <input type="checkbox"/> Unemployment Insurance |
| <input type="checkbox"/> | <input type="checkbox"/> Transportation |
| <input type="checkbox"/> | <input type="checkbox"/> Clothing |
| <input type="checkbox"/> | <input type="checkbox"/> Other _____ |
| | _____ |

22. Comments:

APPENDIX C:
Attitudinal Measures

How is the CFP doing?

Please complete the following questionnaire by circling the response that most closely matches your feelings about each statement.

1) As a result of my family's involvement with the CFP project I feel

a) my child(ren)'s developmental skills (i.e., language, social, motor, etc.) are:

1	2	3	4	5
much worse	worse	no change	better	much better

b) my education level and job skills are:

1	2	3	4	5
much worse	worse	no change	better	much better

c) my family's financial standing is:

1	2	3	4	5
much worse	worse	no change	better	much better

d) my family's stress level is:

1	2	3	4	5
much worse	worse	no change	better	much better

e) my hopes for my family's future are:

1	2	3	4	5
much worse	worse	no change	better	much better

f) my family's health-care is:

1	2	3	4	5
much worse	worse	no change	better	much better

2) I feel I have participated in the CFP project:

1	2	3	4	5
not at all		as much as I want to		more than I like

3) I would like to participate with the CFP project

1	2	3	4	5
much less	less	the same	more	much more

4) If I could change one thing about the CFP project it would be:

How are CFP Families Doing?

Please complete the following questionnaire by circling the response that most closely matches your feelings about each statement.

1) As a result of family _____ involvement with the CFP project I feel

a) their child(ren)'s developmental skills (i.e., language, social, motor, etc.) are:

1	2	3	4	5
much worse	worse	no change	better	much better

b) their education level and job skills are:

1	2	3	4	5
much worse	worse	no change	better	much better

c) their family's financial standing is:

1	2	3	4	5
much worse	worse	no change	better	much better

d) their family's stress level is:

1	2	3	4	5
much worse	worse	no change	better	much better

e) my hopes for their family's future are:

1	2	3	4	5
much worse	worse	no change	better	much better

f) their family's health-care is:

1	2	3	4	5
much worse	worse	no change	better	much better

2) I feel they have participated in the CFP project:

1	2	3	4	5
not at all		as much as I want to		more than I like

3) I feel they would like to participate with the CFP project:

1	2	3	4	5
much less	less	the same	more	much more

4) If I could change one thing about their family it would be:

APPENDIX D:
Correlation Matrices Used In Multiple Regression Analyses

Table 15

Correlation Matrix Used in the Multiple Regression Analysis of Parental Participation by Family Demographic Characteristics (N=47)

	Famsz	Ethnic	MStat	MAge	MEd	MDeg	RINC	FIH	TIP
Avepart	-0.340	-0.013	-0.071	-0.035	-0.200	-0.295	0.087	0.145	-0.434
Famsz	1.000	-0.140	-0.424	0.703	0.170	0.122	0.123	0.400	0.358
Ethnic		1.000	-0.100	-0.202	0.384	0.083	-0.145	0.041	-0.110
MStat			1.000	-0.340	-0.077	-0.099	0.145	-0.725	0.070
MAge				1.000	0.282	0.230	0.201	0.273	0.292
MEd					1.000	0.502	0.213	-0.018	0.112
MDeg						1.000	0.039	-0.096	0.039
RINC							1.000	0.160	-0.085
FIH								1.000	0.077

KEY: Avepart = Parental Participation Index; Famsz = Family Size;
 Ethnic = Ethnic group; MStat = Marital Status; MAge = Mother's Age
 MEd = Mother's education in years; MDeg = Mother's Degree;
 RINC = Family's recruitment income; FIH = Father in Home; TIP = Time in project

Table 16

Correlation Matrix Used in the Multiple Regression Analysis of Parental Participation by
Other Participation Measures (N=37)

