

# Physical Therapy in Preschool Classrooms: Successful Integration of Therapy into Classroom Routines

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**Purpose:** This exploratory investigation identifies factors that contribute to success of physical therapy services delivered in the context of the daily routines in preschool classroom settings. **Methods:** Ten pediatric physical therapists from rural and urban communities across North Carolina served as informants during telephone interviews. **Results:** Qualitative analysis of the data led to the identification of six major themes: interactions among classroom personnel, impact of the classroom environment, individual characteristics of the child, logistical considerations, administrative policies and practices, and service delivery options. All 10 informants shared the perception that the cooperation and commitment of the teacher was essential for successful incorporation of therapy activities in classroom routines. Furthermore, the informants agreed that multiple models of service delivery were necessary to meet the individual needs of children. **Conclusions:** These results lead the authors to question the wisdom of promoting any one service delivery model as “best practice” and suggest guidelines for successful integration of physical therapy in the preschool classroom. (*Pediatr Phys Ther* 2003;15:93–104) **Key words:** child preschool, mainstreaming, physical therapy, attitudes of health personnel, qualitative research

## INTRODUCTION

The Education for All Handicapped Children Act (EAHCA or EHA) public law (PL) 94-142 (1975) mandated free, appropriate, public education services for school-aged children with disabilities and required that their educational needs be met in the least restrictive environment (LRE).<sup>1</sup> Physical therapy was included as a required educationally related service. Congress endorsed early intervention by amending this legislation in 1986 (PL 99-457) to extend special education and related services to children three through five years of age and by providing legislative incentives for states to also include services for

children birth through two years of age.<sup>2</sup> Congress reauthorized the legislation in 1990 and renamed it the Individuals with Disabilities Education Act (IDEA; PL 101-476).<sup>3</sup> Amendments to IDEA in 1991 (PL 102-119) and 1997 (PL 105-17) enhanced the legislation’s principles and emphasized services for young children.<sup>4,5</sup> These laws mandated services in the least restrictive environment for children three through school ages (Part B of IDEA) and in natural environments for infants and toddlers from birth through two years of age (Part C of IDEA).

Before 1975, pediatric physical therapists primarily followed a medical model of care that focused on one-on-one, hands-on treatment in a clinical environment.<sup>6</sup> The philosophy of IDEA encourages an integrated, functional, family-centered model that emphasizes indirect, consultation, and in-class or home-based services.<sup>7</sup> Under IDEA, physical therapy services are to be provided within the context of a comprehensive Individualized Family Services Plan (ISFP).<sup>5</sup> This IFSP for infants and toddlers birth through two years of age must be developed in collaboration with families and meet “the developmental needs of the child and the needs of the family related to enhancing

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the child's development" (Part C). For children three through five years of age, the IFSP must describe a comprehensive plan that "allows the child with disability to benefit from special education" (Part B). This philosophy has resulted in an evolution of more collaborative roles and behaviors among the physical therapist, the teacher, the family, and the child for services funded through IDEA. This evolution, however, has not proceeded quickly or without question by many therapists.<sup>8-12</sup>

IDEA prompted the development of new models for service delivery that influence "where" and "how" therapists provide services.<sup>11</sup> In 1995, McWilliam<sup>13</sup> identified a continuum of six therapy models: 1) individual pull-out, 2) small group pull-out, 3) one-on-one in the classroom, 4) group activity, 5) individual therapy during classroom routines, and 6) collaboration. McWilliam defined integration as activity occurring within the context of daily routines in the classroom along with classmates. McWilliam's<sup>13(p30)</sup> concept of integration further requires the therapist to 1) elaborate on activities initiated by the child, 2) address behaviors immediately useful to the child, and 3) act primarily as a collaborator with the child's teacher rather than as a direct service provider.

McWilliam and Bailey<sup>8</sup> surveyed four disciplines of service providers ( $n = 775$ ), including physical therapists ( $n = 311$ ), regarding service delivery for children birth through six years of age. For the purpose of their investigation, they defined delivery models as either "in-class" or "out-of-class." Out-of-class models consist of activities occurring apart from the classroom one-on-one with the therapist. In-class included any therapy occurring in the classroom setting.<sup>8</sup> The four disciplines (special education, occupational therapy, speech and language pathology, and physical therapy) differed in their perceived typical and ideal service-delivery practices. Physical therapists were the least likely to favor in-class services.

McWilliam and Sekerak<sup>9</sup> compared actual practices to the perceived ideal practices of the physical therapist reported in the McWilliam and Bailey study. Although 33% of physical therapists preferred primarily using an in-class delivery model only 22.5% reported this practice. Only 19% preferred the out-of-class, direct pull-out model, but 49.5% reported using this model as a primary mode of service delivery. Forty-six percent preferred an equal balance between in-class and out-of-class services, but only 27% reported this combined practice model. Physical therapists reported choosing the in-class model, out-of-class model, or combined model depending on the characteristics of the child, the specific service to be provided, and the program. The differences between reported typical and ideal service models suggest that physical therapists would like more opportunities to provide in-class services. McWilliam and Bailey concluded that, assuming therapists choose to employ service delivery models they believe are best for children, other factors apparently limit use of their preferred or perceived ideal model.<sup>8</sup>

McWilliam et al<sup>10</sup> conducted focus group interviews with therapists, early interventionists, administrators, and families to explore issues related to service delivery of therapy

for children birth through six years of age. Their informants identified policy and administrative constraints, the shortage of qualified personnel, and perceptions (that direct, pull-out therapy intervention is more effective) as major barriers to integrated service delivery. Similar challenges were outlined by Hanft and Pilkington<sup>11</sup> in their discussion of early intervention in natural environments. Hanft and Pilkington categorize the challenges as 1) program and legislative conflicts, 2) therapist training and expertise, and 3) fiscal and logistical issues. Sheldon and Rush<sup>12</sup> discuss 10 myths about providing early intervention services in natural environments. These myths represent the explanations or excuses provided for continued resistance to integrated services.

Despite the growing body of theoretical literature supporting integrated models of therapy,<sup>7,14,15</sup> little evidence is available to compare the efficacy of service delivery models. Confidence in the few research reports that are available regarding models of service delivery in physical therapy is limited because of very small heterogeneous samples and design challenges.

