

# Enhancing Participation for Children with Disabilities: Application of the ICF Enablement Framework to Pediatric Physical Therapist Practice

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**Purpose:** This paper describes how pediatric physical therapists can utilize the enablement framework, embraced by the World Health Organization in the current International Classification of Functioning, Disability, and Health (ICF). The ICF can guide clinical reasoning related to enhancing participation in desired activities for children with disabilities. In the ICF framework, participation reflects the person's engagement in important life situations. By emphasizing what the person can do in valued contexts, the enablement framework is a positive complement to a focus on functional limitations and disability of the disablement model. **Summary of Key Points:** Current conceptual frameworks and policies advocate attention to children's participation. Legislation (Individuals with Disabilities Education Act, Amendments of 1991 and 1997 and the Americans with Disabilities Act of 1990), the *Guide to Physical Therapist Practice*, and motor control and action perspectives all support the inclusion of children with disabilities in natural environments. These frameworks and laws can guide therapists' clinical reasoning to focus on children's participation in desired activities during the evaluation, goal-setting, and intervention process. A case study of a child with spastic diplegia illustrates how pediatric physical therapists can apply the enablement framework to develop meaningful goals and interventions focused on enhancing the child's participation in desired activities. **Conclusions:** Adoption of an enablement perspective may help pediatric physical therapists to focus their evaluations and interventions on promoting children's participation as well as the specific functional activities that enhance participation. (*Pediatr Phys Ther* 2004;16:114-120) **Key words:** World Health Organization, disabled children/classification, physical therapy/methods, cerebral palsy, activity of daily living/classification

## INTRODUCTION

The *Guide to Physical Therapist Practice* is structured around a model of disablement. Disablement is a general term that emphasizes the effects of disease, injury, or con-

genital abnormalities on functioning, determined by both personal and environmental factors.<sup>1,2</sup> Impairments and, to a greater degree, functional limitations are viewed as the sources of the disability.<sup>3</sup> The disablement framework focuses on both personal and societal factors that potentially limit a person's function in the context of daily life and society in general.<sup>2,4</sup>

Another perspective is expressed in the World Health Organization's International Classification of Functioning, Disability, and Health (ICF), an internationally recognized interdisciplinary framework describing health and health-related conditions.<sup>5</sup> Although derived from the 1980 disablement-based framework known as the International Classification of Impairments, Disabilities, and Handicaps (ICIDH),<sup>6</sup> the ICF reflects a major shift in emphasis and adds a new element to the multiple levels previously articulated by earlier frameworks. The ICF is a

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classification system that stresses health in the presence of disability, and thus, it provides a different perspective with which to think about optimizing how a person with a disability can live a full life in the community. The classification is inclusive of all people, at all stages of their lives, not only those with temporary or chronic conditions. It considers social influences as well as the impact of the physical environment, similar to the person/environment interactions articulated in disability frameworks. Health is conceptualized as the result of interactions between body structure/function, activity and participation demands, and environmental factors, ranging from personal to policy-related factors.

The ICF provides the pediatric physical therapist with another alternative to guide clinical reasoning and decision making. Similar to the disablement model, the ICF describes function as a complex multilevel and multifactor phenomenon. However, in this framework, the emphasis changes from a deficit perspective to a focus on facilitating what the person wants to and can do in personally important contexts—an enablement perspective. The person's status is not defined by his or her deficits but rather by the extent of his or her engagement in daily activities despite limitation. Disablement terms such as impairment, functional limitation, disability, and societal limitation are replaced by enablement language such as body function, activities and tasks, and participation.

In the ICF, participation is specifically defined as “involvement in a life situation.”<sup>5</sup> Coster<sup>7</sup> has defined a view of participation unique to children—the concept of social participation: “active engagement in the typical activities available to and/or expected of peers in the same context.” Coster's definition from a developmental perspective incorporates an integrated view of activity, child, and context, which is congruent with the ICF. Thus, participation as a social construct includes interactive relationships among the physical, social, and attitudinal aspects of environment and the individual and his or her family, habits, and lifestyles.

