BRIEF REPORT

A Comparison of Consultative Model and Direct–Indirect Intervention With Preschoolers

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OBJECTIVE. The purpose of this study was to compare the effectiveness of a consultative model of intervention with that of direct–indirect intervention for meeting goals of preschool students with mild motor delays.

METHOD. Two occupational therapists provided consultation to teams working with 11 children 1 day a week for all 40 weeks of the school year. A different occupational therapist provided direct–indirect treatment to another 9 children for a full week every 3 weeks for the 40 weeks of the school year. Data for both groups used in this study were kept for the last 4 months at the end of the school year or as the children appeared to be nearing completion of their goals of the study. All therapists met with their teams twice a month to plan and review progress. All parents carried out activities with their children at home. Goal Attainment Scaling was used to examine progress.

RESULTS. No statistically significant differences were found between the two types of intervention ($t = .359; df = 18; p = .724$).

CONCLUSION. The study suggests that a consultative model and a direct–indirect model are equally effective in meeting objectives for preschoolers with relatively mild motor impairments.

for accomplishing goals. Davies and Gavin compared progress in two groups of 10 preschoolers’ ages 3 to 5 years using consultation with one group and direct intervention with the other. Dunn and Davies and Gavin have all suggested that further study should be done to define use of consultation in schools.

The purpose of this study was to compare outcomes for students with motor delays who were served through either direct–indirect intervention or consultation to parents and preschool staff.

Method

Design

A between group design was used for this study. One group of children received a consultative model of intervention, and the second group received direct–indirect intervention.

Participants

Participants were children who were evaluated through a county child assessment program. The children were assigned to one of 23 integrated preschool classrooms within the county based on the results of their developmental assessment. Each classroom had 10 typically developing students and five or six students with special needs.

Twenty-two boys and girls from 12 classrooms, who met the following criteria, participated: (a) were between 3 and 5 years of age; (b) had gross or fine motor–visual motor delays defined as scores at least one standard deviation below their age norms on one standardized measure of motor skill (i.e., Peabody Developmental Motor Scales [Folio & Fewell, 1983], Learning Accomplishment Profile [LAP-D] [Nehring, Nehring, Bruni, & Randolph, 1992], Developmental Test of Visual-Motor Integration [VMI] [Beery, 1997]); (c) had a current IEP requiring occupational therapy; and (d) were not receiving private occupa
tional therapy or physical therapy during the time of the study. The participants did not have a medical diagnosis (e.g., attention deficit disorder, muscular dystrophy, cerebral palsy) recorded in their school records or by parent report, and were not taking medication on a regular basis. They did not have significant cognitive or emotional delays, but some of the participants did have speech or language delays.

The children were assigned to one of two groups for the study, consultation or direct–indirect, depending on the model already in place in their classrooms. Students in the consultation group (n = 11; 7 males, 4 females; m\(\bar{\text{r}}\) = 4.5 years) were selected from 6 of 8 classrooms in the district using the consultative model for occupational therapy. These classrooms were selected for this study because the staff was the most experienced and the occupational therapist demonstrated the greatest understanding and use of consultation. Although these specialists all had worked for at least 3 years in Douglas County, the team members had not previously worked together (see Figure 1).

Students in the direct–indirect intervention group (n = 9; 5 males, 4 females; m\(\bar{\text{r}}\) = 4.7) were selected from 3 classrooms (3 morning classes and 3 afternoon classes) being served by one special education team. The classes were also chosen for the experience of the special education team including the occupational therapist, who had been part of this team previous to the study (see Figure 1).

The parents were an integral part of the therapy teams in both groups. They agreed to participate during the entire study, including implementing all home programs, although, no measure of compliance was used for the parents in the study.

Instrumentation

Goal Attainment Scaling (GAS) (Carr, 1979) was used to determine the efficacy of each model of intervention. Using GAS, we measured the degree to which goals were achieved regardless of the intervention. The goals used as outcome measures for this study were drawn from the IEP of each student.