	Effort	Aveprog	AveCFP	AveEdP	MWork	Medic	Dent	Ment	TCFP	TBRSS
Avepart	-0.012	0.120	0.148	-0.107	0.066	0.371	0.039	0.059	0.556	0.238
Effort	1.000	0.643	0.052	0.225	0.031	0.045	0.041	-0.196	-0.368	0.144
Aveprog		1.000	0.185	0.381	0.172	0.103	0.055	-0.043	-0.112	0.359
AveCFP			1.000	0.566	-0.055	0.024	0.171	0.154	0.298	0.170
AveEdP				1.000	0.128	-0.061	0.199	0.240	-0.108	0.136
MWork					1.000	-0.124	-0.088	-0.197	0.043	0.048
Medic						1.000	-0.011	0.093	0.383	0.546
Dent							1.000	0.076	-0.091	-0.108
Ment								1.000	0.026	0.510
TCFP									1.000	0.132

KEY: Avepart = Parental Participation Index; Effort = Average Effort by families in reaching goals;
 Aveprog = Average family progress toward goals; AveCFP = Average #/month of CFP Ed. courses;
 AveEdP = Average #/month other Ed. courses; MWork = Average # of weeks/month mothers worked;
 Medic = Average #/month of medical services; Dent = Average #/month of dental services
 Ment = Average #/month of mental health services; TCFP = Average #/month of other CFP core services
 TBRSS = Average #/month of other core services acquired from other agencies

Table 17

Correlation Matrix Used in the Multiple Regression Analysis of Parental Participation by Staff Attitudinal Measures

	# 1a	# 1b	# 1c	# 1d	# 1e	#1f	# 2	# 3	Total
Avepart	0.049	-0.023	0.018	-0.042	-0.179	-0.002	0.073	0.064	-0.017
# 1a	1.000	0.206	-0.045	0.367	0.207	0.130	0.253	0.368	0.444
# 1b		1.000	0.471	0.613	0.469	0.483	0.066	0.083	0.695
# 1c			1.000	0.445	0.517	0.412	0.111	0.088	0.659
# 1d				1.000	0.642	0.448	0.200	0.312	0.816
# 1e					1.000	0.472	0.336	0.160	0.790
# 1f						1.000	0.194	0.357	0.697
# 2							1.000	0.095	0.446
# 3								1.000	0.417

KEY: Avepart = parent participation index; # 1a = Item number 1a*; # 1b = Item number 1b*;
 # 1c = Item number 1c*; # 1d = Item number 1d*; # 1e = Item number 1e*;
 # 1f = Item number 1f*; # 2 = Item number 2*; # 3 = Item number 3*; Total = Sum of all items;
 * See Appendix B, Staff Attitudinal Survey

Table 18

Correlation Matrix Used in the Multiple Regression Analysis of Parental Participation by
Family Attitudinal Measures

	# 1a	# 1b	# 1c	# 1d	# 1e	#1f	# 2	# 3	Total
Avepart	0.066	0.076	0.048	0.225	0.325	-0.018	0.472	0.139	0.258
# 1a	1.000	0.238	0.044	0.127	0.247	0.396	0.059	0.415	0.519
# 1b		1.000	0.463	0.550	0.616	0.278	0.003	0.094	0.733
# 1c			1.000	0.694	0.472	0.077	0.141	-0.218	0.629
# 1d				1.000	0.707	0.194	0.391	-0.200	0.758
# 1e					1.000	0.238	0.195	-0.022	0.753
# 1f						1.000	0.181	0.434	0.571
# 2							1.000	0.005	0.356
# 3								1.000	0.309

KEY: Avepart = parent participation index; # 1a = Item 1a*; # 1b = Item number 1b*;
 # 1c = Item number 1c*; # 1d = Item number 1d*; # 1e = Item number 1e*;
 # 1f = Item number 1e*; # 2 = Item number 2*; # 3 = Item number 3*;
 Total = Sum of all items
 * See Appendix B, Family Attitudinal Survey