Palisano<sup>16</sup> compared two service delivery models for school-aged children with learning disabilities, including a therapist-directed group (combination of large and small group therapy) and a consultation group (large group classroom activity and consultation). Student progress in motor efficiency was measured and both models were found to be effective; the change was not significantly different between the two groups. The consultation group made greater gains in the Bruininks-Oseretsky Test of Motor Proficiency and the therapist-directed group made greater changes in the Test of Visual-Perceptual Skills. The therapy services included both occupational and physical therapy.<sup>16</sup> Although Palisano compared a more traditional therapist-directed approach to therapy with an integrated model of service, because the subjects were older children with learning disabilities the study has limited application or relevance for young children in preschool environments.

Karnish et al<sup>17</sup> investigated the speed and quality of functional motor skill performance of three children (four, six, and 14 years of age) with cerebral palsy receiving physical therapy intervention in a natural setting vs an isolated setting. Karnish et al<sup>17(pp2-3)</sup> found that the children performed better in a natural setting. They defined the natural setting as "the actual school, home, recreation/leisure, vocational, and community environments in which a given student's participation is desired." Specific indicators of quality motor performance were rated by experienced therapists from videotapes of student performance. These authors suggested three reasons for use of the natural environment: 1) no transfer of skill is necessary because it is being taught in the classroom setting, 2) there is an increase in carry over skills during nontherapy times, and 3) functional and natural reinforcers are used during intervention. Because the children were receiving intervention in both natural and isolated settings throughout the study, the data may be reflective of the influence of setting on performance rather than the effect of the intervention delivery model.

Despite the limited research comparing outcomes of services integrated in the context of natural settings and routines with more traditional out-of-context approaches, the former service delivery model has been adopted as best practice for young children and is required for children receiving services under Part C of IDEA.<sup>5</sup> More information is needed to assist physical therapists and educational personnel in understanding the variables that influence the integration of intervention. This study begins to identify these variables and define therapists' perceptions about the relationships between the identified variables and successful physical therapy intervention in preschool classrooms.

For the purposes of this investigation, the preschool classroom includes all center-based programs for children birth through five where children are grouped into "classrooms." It includes preschool programs under Part B of IDEA for three and four year old children as well as day-care and preschool programs for children birth through two years of age under Part C of IDEA. Therapists providing services in both inclusive (programs where typically developing children and children with special needs participate together) and non-inclusive programs (programs providing services primarily to children with special needs) were included in the study.

## METHODS

### Design

The study followed the qualitative methodology for grounded theory research as originally described by Glaser and Strauss<sup>18</sup> and later by Strauss and Corbin<sup>19</sup>, as well as by Marshall and Rossman<sup>20</sup> and Maxwell.<sup>21</sup> The design provided structured, systematic strategies for the discovery of concepts and themes from informant data.

### Informants

Ten informants were systematically selected from an established database of 368 pediatric physical therapists working in North Carolina available through the Division of Physical Therapy at The University of North Carolina at Chapel Hill. The investigators selected every tenth name from a non-alphabetized list of pediatric therapists. These therapists were contacted by telephone to determine their eligibility to participate based on the following inclusion criteria: 1) a minimum of two years experience in an early intervention or preschool setting serving children birth through six years of age, 2) use of an integrated model of service delivery for at least 25% of current practice, and 3) verbal agreement to participate in a recorded telephone interview. For the purposes of this study, integrated service delivery was defined as therapy occurring within the context of the daily routines in the classroom along with classmates and teachers. The inclusion criteria were selected based on the judgment of the senior investigator regarding the experience needed for therapists to have insights about factors associated with successful integration of therapy in preschool classrooms.

Approximately 30 physical therapists were contacted before identifying 10 eligible participants. All therapists con-

tacted who met the inclusion criteria agreed to participate. Those who did not meet the criteria were excluded because they primarily served school-age children or because they had less than two years of experience in early intervention or preschool settings. After completing interviews and ongoing analysis of data from 10 informants, the investigators determined that the data were sufficiently redundant to discontinue recruitment of additional informants.

The informants had an average of 17.1 years (range 9–35 years) of experience working with infants and children birth through six years of age. Their primary employment settings included school systems, state developmental evaluation centers, home-based early intervention teams, private practices, and contract agencies serving both rural and urban areas of North Carolina and both inclusive and non-inclusive programs. They reported using an integrated model an average of 53% (range 25–80%) of therapy time. Table 1 provides additional demographic information about the informants.

### Data Collection and Analysis

Data were collected by a senior investigator experienced in qualitative interview techniques and three physical therapy student investigators. The senior investigator trained the student investigators in qualitative interview techniques including the use of an interview guide (Appendix A) and probing questions to elicit meaningful information from informants. After a didactic training session with the senior investigator, student investigators conducted tape recorded practice interviews and received specific feedback from the senior investigator. When student investigators were able to 1) follow the interview guide, 2) pose questions without leading the informant and 3) thoroughly probe for additional information regarding topics raised by the informant they were permitted to begin data collection for the study.

The interviews were conducted over the telephone by one of the four investigators and were tape recorded. Each investigator interviewed at least two informants. After reviewing the inclusion criteria to confirm the eligibility of the informant, the investigator proceeded with the interview following a guided interview format.

