

Relationship Between Service Coordinator Practices and Early Intervention Services

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Abstract

The influence of six service coordination variables on the number, types, and intensity of early intervention services was examined in a study of 346 IDEA Part C program participants in 46 states. The study and selection of the predictor and criterion variables was guided by both previous research and current beliefs about the role service coordination plays in influencing the type, frequency, and amount of early intervention services. Results showed that only the number of persons developing children's IFSPs and how long service coordinators worked with families were related to the early intervention services measures. Findings are discussed in terms of the disassociation between service coordination and the provision of early intervention services.

Service coordination is a required service as part of the provision of early intervention to infants and toddlers in IDEA Part C programs (Bruder, 2005). In most states (Harbin et al., 2004), service coordinators play a central role in orchestrating the development of Individualized Family Services Plans (IFSPs). IFSPs must include, among other things, a description of the early intervention services necessary to meet child and family needs; the dates, intensity, and duration of services; and the major outcomes, criteria, procedures, and timelines for ascertaining the extent to which the outcomes have been achieved. These requirements would lead one to expect a high degree of congruence between the roles and responsibilities of service coordinators and the types and intensity of early intervention services (see e.g., Bailey, 1989; Park & Turnbull, 2003; Zipper, Weil, & Rounds, 1993). Surprisingly, there have been only a few studies examining the relationship between what service coordinators do and what early intervention services Part C program participants receive.

Jung and Baird (2003) investigated the influence of a number of service coordinator variables on the ways in which IFSPs were written and found that (a) months of service coordinator experience and (b) training in service coordinator roles and responsibilities were the two variables most related to the quality of how IFSPs were written. Studies of the content of IFSPs have consistently found that they contain mostly child-related services and outcomes (e.g., Boone, McBride, Swann, Moore, & Drew, 1998; McWilliam, Ferguson, Harbin, Porter, & Vaderviere, 1998).

Farel et al. (1997) examined the extent to which service coordinators view IFSPs and the IFSP process as useful. Surprisingly, one third of the service coordinators surveyed judged the IFSPs as not being useful documents. To the best of our knowledge, there have been no studies specifically examining the relationship between service coordinator roles and responsibilities (Bruder, 2005) and how service coordinator practices are related to the number, types, and intensity of early intervention services.

The purpose of the study reported in this paper was to determine which service coordinator practices were related to the provision of early intervention services. The study was conducted as part of the Research and Training Center (RTC) on Service Coordination (Bruder, 2005; Bruder et al., 2005). The main focus of the RTC is to study and describe current models of service coordination, identify the practices and outcomes that are associated with different service coordination models, and promote adoption and use of service coordination models that evidence indicates optimizes positive benefits to infants and toddlers and their families.

The relationship between six service coordination variables and three early intervention services measures was the focus of investigation. The service coordination variables included length of time working with a family, frequency of contact between the service coordinator and the family, frequency of service coordinator contact with early intervention providers, service coordination model (dedicated and independent, dedicated but not independent, and blended), service coordinator family-centered practices, and scope of service coordinator practices (Dunst & Bruder, 2006). We also assessed the extent to which the number of IFSP team members developing IFSPs was related to variations in early intervention services. The criterion early intervention services measures included the number of child services received, intensity of these services, and the frequency of provision of special instruction, speech therapy, occupational therapy, and physical therapy.

The study and selection of the predictor and criterion measures was guided by both previous research and contemporary beliefs about the role service coordination plays in influencing the type, frequency, and amount of early intervention. Previous research indicates, for example, that structural variables including frequency of contact between program providers and families influences the number of services provided to the families' children (Dunst, Brookfield, & Epstein, 1998). We therefore hypothesized that more frequent contact between service coordinators and both parents and providers would be associated with differences in the provision of early intervention services.

More and more states are adopting dedicated service coordination models (Hurth, 1998) which are thought to constrain the amount and frequency of early intervention services (Bruder, 2005). Based on this assumption, one would expect that dedicated service coordination models would be associated with less frequently provided early intervention services. In contrast, others (Adams, 2003; Park & Turnbull, 2003) have contended that the use of service coordination

models that are blended will result in more services provided more frequently. Adams (2003) found that indeed blended models were associated with differences in early intervention. Independent service coordination was expected to be related to fewer and blended service coordination was expected to be related to greater amounts of early intervention services.