Table 19

Correlation Matrix Used in the Multiple Regression Analysis of Third Test Cognitive and Total BDI Scores by Components of Parental Participation for All Children Less than 5 Years Old at Enrollment (N=80)

	CFPECE	CFPEIE	OTECE	OTEIE	GCFPECE	GOTECE	GOTEIE	AVEHV
DIFFC	0.154	-0.131	*	-0.030	0.113	0.074	-0.188	-0.102
CDIFFC	0.062	-0.088	*	0.078	0.146	0.103	-0.257	-0.118
CFPECE	1.000	0.028	*	0.061	-0.488	-0.306	-0.092	-0.039
CFPEIE		1.000	*	0.223	-0.063	-0.097	0.141	0.040
OTECE			1.000	*	*	*	*	*
OTEIE				1.000	-0.124	-0.152	0.014	0.267
GCFPECE					1.000	0.083	0.070	0.120
GOTECE						1.000	-0.037	0.049
GOTEIE							1.000	0.050

KEY: DIFFC = Adjusted third test total BDI score; CDIFFC = Adjusted third test cognitive BDI score;
 CFPECE = # of individual ECE sessions by CFP; CFPEIE = # of individual EIE sessions by CFP;
 OTECE = # of individual ECE sessions by others; OTEIE = # of individual EIE sessions by others;
 GCFPECE = # of group ECE sessions by CFP; GCFPEIE = # of group EIE sessions by CFP;
 GOTECE = # of group ECE sessions by others; GOTEIE = # of group EIE sessions by others
 AVEHV = Average #/month home-visits

* No children received Individual EIE sessions from other agencies so correlation could not be computed.

Table 20

Correlation Matrix Used in the Multiple Regression Analysis of Third Test Cognitive and Total BDI Scores by Components of Parental Participation for Children 3 to 5 Years Old at Enrollment (N=26)

	CFPECE	CFPEIE	OTECE	OTEIE	GCFPECE	GOTECE	GOTEIE	AVEHV
DIFFC	0.239	-0.042	*	0.143	0.061	0.144	-0.237	-0.200
CDIFFC	0.288	-.081	*	0.259	-0.014	0.176	-0.355	-0.321
CFPECE	1.000	-0.003	*	0.495	-0.276	-0.274	0.281	-0.161
CFPEIE		1.000	*	0.006	0.097	-0.046	0.484	0.142
OTECE			1.000	*	*	*	*	*
OTEIE				1.000	-0.027	-0.188	0.046	0.105
GCFPECE					1.000	-0.229	-0.070	0.420
GOTECE						1.000	-0.256	0.126
GOTEIE							1.000	0.094

KEY: DIFFC = Adjusted third test total BDI score; CDIFFC = Adjusted third test cognitive BDI score;
 CFPECE = # of individual ECE sessions by CFP; CFPEIE = # of individual EIE sessions by CFP;
 OTECE = # of individual ECE sessions by others; OTEIE = # of individual EIE sessions by others;
 GCFPECE = # of group ECE sessions by CFP; GCFPEIE = # of group EIE sessions by CFP;
 GOTECE = # of group ECE sessions by others; GOTEIE = # of group EIE sessions by others
 AVEHV = Average #/month home-visits

* No children received Individual EIE sessions from other agencies so correlation could not be computed.

Table 21

Correlation Matrix Used in the Multiple Regression Analysis of Third Test BDI Total Scores by Components of Parental Participation for Children Less than 3 Years Old at Enrollment (N=54)

	CFPECE	CFPEIE	OTECE	OTEIE	GCFPECE	GOTECE	GOTEIE	AVEHV
DIFFC	0.158	-0.209	*	-0.181	0.261	0.104	-0.070	-0.037
CDIFFC	0.009	-0.109	*	-0.055	0.371	0.073	-0.165	0.017
CFPECE	1.000	-0.061	*	-0.077	-0.427	0.090	-0.119	-0.052
CFPEIE		1.000	*	0.279	-0.044	-0.090	0.221	0.010
OTECE			1.000	*	*	*	*	*
OTEIE				1.000	-0.141	-0.085	0.394	0.342
GCFPECE					1.000	-0.072	-0.077	-0.036
GOTECE						1.000	-0.035	0.029
GOTEIE							1.000	0.178