After being recorded, the interviews were transcribed verbatim to provide rich data for analysis. The data analysis process began immediately after the first interview and continued throughout the data-collection process. The investigators met as a group to listen to tape recordings, review the transcripts, and discuss the analysis process. At each of these sessions, investigators identified meaning units or factors that informants associated with successful integration. These meaning units were then grouped into clusters or code categories. Constant comparative analysis was used for cross-validation among interviews. Ideas identified by each informant were compared with those expressed by the other informants. As themes emerged from the data, the interview guide was continuously modified by adding additional probing questions to allow the investigators to explore

**TABLE 1.**  
Informant Demographics

Informant	Primary Employer	Estimated % of Time Using Inclusive Service Delivery Model	Estimated % of Work in Rural Communities	Years Experience with Infants and Children	Sex	Highest Degree Earned
1	PACT Team	30%	50%	9	F	BS
2	Public Schools	50%	0%	21	F	BS
3	Public Schools	80%	0%	35	M	BS
4	Contract Agency	50%	50%	11	F	BS
5	Medical Center/ School Contract	75%	0%	13	F	BS
6	UCP	40%	25%	18	F	BS
7	Self-employed	75%	0%	16	F	BS
8	Public Schools	25–30%	0%	11	F	MS
9	DEC	20–25%	80%	23	F	MS
10	Medical Center/ School Contracts	75%	0%	14	F	MS
Average		53%	20%	17.1 years		

PACT = parent and child together; UCP = United Cerebral Palsy center; DEC = Developmental evaluation clinic; BS = bachelor of science; MS = master of science.

these themes in greater depth, to clarify discrepancies or conflicting data, and to validate initial interpretation of the data. Themes not consistently supported by data were modified or discarded (Figs. 1–6). On the basis of the data, the investigators proposed working guidelines for integrated practice.

The investigators employed several standard qualitative analysis techniques to increase confidence in the analysis. An audit trail was maintained by each investigator and reviewed by the research team periodically throughout the process. Decisions about the categorization of variables, identification of themes, and interpretation of the data were questioned and validated by re-review of the data. Through the process of reflexivity the investigators reflected upon their individual biases or initial expectations of the data and looked for evidence of imposing these expectations on the data. For example, the senior investigator recognized her initial bias that the characteristics of the child were a driving factor in the success of integrated therapy. The transcripts and recordings of the interviews were carefully examined to assure that this bias was not introduced into the interview sessions and that the conclusions about the influence of child characteristics were clearly supported by the informant data.

Member checks were also conducted with informants to garner their perceptions of the accuracy of the data interpretation and their reactions to the guidelines proposed. Informants were contacted by phone to determine their willingness to review a draft of this manuscript. We were able to contact seven of the original informants and all agreed to review the manuscript. We were unable to contact three informants. Of the seven informants who reviewed the manuscript, five provided feedback to the first author via phone and two mailed or faxed brief written comments. All confirmed their agreement with the findings and agreed that the authors had accurately captured

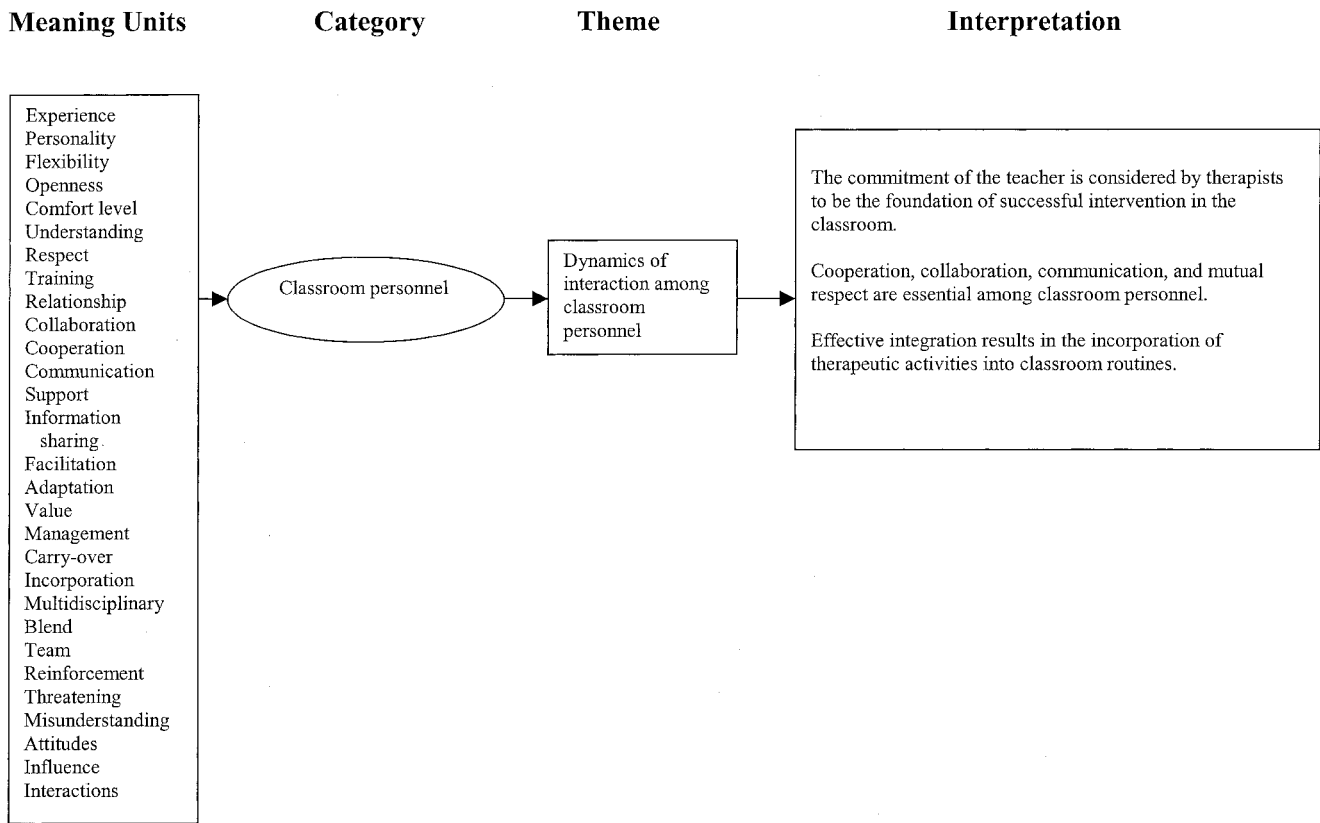
the essence of their experience when delivering therapy services in the classroom. Two informants offered minor editorial suggestions.

## RESULTS

While the interview transcripts were reviewed, investigators identified meaning units that clustered into six major coding groups or categories: classroom personnel, classroom environment, characteristics of the child, logistics, administrative policies, and service delivery options. Major themes regarding successful integrated therapy emerged from each category. The values and support of administration appeared to be an overarching variable affecting all other categories.