The purpose of this paper is to describe how pediatric physical therapists may utilize the enablement framework to guide their clinical reasoning for enhancing the participation of children with disabilities. Shifting to a health perspective may broaden the options for the evaluation, goal-setting, and intervention processes to include a wider range of possibilities in the child's world. This paper reviews conceptual frameworks and policies that advocate attention to children's participation. A case example is used to illustrate how therapists may consider the participation needs of children through their intervention with and advocacy for children with disabilities.

### **Conceptual Frameworks Advocating Participation**

Ultimately, pediatric physical therapists strive to help children with disabilities participate in daily life by designing and implementing interventions to facilitate outcomes that matter to children, families, and teachers.<sup>8,9</sup> Such outcomes, the result of intervention, take into account current

laws and policies, adherence to system-based approaches to motor behavior, and current models of practice.

Legislation such as the Individuals with Disabilities Education Act (IDEA)<sup>10,11</sup> and the Americans with Disabilities Act (ADA)<sup>12</sup> emphasize the role of natural environments in encouraging children's participation, whether in the school, home, or community. Therefore, laws have changed how pediatric physical therapists intervene. The passage of the Education for All Handicapped Children's Act of 1975<sup>13</sup> and IDEA has guaranteed a free and appropriate education for all children in the least restrictive environment. The IDEA (Parts B and C) requires that evaluations, goals, and interventions delineated in Individualized Educational Plans (IEPs) and Individualized Family Service Plans (IFSPs) focus on participation in relevant activities throughout the day. The outcomes of intervention must be described and measured as a result in the environment where the activity occurs.<sup>14,15</sup> The ADA broadened the scope of opportunity and access for children with disabilities in the area of public and private accommodations, transportation, and employment for adolescents.<sup>15</sup> By law, children with disabilities have the same civil rights as their peers to participate equally in chosen activities.

In the IDEA legislation, natural learning environments are defined as the variety of home and community settings where children perform everyday routines and learning activities.<sup>11</sup> The natural setting provides the opportunity for motor learning and refinement of skills for participation with family and peers.<sup>16</sup> Rowles,<sup>17,18</sup> a social geographer, refers to a person's routines or daily habits as “being in place.” He suggests that within any setting, a person establishes a pattern of habits, routines, and interactions that are specific to that place and person. Accordingly, learned motor skills are best established when they are part of daily routines and activities, interdependent and integrated with those of family, peers, and teachers. When new motor skills are achieved, children have not only improved their physical performance within the natural environment, but they have enhanced opportunities for participation and a “sense of being in place.”<sup>17,18</sup> Children can participate more because habits and routines within their life are adaptive and efficient.

Congruent with concerns related to performance in natural contexts, several authors recommend evaluating children's physical performance with regard to shifting physical environmental factors as well as social and attitudinal aspects of environment, which include family attitudes, habits, and expectations.<sup>19–21</sup> For example, a pediatric physical therapist might help a child develop a particular motor skill such as walking. The child's walking speed and patterns must be adapted to time-limited routines at school or at home and according to the family's and school's expectations. Furthermore, the immediate world of the child is always changing; no two days contain identical schedules and routines. Even though a pediatric physical therapist may have helped the child achieve appropriate walking skills on one day and in one

setting, there are endless possibilities to facilitate or impede walking in other settings and with different people. Awareness of the dynamic between the child and surroundings and the implications for the child in terms of his or her physical performance is important in considering the range of interventions possible to increase participation in the home, school, and community.

Evaluation and intervention in a natural environment are also supported by motor control theories and Gibson's<sup>22,23</sup> person-environment-action perspective, which corroborate the importance of practicing tasks in a meaningful context such as with friends or family in the home, school, or community. For example, dynamic systems models of motor behavior address the interactions and relations of individual factors, both biological and psychological, with social factors in shaping motor performance. Movement patterns are flexible and dependent on children's intention and the given context.<sup>24</sup> According to Gibson's<sup>23,25</sup> ecological model of perception and action, environmental information, perceived by the child exploring alone or with others, influences the organization of movement patterns. Children's learning involves continually adapting to the changing task demands perceived in the environment.<sup>26</sup> Both dynamic systems theory and the ecological model of perception-action suggest the importance of practitioners' adopting intervention strategies to help children adapt movement to ever-changing conditions.<sup>27,28</sup> Neither perspective addresses the issue of participation specifically. However, they both incorporate similar emphasis on environmental context and adaptations in motor performance associated with accommodating changes in the child's world.