KEY: DIFFC = Adjusted third test total BDI score; CDIFFC = Adjusted third test cognitive BDI score CFPECE = # of individual ECE sessions by CFP; CFPEIE = # of individual EIE sessions by CFP; OTECE = # of individual ECE sessions by others; OTEIE = # of individual EIE sessions by others; GCFPECE = # of group ECE sessions by CFP; GCFPEIE = # of group EIE sessions by CFP; GOTECE = # of group ECE sessions by others; GOTEIE = # of group EIE sessions by others
AVEHV = Average #/month home-visits

* No children received Individual EIE sessions from other agencies so correlation could not be computed.

Table 22

Correlation Matrix Used in the Multiple Regression Analysis of Difference in Income by Family Demographic Characteristics (N=49)

	Famsz	Ethnic	MStat	MAge	MEd	MDeg	RINC	FIH	TIP
Diffinc	0.306	-0.164	-0.355	0.131	-0.072	-0.132	-0.295	0.336	0.198
Famsz	1.000	-0.103	-0.347	0.685	0.193	0.130	0.158	0.413	0.232
Ethnic		1.000	-0.246	-0.113	0.396	0.067	-0.027	0.072	-0.114
MStat			1.000	-0.240	-0.048	-0.141	0.007	-0.566	0.032
MAge				1.000	0.292	0.237	0.200	0.262	0.224
MEd					1.000	0.508	0.206	-0.025	0.043
MDeg						1.000	0.032	-0.105	-0.008
RINC							1.000	0.202	-0.047
FIH								1.000	0.126

KEY: Diffinc = Change in annual income; Famsz = Family Size; Ethnic = Ethnic group; MStat = Marital Status; MAge = Mother's Age; MEd = Mother's education in years; MDeg = Mother's Degree; RINC = Family's recruitment income; FIH = Father in Home; TIP = Time in project

Table 23

Correlation Matrix Used in the Multiple Regression Analysis of Difference in Income
by Other Participation Measures (N=37)

	Effort	Aveprog	AveCFP	AveEdP	MWork	Medic	Dent	Ment	TCFP	TBRSS
Diffinc	0.231	0.152	-0.121	0.176	0.449	-0.108	-0.071	0.062	-0.257	0.197
Effort	1.000	0.643	0.052	0.225	0.031	0.045	0.041	-0.196	-0.368	0.144
Aveprog		1.000	0.185	0.381	0.172	0.103	0.055	-0.043	-0.112	0.359
AveCFP			1.000	0.566	-0.055	0.024	0.171	0.154	0.298	0.170
AveEdP				1.000	0.128	-0.061	0.199	0.240	-0.108	0.136
MWork					1.000	-0.124	-0.088	-0.197	0.043	0.048
Medic						1.000	-0.011	0.093	0.383	0.546
Dent							1.000	0.076	-0.091	-0.108
Ment								1.000	0.026	0.510
TCFP									1.000	0.132

KEY: Diffinc = Change in annual income; Effort = Average Effort by families in reaching goals;
 Aveprog = Average family progress toward goals; AveCFP = Average #/month of CFP Ed. courses;
 AveEdP = Average #/month other Ed. courses; MWork = Average # of weeks/month mothers worked;
 Medic = Average #/month of medical services; Dent = Average #/month of dental services;
 Ment = Average #/month of mental health services; TCFP = Average #/month of other CFP core services
 TBRSS = Average #/month of other core services acquired from other agencies per month.