### Classroom Personnel

The overall relationships between teachers, physical therapists, parents, and other professionals, were viewed as critical to the successful integration of therapy services in the classroom. (Fig. 1) Collaboration, cooperation, communication, and support were cited as essential aspects of this relationship. The teacher was consistently described as the foundation on which successful integration is built. The teacher must be committed to the integration model. One informant stated, “It depends a lot on the teachers and how flexible they are willing to be with adapting things and listening to ideas and suggestions.” Another informant stated, “Initially [I] find a way that the teachers look at you as facilitating their goals but not interfering with their goals.” There needs to be open and effective communication between the teacher and the physical therapist. Another informant stated, “It has to be a mutual respect between the two, that they value each other’s skills and purposes.” Overall, the openness and comfort of the staff is the key to success. An explanation of the relationship is best stated as, “what I am doing is helping [the teacher] to



**Fig. 1.** Data Development: Classroom Personnel. The listed meaning units identified from interview transcription and investigator notes were classified by the investigators as relating to the dynamic interaction among classroom personnel. Interpretive statements were drawn from initial analysis of the data and verified through standard qualitative research techniques.

learn more effective ways of handling and managing the child in the classroom; helping [teachers] learn how they can integrate therapeutic goals into their classroom routine.” Informants described a resulting carryover effect. Teachers incorporate the suggestions of the physical therapist when the physical therapist is not there.

Seven of the ten informants related the advantages the multidisciplinary team brings to the integrated service delivery model. Information about the whole child is shared among the team. Team members collaborate and reinforce other team members’ intervention while working individually with the child. One informant stated, “The team as a whole is important for integration because the way they approach the teacher can either be really supportive or really threatening.” Another informant stated, “I think it makes all the difference in the world for people to be able to communicate with one another and be able to share information.”

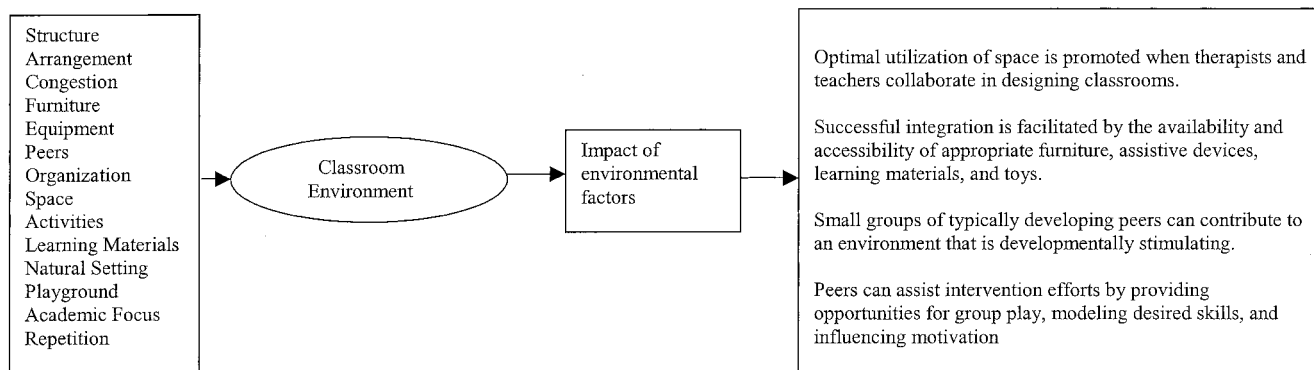
The informants did not discuss the influence of parents on the selection or success of integrated service until specifically queried by their interviewer. Classroom intervention typically occurs when parents are at work and away from the child. The potential for lack of communication and misunderstandings is apparent. One informant stated, “We need to work on keeping coordination up between the PT and the parent.” An example given was sending progress notes home with the child so that the parent is aware of goal attainment.

One therapist explained how private practitioners, who may also be seeing the child outside of the preschool setting, may make acceptance of inclusion more difficult. If the private practice therapist believes that a child is not receiving physical therapy unless the therapy is directly hands-on intervention, their attitudes may influence parents’ attitudes about integrated therapy.

### Classroom Environment

According to the informants, the amount and arrangement of the classroom space can be critical (Fig. 2). A classroom that is too large or that provides excessive open space can promote distractions and actually inhibit intervention even in the context of classroom routines. A classroom that is too small or is congested with furniture or equipment prevents optimal activity and limits activity options. Informants preferred to have the opportunity to collaborate with teachers regarding classroom space to optimize space utilization. Three of the ten informants identified inadequate space as a factor making integrated physical therapy difficult. Wheelchairs, walkers, and adaptive toys and learning materials are all necessary to help the child function in the classroom environment. The immediate availability of equipment and toys facilitated integrated therapy.

Other children in the preschool setting also affect intervention. Six of ten physical therapists stated that a large



**Fig. 2.** Data Development: Classroom Environment. The listed meaning units identified from interview transcription and investigator notes were classified by the investigators as relating to the impact of classroom environmental factors. Interpretive statements were drawn from initial analysis of the data and verified through standard qualitative research techniques.

number of children made the integrated model of service delivery difficult. Informants did not define “large number” but clarified that distractions are likely to be proportional with an increase in the number of children. Smaller groups of children can assist in the intervention efforts by providing group play opportunities, modeling desired skills and providing peer motivation.

The informants reported that having a peer to role model the skill is “invaluable.” Peers, both with disabilities and without disabilities, were described as an important component of success. “Typically developing kids help to create an environment that is developmentally stimulating for all children in the classroom.” If the child is having a difficult time understanding the task, the therapist could utilize a peer to demonstrate to the child what to do. “I think it helps when there are typically developing peers in there because their influence on that child is so much better than my influence....‘Johnny, show her how you are jumping’ and then the child will try to imitate.” One informant stated, “the children with disabilities are naturally interested and drawn toward the activities that the other children may be doing ... It is a highly motivating environment in which to provide therapy.”

One informant suggested that sometimes the involvement of peers can be a detriment. A child might feel embarrassed about being different or seek the individual attention of the therapist. The informant stated, “Occasionally, I’ve had a preschooler who will take my hand and just say ‘out, out, out.’”