Research has also shown that differences in service coordinator models is associated with differences in service coordinator practices (Dunst & Bruder, 2006). In this previously conducted study, dedicated and independent service coordination was associated with considerably less child and family supports and resources compared to blended service coordination. Research has also consistently found that the helping practices used by early intervention practitioners are associated with differences in program participant outcomes. In a meta-analysis of more than 45 studies, the use of family-centered practices was related to a host of program benefits (Dunst, Trivette, & Hamby, 2007). We therefore expected service coordinator practices to influence the provision of early intervention services.

The particular variables we included in the analyses reported in this paper are considered some but certainly not the only service coordination variables that might influence early intervention services (see especially Bruder, 2005; Park & Turnbull, 2003). The study described in this paper is part of a line of research investigating the ecology of service coordination, and the factors influencing the characteristics and consequences of different approaches to service coordination (Bruder, 2005; Bruder et al., 2005). The goal of this research is to disentangle and unpack those aspects of service coordination that matter most in terms of influencing early intervention services. This study was considered a first step toward meeting this goal.

Method

Participants

Parents and other caregivers were recruited by early intervention providers and programs using mailing lists obtained from State Infant/Toddler Program Coordinators. Invitations were sent to randomly selected programs in those states (N = 46) where the Part C Coordinators provided mailing lists. Interested providers distributed surveys to program participants who returned the surveys to the investigators in postage paid envelopes. Surveys were returned from parents and other caregivers in all the states where surveys were sent.

The sample included 346 parents and other primary caregivers of IDEA Part C early intervention program participants. Table 1 shows the background characteristics of the study participants. The respondents were, on average, about 33 years of age, and had completed an average of about 14 years of formal schooling. The majority of the respondents were either married or living with a partner, and about half of the survey respondents reported that they worked outside the home either full or part time.

The respondents' children were, on average, two years of age at the time the respondents completed the surveys. Based on information provided by the respondents' on the surveys, the majority (70%) of the children had identified disabilities (chromosomal aberrations, physical disabilities, brain damage, autism or PDD, health-related problems, sensory impairments, or multiple disabilities), and the other children (30%) had global developmental delays, delays in only one developmental domain or were at-risk for delays.

Survey

The participants completed an investigator-developed survey that included both closed- and open-ended questions. The survey included questions for ascertaining service coordination model, length and frequency of contact between the service coordinator and both the family and early intervention staff, and sections asking respondents' to rate the service coordinators' family-centered practices, the extent to which service coordinators used different practices with their children and family, the degree to which his or her child received different early intervention services, and who developed the IFSP. Information provided by the survey respondents in each of these areas was used to construct the independent and dependent measures described next.

Predictor Variables

Contact between service coordinators and program participants and early intervention staff. Respondents indicated how often the service coordinator working with the respondents' child/family had contact with his or her family. This information was used to code frequency of contact on an 8-point scale ranging from at least once a week (7) to less than twice a year (0). How often the service coordinator had contact with the early intervention program staff or providers which was used to code frequency of contact on a 7-point scale ranging from at least once a week (6) to a couple of times a year/don't know (0). Parents knowing the frequency of contact between the service coordinators and early intervention staff or providers was used as a proxy measure of parent/service coordinator communication. Respondents were also asked to indicate for the practitioner currently providing service coordination how long he or she had been working with the family in years and months.

Service coordinator model. Respondents were asked the name of the agency or program for whom the service coordinator worked, the name of the agency or program providing early intervention services to the respondent's child and family, and to indicate whether any early intervention program staff or provider working with the respondents' child or family was the assigned service coordinator. The combination of program or agency, service coordinator role/responsibilities, and early intervention staff roles/responsibilities, were used to assign respondents to one of the three service coordination models (dedicated and independent, dedicated but not independent, blended). Families were assigned to the dedicated and independent model of service coordination (hereafter referred to as the dedicated model) if the role of the service coordinator was dedicated to service coordination only, and the agency providing service coordination was independent from service provision. Families were assigned to the dedicated but not independent model (hereafter referred to as the intra-agency model) if the service coordinator provided only service coordination but worked for the same agency or program providing early intervention services. Families were assigned to the blended model if the service coordinator provided both service coordination and early intervention services. Contrast coding (Cohen, Cohen, West, & Aiken, 2003) was used to determine the influence of service coordination model on early intervention services.