Procedure

Before beginning the study, parents signed informed consent forms for both their child’s and their own participation. In addition, the two therapists (one in each group) who provided intervention participated in one training session with the first author to record the intervention data and prioritize goals.

We followed eight steps described by Ottenbacher and Cusick (1990) for Goal Attainment Scaling. The first author and two occupational therapists from a county assessment program (different from the therapists providing the intervention) completed the initial evaluation of all the children prior to their placement in preschool. The therapists providing intervention evaluated students who had been in the preschool program for a year. Following testing, the therapists set goals to address

![Figure 1. Schematic representation of therapists, preschools, classes, and children.](#)
the specific motor needs of each student tailored to the preschool environment and educational expectations.

The two primary therapists, who provided consultative intervention (including the first author, who was the only therapist to take part in both initial evaluation and intervention) and the one primary therapist who provided direct–indirect intervention, determined the expected levels of performance as well as the weights for each goal. Input from parents, teachers, and special educators was considered when setting the expected levels and weights (Ottenbacher & Cusick, 1990).

Data were recorded for a total of 39 goals (M = 3.55; range = 2 to 6) for students receiving intervention through a consultation model and 56 goals (M = 6.22; range = 2 to 10) for students receiving services through direct–indirect intervention. The number of goals for each student varied based upon his or her needs, parents’ input, and the determinations of the team assigning the goals. The results for this study are based on completion of goals. For both models of service, the special education team collected data regarding goal attainment weekly on all students as per the protocol for the district. Data for both groups used in this study were kept for final 4 months of the study. The occupational therapists reviewed the data weekly and discussed the success of the strategies with staff or parents or both. If the strategies were not effective, they were modified.

Intervention

Two occupational therapists provided consultation services (see Figure 1). Each therapist consulted to one different pre-school team. They spent 1 full day a week during the 40-week school year in the each of their assigned classrooms observing the students during various activities and consulting with the staff regarding therapeutic strategies used for the students’ needs in gross motor, fine motor, or visual-motor skills and student progress; they also met with the full preschool team for 1 half day twice a month during the school year. In addition, the occupational therapists met with parents on an as needed basis for consultation and to review home activities. At the beginning of the year, the consulting occupational therapists spent additional time in the schools to build rapport with team members, set and review role expectations, educate, and collaborate on strategies. Toward the end of the study, their time was spent primarily on evaluating and modifying ongoing treatment strategies.

One occupational therapist worked on a transdisciplinary team and provided the direct–indirect model of intervention to another 9 children for a full week every 3 weeks for the 40-week school year (see Figure 1). The occupational therapist provided direct services daily in the classroom during her week’s rotation; each child received an average of an hour and a half of service per week to address the students’ needs in gross motor, fine motor, or visual-motor skills. The occupational therapist instructed the team in how to implement the intervention in her absence. She also participated in a half-day planning session weekly with the team.

\[ T = 50 + \frac{(10 \sum W_i X_i)}{\sqrt{1 + \sum W_i^2 + r (\sum W_i)^2}} \]

where \( W_i \) represents the weighting for a particular goal and \( X_i \) represents the outcome score for each behavior (i.e., a value from -2 to +2). The \( r \) value in the formula reflects the estimated average intercorrelation for the outcome scores. An \( r \) value of .30 was suggested as a constant by Kiresuk and Sherman (1968) and Maloney, Mirrett, Brooks, and Johannes (1978); the latter felt that the \( r \) value yielded a standard deviation of 10 units around 50. The \( T \) value is a standardized score with a mean of 50 and standard deviation of 10.

Results

Both models of intervention were found to be effective, they were modified. The results of this study indicate that a consultative model of intervention and a direct intervention model were equally effective for addressing goals related to improved motor performance for preschoolers in this study. This finding supports recent research that found no statistically significant difference in outcomes for different types of service delivery (Davies & Gavin, 1994; Kemmis & Dunn, 1996). These results also support the beliefs of many (e.g., Donaldson & Christiansen, 1990; Kemmis & Dunn, 1996) regarding the efficacy of consultation.