**Characteristics of the Child**

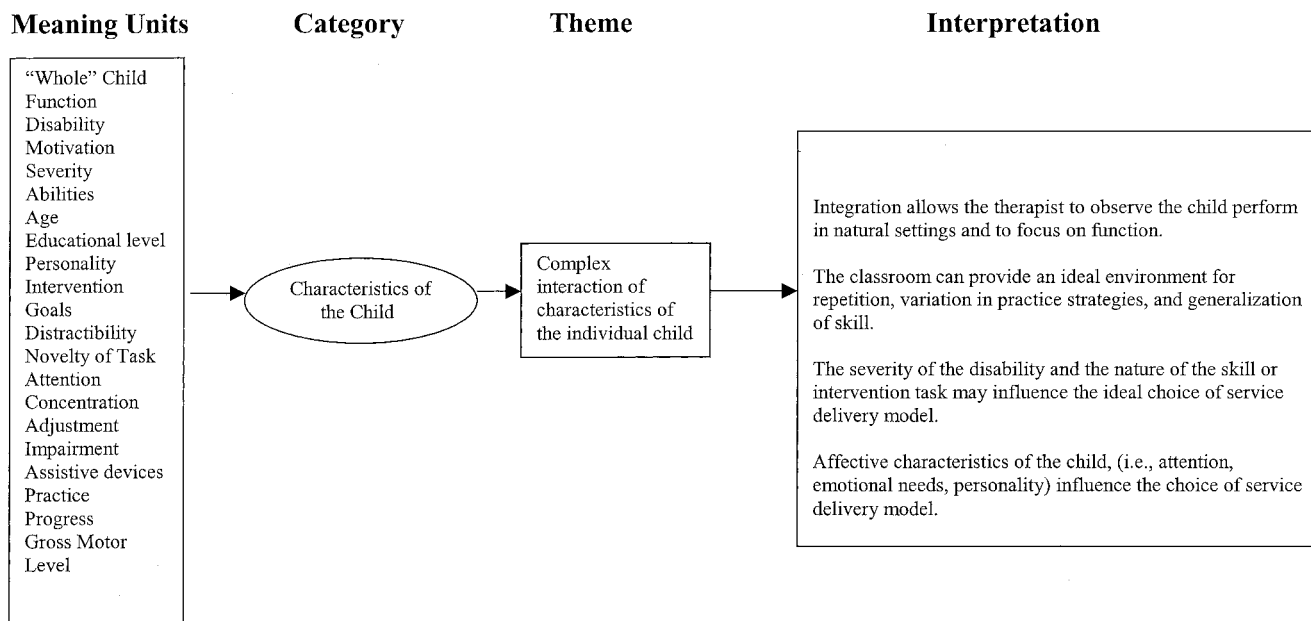
Nine of ten informants identified the child as an important component of success (Fig. 3). The cognitive ability and distractibility of the child were reported by all informants as factors to consider when choosing to intervene in the classroom. One informant stated, “A lot of children that I work with have real attention problems and although I do believe

that they have to learn skills in those type [classroom] settings where they are going to utilize those skills, sometimes I think it is real effective to begin working on those in a more quiet place where they can really concentrate on how to use their bodies effectively and then transfer [the skill] over to a classroom setting.” Informants suggested that in a new environment, the child may need adjustment time. Providing therapy within the classroom is sometimes too distracting.

Disability type and severity frequently were reported as important factors to consider when selecting a service model. However, informants varied in their perceptions about how these factors affected service delivery choices. Several therapists reported a preference for less integrated and more pull-out therapy for children with more severe disability. “That wouldn’t influence my decision as to whether to see them in the classroom setting, although that may influence how much time I would see them in the classroom vs in a separate setting.” Other informants reported the greater the child’s disability, the more integrated the intervention. “We have a child who is severely involved who is working on head control. It is very easy for me to work on that no matter what the classroom is doing. It is when they [children receiving therapy services] are up walking around and they are doing more of the higher level gross motor things that I have the hardest time.”

Although our study focused on preschoolers, it is interesting that many therapists reported that age and educational level played a large role in the success of integrated services. Informants perceived a decrease in the support given by the teachers, parents, and child as the child ages or increases in educational level. Increasing age or educational level leads to an increase in classroom structure. Integration of services in a classroom with an academic focus requires more planning time and greater coordination. “I find integration easier the younger they are...because the classrooms are less structured.”

Informants reported that integration allows therapists to



**Fig. 3.** Data Development: Characteristics of the Child. The listed meaning units identified from interview transcription and investigator notes were classified by the investigators as relating the complex interaction of the characteristics of the child. Interpretive statements were drawn from initial analysis of the data and verified through standard qualitative research techniques.

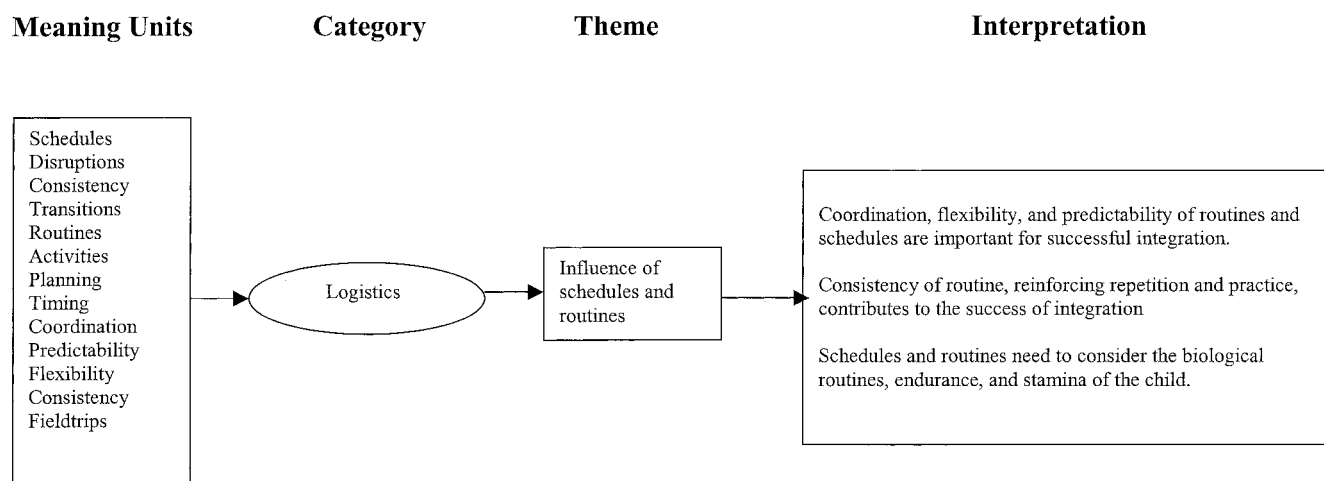
observe the child perform in the most natural setting and to focus on the child's needs for function. The therapist sees the child in the classroom, on the playground, and in transitions from lunchroom to bathroom, etc. The entire staff is given the opportunity to work together, focusing on functional outcomes for the child. Informants stressed that integrating therapy in classroom activities promotes consideration of the total needs of the child during intervention.