Family-centered helpgiving. Respondents were asked to indicate on a 5-point scale (ranging from never to always) the extent to which the service coordinators working with their families used four relational (e.g., "really listens to my concerns") and four participatory (e.g., "provides me information I need to make good choices") family-centered helpgiving practices (Dunst & Trivette, 1996). Relational practices include behaviors typically associated with good clinical practice (compassion, active listening, empathy, etc.) and practitioner attributions about family

member's competence, strengths, and capabilities. Participatory practices include behaviors that involve family member's choices and decision making, use of existing abilities, and the development of new capabilities needed to obtain desired resources, and family/practitioner collaboration as the basis for enabling family competence and capacity. Principal components factor analysis of each set of ratings produced single factor solutions for both the relational ($\alpha = .92$) and participatory ($\alpha = .90$) practices. The sum of the ratings for each set of items were used as the family-centered practices measures.

Scope of service coordinator practices. The types of practices used by the service coordinators was ascertained by asking respondents to indicate the extent to which service coordinators used nine different practices (IFSP oversight, early intervention services oversight, service provision, encouraging family decision making, information provision, advice and guidance about child learning, transition planning, health care information/assistance, and child care information/assistance). Two practice items were included for each type of service coordinator activity (Bruder & Dunst, in press; Dunst & Bruder, 2006). Each item was rated on a 5-point scale ranging from never true to always true that the service coordinator engaged in the practice. A second order factor analysis (Bourque & Clark, 1992) was used to discern whether a summated practices score was justified. The second order factor analysis produced a single factor solution ($\alpha = .92$) indicating that a summated score could be legitimately be calculated.

IFSP team. The number of IFSP team members was determined by asking respondents to indicate who developed the IFSP from a list included on the survey. The IFSPs were developed by the respondents (95%), service coordinators (94%), speech therapists (65%), the respondents' spouses or partners (57%), physical therapists (56%), occupational therapists (53%), teachers or special instructors (45%), program directors or administrators (20%), physicians (17%), other family members (13%), and nurses (8%).

Criterion Variables

Respondents were asked to indicate on a 7-point scale ranging from does not receive (0) to receives almost everyday (6) how often their child received physical therapy, occupational therapy, speech/language therapy, special education/special instruction, nursing services, and nutritional services. A number of early intervention services measures were constructed from the respondents' ratings. Number of services was determined by summing the number of times a respondent indicated his or her child received any of the services regardless of frequency. Intensity was determined by summing the ratings for all services received, where the summated score was used as a proxy measure for the aggregate frequency of early intervention services. The individual ratings for special education/special instruction, speech therapy, occupational therapy, and physical therapy were used as the measures of the frequency of provision of each early intervention service.

Method of Analysis

Primary and secondary analyses were conducted. First, hierarchical multiple regression analysis by sets was used to ascertain the relationship between four sets of independent variables and the early intervention services measures (Cohen et al., 2003). The sets were frequency of contact (length of service coordinator involvement with the family, frequency of service coordinator/family contact, frequency of service coordinator/early intervention practitioner contact), service coordinator model (dedicated vs. intra-agency, dedicated vs. blended), service

coordinator practices (relational helpgiving, participatory helpgiving, scope of service coordinator practices), and number of IFSP team members. At each step in the analyses, the multiple R², increments (I) in R² for the variables in each set, and the standardized regression coefficients (β) for the variables in the sets were examined to identify the relative importance of the variables constituting the focus of analysis. The order of entry of the sets of variables into the analysis was as follows: (1) service coordinator contact (length and frequency), (2) service coordination model, (3) service coordinator family-centered practices and scope of practices, and (4) number of IFSP team members. Second, we performed stepwise regression analyses with all seven service coordination measures as separate predictors to ascertain if the effects of any one variable was masked by the hierarchical ordering.