Because many of the goals in this study were similar for students regardless of the type of service they received, these results challenge theorists’ suggestions that some kinds of goals are better met with a specific type of intervention (Bundy, 1993; Dunn, 1988; Hanft & Place, 1996). Given that the goals were primarily to improve motor skill, it might have been logical to assume that direct–indirect service would be the best service approach because the occupational therapist is the best trained to observe a child’s performance and alter the nature of a therapeutic task to ensure success. In indirect service, the occupational therapist would teach a caregiver to do particular activities with the child, thus providing the child with many opportunities for practice. However, the consulting therapists in this study were able to help other caregivers insert motor activities into their routines in particularly clever ways. Many preschool teachers use preacademic activities when transitioning from one activity to another (e.g., “children with red shirts, go line up”) whereas preschool teachers in the present study paired that with a movement activity (e.g., “children with red shirts, hop like a
With these preschool age children who had relatively minor disabilities, consultation provided opportunities for repetition of motor skills in the natural context of the preschool classroom or at home. This may explain some of the reason for the success of this model.

Another reason for the success of both models of intervention could be that the preschool teams met regularly and agreed to work collaboratively to establish and carry out suggested strategies. That is, the fit of each model to the beliefs and skills of each of the teams was particularly good. Adequate time for consultative teams to meet regularly has been considered by many authors to be necessary to the success of consultation (e.g., Kemmis & Dunn, 1996). In fact, Kemmis and Dunn (1996) indicated that remedial and compensatory interventions were equally successful within a consultative framework when the therapist and teacher met 1 hour weekly to collaborate. Although administrators often see the consultative model as a way of increasing therapists’ caseloads, the results of this study suggest that the required time for consultation is initially just as much or more than direct intervention, but as the year progresses the amount of time required decreases. This pattern occurs because initially the consultant is spending more time building rapport with, educating, and planning strategies with the teams and observing the students. As the year progresses, the team typically becomes more effective at solving their own problems (i.e., determining which strategies work in their classrooms and carrying out those strategies) and need less time for education. Future studies could evaluate the exact amount of time that is spent in consulting versus direct intervention to give a more accurate assessment of the difference in time spent and, thus, shed light on the relative cost effectiveness of each model.

Interestingly, the therapist in this study who administered direct–indirect service created significantly more objectives \( (M = 6.2; \ SD = 1.3) \) for the children on her caseload than the therapists who utilized consultation \( (M = 3.7; \ SD = 2.8); \ p = .03 \). The reason for this is unclear. Perhaps when therapists collaborate with colleagues to create plans that will be carried out by the others, they consider very carefully the number of objectives that seems reasonable. Each objective requires the insertion of one or more strategies into the school day. This can be very time-consuming with 5 or 6 children with special needs in each classroom. Thus, more objectives actually may mean less success at meeting them and, consequently, less progress for each child.

A small sample size and the use of one geographic region limit the ability to generalize the results of this study beyond the sample. Variability of special needs among the participants may have influenced the intervention outcomes. Although all students had delays in motor skills and no diagnosable condition, other areas of development (i.e., cognitive or behavioral) were not well controlled. For future studies, participants could be only children with delays in motor skills with all other developmental areas within the limits of typical development. The extent to which parents implemented home programs also was a variable that was not specifically examined. As a member of a county assessment team providing the initial assessments as well as part of one of the preschool teams, the first author both evaluated and provided intervention for four of the children receiving consultation, a factor that may have influenced the results. Finally, differential amounts of experience working together among the various teams also may have affected the success of their interventions.

**Conclusion**

Eleven students who received a consultation model of intervention achieved 22 of 39 (56%) goals addressing improved motor performance, while the nine students in the direct intervention model met or exceeded expectations on 28 of their 56 (50%) goals. The results of this study support the conclusion that consultation is a viable model of intervention in preschool settings and is just as effective as direct–indirect interventions.

**References**