### Logistics

The investigators grouped classroom scheduling, routines, classroom activities, the therapist's schedule and related variables within the logistics category (Fig. 4). Nine of ten informants identified the classroom

schedule as being a key to successful intervention. One informant stated, "If my being in the classroom doesn't facilitate the schedule, then I think it can be disruptive and [the teacher] will be resentful and not willing to see me as a beneficial member of the team. In order to mesh with the classroom activities, planning and familiarization with the routine is essential." Another informant stated, "It is a guiding process. I try to blend in with whatever the activity may be." Therapists use their discretion regarding the optimal time to enter the classroom and provide therapy.

Another component cited by an informant was the importance of planning intervention during the day when the child is in an optimal state for learning. For example,



**Fig. 4.** Data Development: Logistics. The listed meaning units identified from interview transcription and investigator notes were classified by the investigators as relating to the influence of schedules and routines. Interpretive statements were drawn from initial analysis of the data and verified through standard qualitative research techniques.

one therapist stated she liked to plan therapy before lunch, because the child is less alert in the afternoon.

The therapist's schedule also affects coordinated efforts for integrating services. "If timing isn't right it kind of throws everything off. I may have a therapy meeting, the bus is late, or I have to meet with a parent," one therapist said. Informants identified both flexibility and predictability of routines as important for success. The therapists described their need to be able to adjust to changes in classroom activities. Effective coordination requires both the teacher and the therapist to be able to predict when activities or interventions will occur. Activities of the classroom have an influence on the consistency of therapy. For instance, consistency in services was perceived to be difficult when the class has field trips or the normal routine is disrupted.

### Administration

Administration's philosophy, reimbursement patterns, and allocation of resources all influence the delivery option chosen (Fig. 5). Overall, therapists found administration to be supportive of the integrated service delivery model. "Their philosophy is that we all need to be moving in that direction, away from a pull-out model." Supportive administrators provided staff training to explore developmental issues and to promote integration of therapy services.

Integrated therapy is complicated, however, by limitations on the numbers of therapy visits each week. One informant stated, "Sometimes [integration] is hard if I only get to see [the child] once a week. [Integration] may be easier if short term but more intensive." Other therapists prefer both integrated service and direct pull-out therapy if they are only able to see the child once a week. The child's needs may be too intensive to incorporate all the intervention in the classroom.

Therapists noted that administration is pushing productivity because of funding issues with third party payers. One informant stated that "50% of time at work is sup-

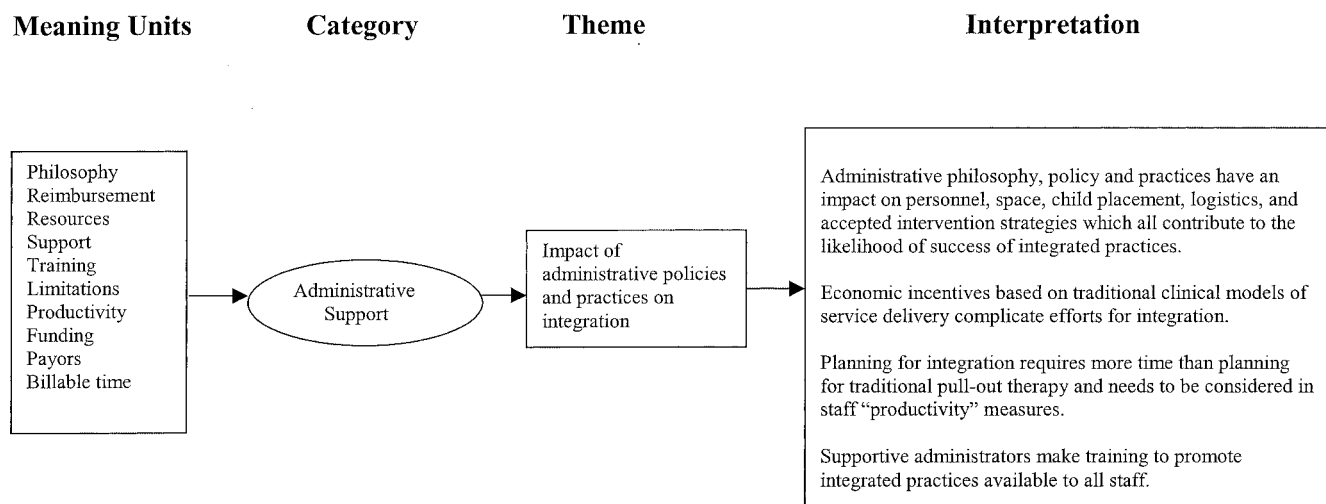
posed to be billable time." Her interpretation of what Medicaid defines as "billable service" was direct service. "It is limiting in that sometimes I don't think that direct service is necessarily the most important thing I can do or the best use of my time." Planning for integrated services required more time but therapists are pushed to be more productive as measured by direct, one-on-one service.