In both the primary and secondary sets of analyses, the increments (I) in the R² and standardized regression coefficients (β) were used as the measures of the sizes of effect of the predictor variables. I is a measure of the proportion of variance accounted for in a criterion measure by the predictors (Cohen et al., 2003). β is part of r family of effect sizes (Rosenthal, 1994), and is an index of the strength of the relationship between the predictor and criterion measures (the larger the β , the stronger the relationship).

Table #1

Table 1

Background Characteristics of the Study Participants

Background Characteristics	Number	Percentage	Background Characteristics	Number	Percentage
<i>Respondent</i>			<i>Employment Status</i>		
Biological Mother	322	93	Not Working	196	57
Biological Father	8	2	Working Part Time	92	27
Foster Mother	7	2	Working Full Time	58	17
Grandmother	5	1	<i>Ethnicity</i>		
Other	4	2	Caucasian/White	301	87
<i>Respondent Age (Years)</i>			Latino/Hispanic	16	5
<20	8	2	African American	10	3
21-30	104	44	Biracial	7	2
31-40	185	53	Asian American	5	1
41-50	44	13	American Indian	3	1
50+	4	1	Other	3	1
<i>Respondent Education</i>			<i>Child Age (Months)</i>		
Elementary School	5	1	0-12	31	9
Middle School	15	9	12-24	112	32
High School	59	23	24-36	177	51
Some College	107	31	36+	26	8
College Graduate	94	27	<i>Child Diagnosis</i>		
Masters/Doctorate Degree	66	19	Established Disability	242	70
<i>Marital Status</i>			Developmentally Delayed/At Risk	104	30
Married/Living with Partner	318	92			
Single/Separated/Divorced	28	8			

Results

Patterns of Service Provision

Respondents indicated that their children received an average of 2.69 different services (SD = 1.37). **Table 2** shows the percentage of children who received different early intervention services. Speech services were provided to 76% of the children followed by physical therapy (61%), occupational therapy (56%), and special instruction (51%). The respondents' children were provided few nutritional (15%) or nursing (10%) services. Among the children receiving other than nursing or nutritional services, the largest majority (72%) received early intervention services a couple of times a week (20%), once a week (40%), or every couple of weeks (12%).

Number and Intensity of Services

The hierarchical multiple regression results are shown in **Table 3**. In both analyses, the length of time a service coordinator worked with the respondents' families and the number of IFSP team members were the only service coordination variables related to the dependent measures. In both analyses, the longer the service coordinator worked with the families and the larger the number of persons developing the IFSPs, the more services a child received and the more frequently the children received the services. Examination of the standardized regression coefficients indicated that the number of IFSP team members was a relatively more important variable in explaining the relationship between service coordination and early intervention. This finding is particularly robust given the fact that the influence of the IFSP measure was entered last in the analyses after the covariation between the other service coordination measures and the early intervention measures was removed.

In only one instance was any other service coordination measure related to an outcome. The more frequently the service coordinators had contact with the families, the less frequently children received early intervention services.

Both stepwise regression analyses produced identical results. The larger the IFSP team, the more services the children received ($\beta = .41$, $I = 22\%$, $p < .0001$) and the more frequently the children received the services ($\beta = .40$, $I = 20\%$, $p < .0001$). In addition, the longer the service coordinators worked with the families, the more services the children received ($\beta = .24$, $I = 6\%$, $p < .001$) and the more frequently the children received the services ($\beta = .21$, $I = 4\%$, $p < .001$).

Types of Early Intervention Services

These analyses were restricted to frequency of special instruction and speech, occupational, and physical therapy because so few children received nursing or nutrition services (see [Table 2](#)). **Table 4** shows the results of the hierarchical multiple regression analyses. The longer a service coordinator worked with the respondents' families, the more frequently the children received all four types of services. Similarly, the larger the number of persons developing the IFSP, the more often the children received all four types of services. The relative importance of the IFSP team measure was once again found in these analyses. For three of the four early intervention services, the standardized regression coefficients for the IFSP measure were larger than for any other predictor variable. Additionally, this variable accounted for significant amounts of variance in

the early intervention services measures after the effects of the other measures were removed from the analyses.

Provision of special instruction and speech therapy were the only practices related to more than two types of service coordination measures. The more frequently the service coordinators had contact with service providers, the more frequently the children received special instruction. In contrast, the more frequently the service coordinators had contact with the respondents' families, the less often children received speech therapy.