Table 24

Correlation Matrix Used in the Multiple Regression Analysis of Difference in Total and Cognitive BDI Scores by Family Income Measures (N=37)

	RINC	LINC	DIFFINC
DIFFC	0.012	0.167	0.173
CDIFFC	-0.008	0.038	0.046
RINC	1.000	0.413	-0.176
LINC		1.000	0.824

KEY: DIFFINC = change in annual income; RINC = annual income at enrollment;
 LINC = Annual income for 1992; DIFFC = Adjusted third test total BDI score;
 CDIFFC = Adjusted third test cognitive BDI score

Psychoeducational Specialist

Community-Family Partnership Project
Center for Persons with Disabilities
Utah State University
Logan, Utah 84322-6825

Supervisors: Sebastian Striefel, Ph.D.
Phyllis Cole, Ph.D.

August 1989 to July 1993 (20 hours per week)

Responsibilities: Conduct developmental and psychological testing of children three months to eight years old. Testing includes the Battelle Developmental Inventory, Bayley Scales of Infant Development, WISC-R, Leiter, and VMI. Make recommendations for intervention and treatment of developmentally delayed children. Work with fathers who are resistant to participate in early intervention activities with their children by helping them to reach their self-sufficiency goals while teaching them parenting skills.

Consultant

Preston School District
Preston Idaho

Supervisor: Kenneth Merrell, Ph.D.

November 1992 to July 1993 (3 days per month)

Responsibilities: Conduct psychoeducational evaluations on elementary and junior high students, including report writing. Testing includes Wisc-III, Woodcock-Johnson-Revised, Child Behavior Checklists, Classroom observation, and diagnostic interviews. Make recommendations for placement, further evaluation, or mainstream intervention techniques. Provide consultation services to teachers regarding behavioral modification programs they can implement in their classrooms. Provide counseling to children and teenagers with poor school performance.

Staff Therapist/Evaluator

Intermountain Sexual Abuse Treatment Center
Logan, Utah

Supervisors: Elwin Nielsen, Ph.D.
Carolyn Barcus, Ed.D.
C.Y. Roby, Ph.D.

August 1989 to December 1992 (10 to 20 hours per week)

Responsibilities: Provide individual, group and family therapy in the context of "family focused" treatment which supports family members with the required services and provides the necessary support for abuse victims. Work with child, adolescent and adult victims and offenders of sexual abuse. Work with non-offending or abused spouses and parents both individually and in marital sessions. Multi-Modal therapy is used including behavioral modification, gestalt techniques, relaxation training, and psychodynamic techniques. Co-lead weekly (2 hour) on-going therapy groups for adult and adolescent sex offenders. Teach a ten week course in assertiveness training and anger management. Co-lead educational groups focusing on teaching appropriate touch for pre-adolescent boys, and preschoolers. Co-lead on-going group for adolescent girl victims of sexual abuse. Conduct complete psychological evaluation on perpetrators of sexual abuse including use of Psycho-social history, MMPI, Bipolar Psychological Inventory, Shipley Institute of Living Scale, Wide Range Achievement Test - revised, Incomplete Sentences Blank, Wahler Physical Symptoms Inventory, Personal Data Form, Mental Status Exam and a Diagnostic Interview.

Consultant:

Family Intervention Program
Center for Persons with Disabilities
Utah State University
Logan, UT 84322

Supervisor: Phyllis Cole, Ph.D.

August 1990 to August 1991

Responsibilities: Conduct developmental evaluations on children 0 to 3 years of age to determine if they were eligible for services from the Family Intervention Project. Evaluations included collecting social, medical, and developmental history in a semi-structured interview and administration of the Battelle Developmental Inventory.

Practicum Therapist: (Counseling Psychology)

Utah State University Counseling Center

Logan, Utah 84322

Supervisors: Mary Doty, Ph.D.
David Bush, Ph.D.

September 1990 to June 1991 (10 hours per week)

Responsibilities: Provide individual, couple and group therapy, and conduct intake interviews. Client work included personal growth group, interpersonal problems, adults molested as children, and marital difficulties. Case presentations to staff members.**Practicum Intern:** (School Psychology)

Developmental Center for Handicapped Persons

Division of Services

Utah State University

Logan, Utah, 84322-6800

Supervisor: Phyllis Cole, Ph.D.