### Service Delivery Options

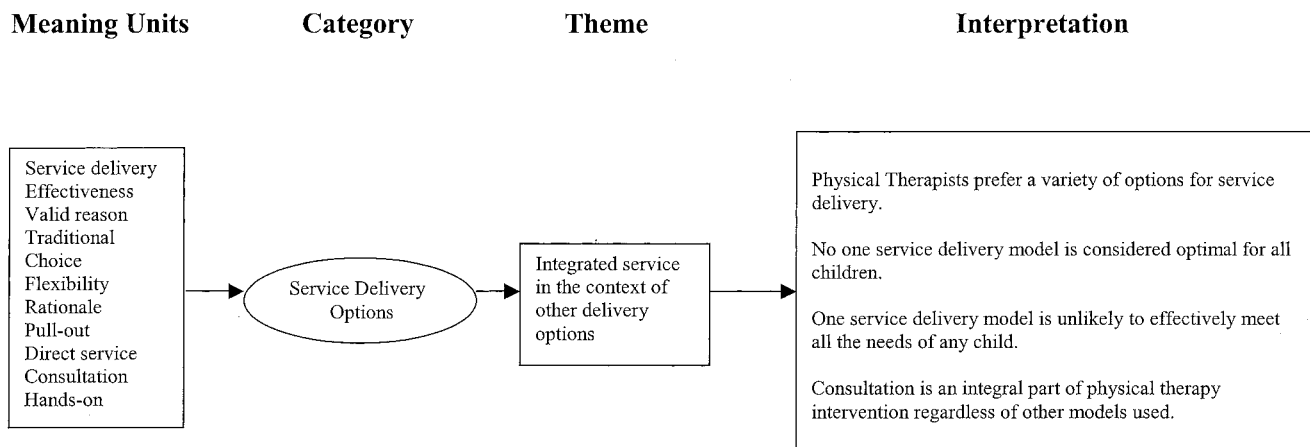
Informants discussed integrated service delivery in the context of other intervention options (Fig. 6). None of the informants reported using integrated service delivery 100% of the time. Informants reported using a more traditional "pull-out" model as well as integrated service and consultation. One informant stated, "I would not ever want [the integrated model] to be the only model I could utilize. I think that would be very limiting to me as a therapist. It would prevent me from effectively addressing all areas that are needed." Another informant stated, "I don't think it should be considered the only way to treat kids. Sometimes there is a very valid reason to not integrate therapy, there is a time and a place for both [integrated and pull-out services]."

Informants reported the type of skill and the novelty of the skill are important factors to consider. "I have to reiterate that I think that sometimes there is very valid reason not to do integrated therapy...when the task is new and it is hard for them, you need their undivided attention...so sometimes you [pull out] to get them started and then you can bring it back to a group setting." According to informants functional goals related to increased ability to interact in the classroom, play, or participate in activities are more suited for the integrated model of delivery. If the goal is directed toward decreasing an impairment (ie, strengthening) or fitting assistive devices (ie, making orthotics), then pull-out is appropriate.

The informants suggested that opportunities for practice were important for achieving desired outcomes. "I



**Fig. 5.** Data Development: Administrative Support. The listed meaning units identified from interview transcription and investigator notes were classified by the investigators as relating to the impact of administrative policies and practices on inclusion. Interpretive statements were drawn from initial analysis of the data and verified through standard qualitative research techniques.



**Fig. 6.** Data Development: Service Delivery Options. The listed meaning units identified from interview transcription and investigator notes were classified by the investigators as relating to inclusion in the context of other delivery options. Interpretive statements were drawn from initial analysis of the data and verified through standard qualitative research techniques.

think there are greater chances for repetition of particular motor activities that I might instruct them in.” The informants reported the teachers play an important role in practice because they are with the child more and they can report to the physical therapist how the child is progressing. One respondent explained that because the teacher works on an endurance goal, the therapist can focus on other goals during therapy.

Consultation was also mentioned as being an integral part of physical therapy intervention. Five of ten informants reported using consultative service delivery along with the integrated model. Informants described consultation with other classroom personnel and with parents as separate from integrated therapy. One informant expressed the opinion that “the most important intervention may be consultation.”

## DISCUSSION

Our informants agree that the success of integrated therapy is dependent on a complex interaction of variables associated with classroom personnel, the environment, and the child. The emphasis on collaboration between the therapist, teachers, and other classroom personnel suggests that integration of services in early intervention and preschool classroom routines requires highly developed professional interaction skills on the part of all service providers based on depth of understanding of roles, mutual respect, secure professional identity, and shared ownership of responsibility. Perhaps the insight provided by these informants is a reflection of their years of clinical experience and opportunities to develop professional maturity not easily emulated by less experienced clinicians no matter how schooled in the theoretical understanding of collaborative models. These informants may also be a select subset of therapists who have been more open to integrated options than fellow peers who continue to resist transitions from traditional medical models of service delivery.

The informants were less consistent in their assessment of the impact of environmental factors and did not all

agree about the most desirable environmental traits. Perhaps most telling is the implication that therapists would like to be involved in decisions regarding the environment that have implications for intervention. These data suggest that the success of integrated therapy may be related to the extent to which a therapist feels like a “visitor” in the classroom. If the therapist feels “at home” in the classroom and has had the opportunity to collaborate regarding classroom arrangements, routines, and activities, then the therapist is more likely to be comfortable incorporating intervention into those routines and activities.

The perspective of informants regarding the importance of considering “the whole child” in the context of natural routines is consistent with the holistic approach described by Cherry.<sup>22</sup> It also is consistent with the writings of McWilliam,<sup>23</sup> who suggested that integrated preschool programs “challenge therapists to work with other professionals and families to develop a comprehensive therapeutic approach.”

The value placed on the individual child also prompted many of the informants to insist on options for service delivery that were responsive to the psychosocial as well as the functional needs of the child regardless of whether those needs suggested a more integrated or less integrated intervention environment. No one “best practice” model is appropriate for all children or for any given child at different points in time. Flexibility is essential to successful intervention.

The limited role families were reported to have in selection of or participation in integrated service models, although disheartening, is not surprising. Although therapists referred to the IFSP or IEP as a mechanism for communication with families about intervention, it is important to note that the program plan may or may not distinguish between different types of service delivery. A commitment to family involvement requires more frequent communication than that mandated by IDEA but our informants imply that ongoing communication with parents

may not be routinely achieved in many early intervention and preschool settings.