In the stepwise regression analyses, the number of persons developing the IFSPs was the one variable most associated with the frequency of physical therapy ($\beta = .25$, $I = 8\%$, $p < .001$), occupational therapy ($\beta = .32$, $I = 14\%$, $p < .0001$), speech therapy ($\beta = .19$, $I = 6\%$, $p < .001$), and special instruction ($\beta = .24$, $I = 6\%$, $p < .001$). The longer the service coordinators worked with the families, the more frequently the children received physical therapy ($\beta = .11$, $I = 2\%$, $p < .05$), occupational therapy ($\beta = .19$, $I = 4\%$, $p < .001$), and special instruction ($\beta = .12$, $I = 2\%$, $p < .05$). For speech therapy, the more frequently the service coordinators had contact with the respondents' families, the less frequently children received this service ($\beta = -.14$, $I = 2\%$, $p < .01$).

The frequency of provision of special instruction was the only early intervention service influenced by another service coordination measure. Provision of service coordination using a dedicated service coordination model was related to less frequent provision of special instruction ($\beta = -.16$, $I = 3\%$, $p < .05$).

Table #2

Table 2

Percentage of Children Receiving Early Intervention Services

Type of Service	Number of Children	Frequency of Service Provision					
		Almost Everyday	Twice A Week	Once A Week	Every Couple of Weeks	Once A Month	Less Than Once A Month
Speech Therapy	263	5	25	42	15	7	6
Physical Therapy	211	1	23	37	18	14	8
Occupational Therapy	192	1	19	44	19	10	7
Special Instruction	175	13	25	37	17	6	3
Nutrition Services	51	8	0	10	4	28	51
Nursing Services	34	29	6	15	9	21	21

Table #3

Table 3

Multiple Correlations (R^2), Increments (I) in R^2 and Standardized Regression Coefficients (β) for the Relationship Between the Service Coordinator Measures and Number and Intensity of Early Intervention Services

Service Coordination Measures	Number of Services			Intensity of Services		
	β	R^2	I	β	R^2	I
Frequency of Contact		.12**	.12**		.11**	.11**
Length of Family Involvement	.34***			.30***		
Service Coordinator/Family	-.05			-.12*		
Service Coordinator/EI Providers	.07			.06		
Service Coordination Model		.13**	.01		.11**	.00
Dedicated vs. IntraAgency	.02			.02		
Dedicated vs. Blended	.09			-.06		
Service Coordinator Practices		.14**	.01		.12**	.01
Participatory Helpgiving	.00			.07		
Relational Helpgiving	-.11			-.14		
Scope of SC Practices	.11			.03		
IFSP Team						
Number of Team Members	.42***	.28***	.14***	.41***	.26***	.14***

* $p < .05$. ** $p < .001$. *** $p < .0001$.

Table # 4

Table 4

Multiple Correlations (R^2), Increments (I) in R^2 , and the Standardized Regression Coefficients (β) for the Relationship Between the Service Coordination Measures and Types of Early Intervention Services

Service Coordination Measures	Early Intervention Service											
	Physical Therapy			Occupational Therapy			Speech Language Pathology			Special Instruction		
	β	R^2	I	β	R^2	I	β	R^2	I	β	R^2	I
Frequency of Contact		.03*	.03*		.07**	.07**		.05	.05**		.04**	.04**
Length of Family Involvement	.17**			.27***			.14**			.16**		
Service Coordinator/Family	-.06			-.03			-.16**			-.05		
Service Coordinator/EI Providers	.00			.00			.00			.16**		
Service Coordination Model		.04	.01		.08	.01		.06	.01		.06	.02*
Dedicated vs. IntraAgency	.09			.09			.03			-.13**		
Dedicated vs. Blended	-.03			.00			-.11			.00		
Service Coordinator Practices		.05	.01		.09	.01		.06	.00		.07	.01
Participatory Helpgiving	.14			-.03			.07			-.02		
Relational Helpgiving	-.05			-.06			-.16			-.08		
Scope of SC Practices	-.03			.11			.03			-.04		
IFSP Team												
Number of Team Members	.25***	.10	.05***	.33***	.18	.09***	.17**	.09	.03**	.24***	.12	.05***