January 1990 to August 1990 (10 hours per week)

Responsibilities: Served as a member of a interdisciplinary team. Conducted psychological evaluations including: parent and child interviews, administration of intellectual and achievement tests (Wechsler series, Woodcock - Johnson Achievement Tests, VMI, Child behavior checklist, behavioral observation, etc.), and report writing.**Practicum Therapist:** (Clinical Psychology)

Utah State University Psychology Department

Community Clinic

Utah State University, Logan, Utah

Supervisor: Jay R. Skidmore, Ph.D.

June 1989 to December 1989 (10 hours per week)

Responsibilities: Provide individual psychotherapy to adults, co-lead a adolescent social skills group, and conduct psychological evaluations (MMPI, Mental status exam,

Practicum Therapist: (Clinical Psychology)
Utah State University Psychology Department
Community Clinic
Utah State University, Logan, Utah

Supervisor: Damian McShane, Ph.D.

January 1989 to June 1989 (10 hours per week)

Responsibilities: Provide individual psychotherapy to children, adolescents, and adults, using a humanistic approach with a brief psychotherapy model. Conduct psychological evaluations using MMPI, Bender-gestalt, mental status exam, psycho-social history.

Other Related Employment:

Graduate Research Assistant

Validated Strategies for School-Age Mainstreaming Project
Developmental Center for Handicapped Persons
University of Utah, Logan, Utah

Supervisor: Sebastian Striefel, Ph.D.

October 1988 to June 1989 (20 hours per week)

Responsibilities: Participate in the research, and development of materials and strategies to help promote successful mainstreaming of children with handicaps into the regular school settings.

Mental Health Worker

Timpanogos Community Mental Health Center
Provo, Utah

June 1983 to August 1988 (40 hours per week)

Supervisor: Robert H. Anderson, M.A.

Responsibilities: Supervise and coordinate daily activities for the four to six boys, ages 14 to 18, who were under the custody of Youth Corrections for the State of Utah and had been placed in the Carousel North Group Home in Clearfield, Utah.

Editorial Activities:

Editor, CFP News, a quarterly newsletter for the Community-Family Partnership project, 1990-July, 1993.

Professional Presentations:

Percival, G., and Striefel, S. (4-7 November, 1993). Differential Parental Participation in an Early Intervention Project: Is More Active Better? Translating Research into Practice: Implications for Serving Families with Young Children. Washington, DC

Percival, G., and Striefel, S. (14-17 November, 1993). Differential Parental Participation in an Early Intervention Project: Is More Active Better? 13th CCDP Program Conference, Washington, DC

Percival, G., and Striefel, S. (March, 1992). The Ethical Beliefs and Practices of AAPB Members. Colorado Springs, Colorado

Striefel, S. and Percival, G. (September, 1991). The Ethical Practices of Biobehavioral Self-Regulation Service Providers. Second International Conference on Biobehavioral Self-Regulation and Health. Munich, Germany.

Percival, G., Sexton, B., Striefel, S., and Allred, J. (June 1989). An overview of the mainstreaming process: The VSSM model. Special Education Conference - Thirteenth Annual Conference on Intervention Procedures for Exceptional Children. Utah State University, Logan, Utah.

Percival, G., Sexton, B., Striefel, S., and Allred, J. (June 1989). The IEP process: Making child placement decisions. Special Education Conference - Thirteenth Annual Conference on Intervention Procedures for Exceptional Children. Utah State University, Logan, Utah.

Percival, G., Sexton, B., Striefel, S., and Allred, J. (September, 1989) The Mainstreaming Self-Evaluation Checklist for Administrators. Utah Federation, Council for Exceptional Children. Park City, Utah.