If our commitment is to provide intervention in the child's natural life settings, we must also include the home and community. Defining the classroom as "the" natural setting for intervention is limiting and short sighted. By definition, family will always play a peripheral role in classroom integration rather than a role of fully involved collaborator. If we want family involvement, we must recognize that natural environments include those in which the family routinely participates.

The future of successful integrated service may be dependent entirely on the economic underpinnings of our services. Administrative policies and practices, often determined by funding incentives and accountability requirements, affect all aspects of integration: professional and support personnel, space, equipment and supplies, enrollment of children, and scheduling practices. Successful service integration hinges on the leadership provided by administrators through advocacy for, and implementation of, policies that support integrated practices and on reimbursement programs like Medicaid to provide payment for integrated services.

Learning is an obvious goal of any physical therapy intervention for a child with a disability. Although none of the informants explicitly related their decisions about service delivery options to motor learning theory, many of the criteria they identified as influencing their choices are consistent with contemporary theories of motor learning. Beginning new tasks in a more controlled environment and later transferring the practice of those skills to the classroom environment makes intuitive sense in the context of the stages of motor learning described by Anderson.<sup>24</sup> The value placed on arousal and attention, modeling, amount of practice, distributed practice, variability of practice, and motivation are also consistent with research supporting the combinations of these strategies to promote learning and skill acquisition.<sup>25</sup>

It is fair to acknowledge that the design of this study provided limited opportunity for validation of results through triangulation. Investigators did not have alternate forms of data collection and did not actually observe the environments where informants provided therapy services. The sample size was small and informants represented varied practice settings. Nevertheless, the repetition of the ideas expressed by the informants reduced the likelihood that additional informants would have added substantial new information to the data. The perceptions of these therapist informants are sufficiently credible to consider when analyzing policy and practice or when planning educational curricula and in-service training programs.

The remaining questions for further research are abundant. How would the perception of therapists who do not use an integrated service delivery model differ from those of our informants? How do reimbursement and funding patterns affect service delivery options? How might the environment be modified to optimize intervention outcomes? What are the perceptions of families regarding integrated services? How are these perceptions influenced by service providers? And most

importantly, what determinants of service delivery promote successful outcomes for children?

## CONCLUSIONS

Several factors important to the successful integration of physical therapy services into early intervention and preschool classroom routines were identified in this study. Informants provided insight about the essential interactions among classroom personnel, the environment, and the child needed for successful intervention. It is unlikely that any one service delivery model is adequate to meet the complex and interacting needs of all children. Although the integrated service delivery model was embraced by informants as an important strategy for preschool intervention, integrated therapy was always supplemented by other forms of service delivery such as pull-out or consultation. There are many successful and varied approaches to integrated service, but the themes that emerged appeared to be important to each of the informants. Therefore, these themes are likely to be important for any therapist wanting to use the integrated model. The findings of this study led investigators to construct a guideline for integrating physical therapy services in preschool classrooms (Appendix B).

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## APPENDIX A

### General Interview Guide

#### General Interview Guide

Hello, this is \_\_\_\_\_ calling to conduct the interview we planned regarding pediatric physical therapy in preschool classroom settings. Is this still a convenient time?

I will be recording this interview so that I can refer to it later. It will be saved without any identifying information. Is that OK?

#### **I'm turning the recorder on now.**

This interview is now being recorded. If you would like for me to turn the recorder off at any time, please let me know. For our study, we will only be able to use information that is recorded so that we have a way of verifying our notes.

For our purposes we have defined the integrated model for preschool settings as

“therapy occurring within the context of daily routines in the classroom along with classmates and teachers.”

Is this consistent with your idea about integrated therapy?

About what percentage of your practice is delivered in an integrated manner? Please explain or give an example.

How would you describe a typical intervention session?

How satisfied are you with the integrated model of service delivery? Explain.

What factors contribute to the success of integrated therapy? Explain.

Are there factors that make integrated therapy difficult? Explain.

Describe some of your interaction with other professionals providing integrated services?

Is there anything else you would like to add to our information about integrated therapy?

We will be happy to send a copy of the final abstract of our project if you provide your mailing address.

Address \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank you. We really appreciate your help with this project.

## APPENDIX B

### A Guideline for Integrating Physical Therapy Services in Preschools Classrooms

#### Personnel

- Seek the commitment of the classroom teacher first;
- Foster cooperation, collaboration, communication, and mutual respect among all classroom personnel;
- Consider the concerns and goals of the family and the child;
- Integrate therapeutic activities into classroom routines. Blend intervention with the activities the teacher has planned;

#### Environment

- Suggest collaboration regarding organization and arrangement of space;
- Assure the availability and accessibility of appropriate furniture, assistive devices, learning materials, and toys;
- Take advantage of small groups of typically developing peers to create an environment that is developmentally stimulating;
- Allow peers to assist intervention efforts by providing opportunities for group play, modeling desired skills, and influencing motivation;
- Seek opportunities for repetition, variation in practice strategies, and generalization of skill;
- Reinforce repetition and practice;

#### The Child

- Observe the child perform in natural settings and focus on function;
- Recommend an intervention model that considers the severity of the disability and the nature of the skill or intervention task;
- Consider affective characteristics of the child, (i.e., attention, emotional needs, personality) when recommending a service delivery model;

#### Logistics

- Strive for consistency and predictability of routines and schedules;
- Allow for coordination, flexibility, and predictability of routines;
- Consider the biological routines, endurance, and stamina of the child;

#### Administrative Policies

- Identify administrative philosophy, policy and practices that affect personnel, space, child placement, logistics, and accepted intervention strategies;
- Identify and discourage economic incentives based on traditional clinical models of service delivery that complicate efforts for integration;
- Expect that planning for integrated services requires more time than planning for traditional pull-out therapy and request planning and consultation to be considered in staff “productivity” measures;
- Seek training in advanced skills in collaborative and integrated practices and ask that they be available to all staff;

#### Service Delivery Options

- Provide a variety of options for service delivery. No one service delivery model is optimal for all children;
- Consider consultation an integral part of physical therapy intervention in addition to all other service delivery models used.