* $p < .05$. ** $p < .01$. *** $p < .000$

Discussion

In all six primary and secondary analyses, just two predictor variables were consistently related to the number, intensity, and types of early intervention. The larger the number of persons developing the IFSP, the more likely the children received more services more frequently, and the longer the service coordinators worked with the respondent families, the more services the children received, and the more frequently they received the services. Perhaps more important is the finding that there was very little shared variance between the three primary sets of service coordination measures (service coordinator contact, service coordination model, and service coordinator practices) and the early intervention measures. In almost every case, the different service coordination variables included in the analyses accounted for a very small amount of variance in the early intervention measures. In contrast, the IFSP team variable accounted for the majority of variance in the dependent measures, even after the shared variance between the service coordination and early intervention variables was partialled from the total amount of shared variance.

The findings reported in this paper showed that what service coordinators do and which early intervention services children receive is not related in a manner that one would expect based on either IDEA Part C rules and regulations or claims by service coordination enthusiasts (see Ooms & Owen, 1991a; Ooms & Owen, 1991b). The findings from this study are consistent with those reported in a previous paper (Dunst & Bruder, 2002). In that study, both parents and practitioners viewed the processes and outcomes of service coordination and early intervention (as well as natural environments) as more different than alike. Taken together, the findings from this study together with our previous study “paint a picture” of a disassociation between service coordination and early intervention.

The disassociation between service coordination and early intervention seems especially problematic given the fact that states devote so much time, energy, and money to the service coordination side of the Part C program equation (e.g., Goldhammer & Mackey-Andrews, 2004). Perhaps we did not measure those service coordination variables that would explain the consequences of the practice. This isn't likely the case. In two other studies, we found that the very same service coordination measures used in the present study were related to both the scope and intensity of service coordinator practices (Dunst & Bruder, 2006). The results from our studies, taken together, indicate that the influences of what service coordinators do and how service coordination is practiced is limited in terms of its effects on the number, intensity and types of child-level early intervention services (see Leventhal, Brooks-Gunn, McCormick, & McCarton, 2000). This is supported by the fact that a single variable--the number of persons developing the IFSP--proved to be the most important determinant of the number, intensity, and types of early intervention services.

The findings from this study are perhaps best understood by considering three possible results that could have been obtained: (1) service coordination would be related to fewer and less intense amounts of early intervention services, (2) service coordination would be related to more intense and a greater variety of early intervention services, and (3) service coordination would be unrelated to early intervention. The first scenario is the basis of a dedicated and independent service coordination model (Marrone, n.d.). According to the logic of this model, service coordination, among other things, is used to contain the frequency and amount of early

intervention services by providing oversight and monitoring of early intervention. Findings from our study do not support this assumption.

The second scenario is the basis for an assumption that service coordinators can insure that children receive the services they are rightfully entitled to, and that by ensuring that these services are included on an IFSP, children will receive the number, frequency, and intensity of prescribed services. Findings from this study provide limited support for this assumption. The reality is that children receive early intervention services as the result of the proclivities of others (namely, the membership of the IFSP team) rather than being influenced by the practices of service coordinators.

The third scenario is the basis of the assumption that service coordination and early intervention are complementary but distinct types of practices. Findings from this study provide support for this contention. Perhaps the best service coordinators can do, at least as they currently practice their crafts, is help families gain access to services (Marks, 1994). The amount, frequency, types and intensity of services appears to be at the discretion of others. This may be the case, at least in part, because service coordinators are not well prepared or qualified to decide the specifics or quality of service provision (Austin, 1990; Bruder, 2005).

There is most certainly a need for further study of the relationship between service coordination and the provision of early intervention. Notwithstanding the need for additional study, the question must be asked whether the time and money being spent on service coordination as it is currently conceptualized and practiced is worth the investment? Findings from this investigation as well as results from other studies (see Berson, Vargo, Dailey, Zheng, & Powell, 2003; Dunst & Bruder, 2006; Smull & Smith, 1994) suggest that the cost/benefit ratio may not warrant the kinds of resources being expanded on service coordination. Monies may be better spent on more qualified professionals providing state-of-the-art, evidence-based early childhood intervention and family support (e.g., Dunst, 2000; Guralnick, 1997; Odom & Wolery, 2003).

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