The *Guide to Physical Therapist Practice*, like the ICF, emphasizes the need to consider environmental context. For example, in a child with spastic diplegia, an inefficient walking pattern may result in the inability to walk down the school hallway with classmates. According to the *Guide* and ICF, a therapist might modify the environment or offer adaptive supports to encourage the child to perform the activity or task with peers. Achieving participation with peers in school—being with classmates in the hallway—becomes the focal point of intervention. Therefore, an important way for the child to be involved with the class at that particular moment might be to modify the task (use a wheelchair, walker, or a type of crutch) and to modify the environment (change the route of hallway travel during transition between classes). The intervention emphasis encompasses a broader view of task accomplishment to help the child participate with his or her classmates. The social and practical implications of being with classmates are foremost to enhance the child's sense of well-being.

The interrelationship of a child's performance and participation articulated in the ICF framework can be examined by using a top-down approach to evaluation and intervention. A top-down approach first considers the child's desires to participate in activities within a chosen environment and then explores which task or individual physical factors support or interfere with participation in

valued activities.<sup>7</sup> The School Function Assessment (SFA) is designed to support such a top-down approach. The SFA is an assessment that defines school participation in various contexts, followed by evaluation of the activities and tasks that contribute to the child's observed pattern of participation.<sup>29</sup> Mancini et al<sup>30</sup> used the SFA in a top-down analysis of elementary-school participation of 341 children with varying disabilities. The study examined which specific functional tasks predicted low or high participation, which was classified by a cutoff score on the SFA. Low participation was best predicted by significant limitations in whole body movement; however, high participation was predicted by success in a combination of physical and cognitive behavioral tasks. These results call attention to the complexity of participation and the various factors that are involved.

Information from an assessment such as the SFA can help practitioners devise interventions to focus on whole tasks and activities conducive to participation. For example, the intervention may consist of teaching the child a sequence of motor skills to learn how to use playground equipment so the child can participate in recess with his or her friends. The pediatric physical therapist might also change the playground routine to include games and social interactions that accommodate the child's mobility. The SFA identifies activities in which change can be facilitated in a context in which the activity is purposeful and motivating.

In summary, various perspectives support a primary emphasis on the child's participation. Legislation, specifically the IDEA and ADA, focuses on strengthening children's function in the natural environment of home, school, and community. The *Guide to Physical Therapist Practice* and ICF, as well as motor control and perception-action perspectives, reinforce the importance of environmental context. Therefore, it is important for pediatric practitioners to make connections between performance and participation, which may be assessed in a top-down approach from the viewpoint of a child's need or desire to be involved in a situation. Interventions then concentrate on supporting the child's mastery of meaningful tasks to support successful participation.

The following case study of Heather (pseudonym) is presented to demonstrate how the ICF enablement framework, a current motor control theory, and a top-down approach can structure pediatric physical therapists' evaluations and intervention outcomes to encourage participation.

#### CASE STUDY: HEATHER

Heather is a seven-year old, second-grade student with spastic diplegia. She walks with assistive mobility devices, with limitations in walking outdoors and in the community (level III on the Gross Motor Functional Classification System).<sup>31</sup> She walks at school with a posterior walker but does not consistently use her walker at home. Heather also wears bilateral hinged ankle-foot orthoses. Her family has requested a physical therapy consultation to facilitate participation in family activities, recreational

planning, and daily routines. Heather, her parents, and the educational team's pediatric physical therapist have identified Heather's routines at home and to keep up with classmates and friends as the priorities for evaluation, determination of goals, and intervention. Mobility concerns seem to be the primary factor that facilitates or hinders Heather's inclusion in family routines, school, and after-school activities.

### Evaluating Participation

The therapist's evaluation focused on Heather's participation in her class and related activities: recess, art, music, and the after-school program. The therapist used the SFA, which measured Heather's participation in six elementary school environments: travel to school, transitions, playground, classroom, lunchroom, and bathroom.<sup>29</sup> Using the SFA and observation, the therapist documented Heather's ambulation in natural school contexts as she descended the stairs of the bus, walked between classrooms, both in the morning and afternoon, and walked to the bathroom and playground. Using a top-down perspective, the evaluation examined Heather's activities in context, along with evaluation of Heather's gait, joint mobility, and endurance.