Sexton, B., Percival, G., Striefel, S., and Allred, J. (September, 1989) The Mainstreaming IEP Worksheets. Utah Federation, Council for Exceptional Children. Park City, Utah.

Unpublished Publications:

Percival, G. (1992). Ethical beliefs and practices: Do psychologists differ from other health-care professionals. Unpublished thesis.

Publications:

Percival, G., & Striefel, S. (1993). Ethical beliefs and practices of AAPB members. In press, Biofeedback and Self-Regulation.

Morgan, R. L., Striefel, S., Baer, R., & Percival, G. (1991). Regulating behavioral procedures for individuals with handicaps: Review of state department standards. Research in Developmental Disabilities, 12, 63-85.

Newsletter Articles:

Percival, G. (1992). Building your child's self-esteem. CFP News, 3(3), 5.

Percival, G. (1991). Social networks: An alternative to meeting family needs. CFP News, 2(2), 4.

Percival, G., & Striefel, S. (1991). Economic self-sufficiency: What is it? CFP News, 2(1), 4.

Percival, G., & Striefel, S. (1990). What is CFP doing with families? CFP News, 1(1), 1.

Percival, G., & Striefel, S. (1990). What is the CFP project? CFP News, 1(1), 1.

Percival, G., & Striefel, S. (1990). The preschool administrator and public law 99-457. The Special Educator, 10(3), 3-5.

Honors:

Graduated Magna Cum Laude, University of Utah, 1987

Recipient of Psychology Department, Departmental Scholarship, University of Utah, 1987

Elected Pro-Sci Psychology Graduate Student Representative 1991-1992

Professional Organizations:

Member of Psi-Chi, National Psychology Honor Society

Student Affiliate to the American Psychological Association

Member of the Society of Air Force Clinical Psychologists

Outside Activities:

I enjoy all types of outdoor activities including hunting, fishing, camping, hiking, mountain climbing, and horseback riding.

References:

Sebastian Striefel, Ph.D., Director Services Division, Center for Persons with Disabilities, and Major Professor, Utah State University, (801) 797-2030.

Elwin Nielsen, Ph.D., Chair Professional-Scientific Psychology Program, Utah State University and Supervisor ISAT, (801) 797-1463.

Carolyn Barcus, Ed.D. Professor Utah State University and former Supervisor ISAT, (801) 797-1465

Graduate Coursework:*

Psychometrics

Principles of Counseling and Psychotherapy

Theories of Personality and Psychotherapy

Group Testing

Non-Stereotypic Counseling

Group Counseling and Psychotherapy

Inferential Statistics

Psychological Consultation

Introduction to Educational and Psychological Research

MMPI-2 Seminar

Behavioral Assessment and Single-Case Design

Seminar in Structured Interviewing

Professional Ethics and Standards

Individual Intelligence Testing I

Principles of Learning

Individual Intelligence Testing II

Correlation and Regression

Biological Bases of Behavior

Clinical Applications of Relaxation Training

Developmental Psychology

History and Systems of Psychology

Social and Organizational Bases of Behavior

Seminar in Infancy and Childhood

Psychopathology I

Neuropsychological Assessment Workshop

Psychopathology II

Clinical Applications in Biofeedback

Advanced Personality Assessment

Designing Educational and Psychological Research

Learning, Cognition, Motivation, and Emotion

Psychopharmacology**

Health Psychology**

* Graduate course work excluding practicum experiences

** Scheduled to be taken Winter and Spring of 93

Statement of Goals and Interests

My desire is to be competent to provide a broad range of psychological services so I would be able to work in a broad range of clinical settings in both urban and rural settings. My goal for internship is to gain the generalized training that will enable me to meet my desires. Special interest areas include: a) minimizing the psychological damage that can occur following traumatic events (i.e., physical, mental, and sexual abuse, victims of violent crimes, survivors of natural disasters, etc.); b) prevention of mental disorders through education (i.e., relaxation training, stress management, assertiveness training, anger management etc.); and c) Health Psychology.