In the child's home, the therapist used the Pediatric Evaluation of Disability (PEDI) as a measure of general mobility and transitions, self-care, and social function.<sup>32</sup> Even though the PEDI was intended for children within the six-month to 7.5-year age range and Heather was close to the upper end of this age range, the therapist expected the PEDI to be useful in defining Heather's adaptive skills, which were expected to fall within the range of items included on the PEDI. Table 1 lists other assessments that could have been used to assess Heather's functional skills in physical and social contexts. Table 2 identifies questions posed by Heather's therapist to further explore the relationship between context and Heather's gait performance. Using information from the assessment tools, observations, and questions in Table 2, Heather's level of participation at school or at Brownies is linked to mobility skills necessary to keep up with peers.

### Determining Outcomes and Writing Meaningful Functional Goals

Once the evaluation was complete, the pediatric physical therapist determined which goals might result in outcomes with measurable changes in Heather's participation in the desired activities. The outcomes were expressed as functional goals—activities that Heather could not perform but wished to accomplish.<sup>33</sup> These functional goals described the tasks associated with participation in school or community settings important to Heather.<sup>19</sup>

In natural environments, the outcomes are distinguished from therapeutic objectives. Outcomes are the changes, written as functional goals, that would enable Heather to participate with her peers. For example, one outcome focused on Heather's ability to walk in the middle of the class line to keep pace with her classmates and still have enough energy to accomplish an art project. Another outcome focused on Heather's ability to enter and exit a bathroom stall alone and then wash her hands. The therapist helped Heather accomplish these outcomes with therapeutic objectives,<sup>34</sup> which involved interventions using various motor learning strategies and modifications to the environment. The therapist further evaluated standing balance at the sink or toilet and use of the walker within the bathroom for safety.

During the home visit, Heather's parent specified a functional goal to facilitate Heather's participation in Brownies, a valued after-school activity. The therapist divided this broad functional goal into several functional subgoals including independent exit from the car, ascent of the stairs leading to the recreation hall, and entrance into the building. The specific therapeutic objectives addressed by the therapist involved exploring the use of light-weight crutches, modification of the ankle-foot orthoses, prevention of an increasingly flexed posture (a significant secondary condition), and improvement of Heather's cardiovascular fitness.

A measurable statement describing the functional goals to optimize Heather's participation included 1) what Heather would do (walking the halls or stair ascent), 2)

**TABLE 1**  
Functional Assessments Applicable to Heather

Assessment	Age Ranges	Domains
Participation		
School Function Assessment <sup>29</sup>	Kindergarten to 6th grade	Participation across six school settings, adaptations and assistance for physical and cognitive-behavioral tasks, activity performance
Scales of Independent Behavior <sup>42</sup>	0 to adult	Motor, social interaction, communication, personal living, community living
Task/activity performance in context		
Functional Independence Measure for Children (WeeFim) <sup>43</sup>	6 months to 8 years	Self-care, mobility, cognition (includes social interaction)
Battelle Developmental Inventory <sup>44</sup>	Birth to 8 years	Daily living (adaptive), motor, communication, cognitive, personal/social
Pediatric Evaluation of Disability Inventory <sup>32</sup>	6 months to 7.5 years	Self-care, motor, social function, modification and caregiver assistance scales

TABLE 2

Relevant Questions Posed to Explore Heather's Gait Performance at Home and School

1. How do Heather's gait characteristics differ in different settings?
2. Where does Heather have the most difficulty walking and how does it affect participation?
3. How does Heather's desire to keep up with her peers affect gait?
4. How does setting, time of day, terrain, or total distance to and from destination affect Heather's gait?
5. Why is Heather more challenged by the walk to recess than travel to the bathroom, art room, or music room?
6. How does the walker affect Heather's play with peers during recess and during gym?
7. Does Heather's participation with classmates depend on her gait differing in various environments?
8. Are there reasons for changes in her functional gait capacity throughout the day?
9. Is endurance or motivation a factor in Heather's performance in different environments?
10. Are there options for changing routines or environmental supports (physical and social)?
11. What features in the community, both attitudinal and physical, facilitate her participation?

where (school or at Brownies), 3) under what conditions (100 ft, level-grade, tiled hallway, or 15 concrete standard-sized stairs with outside railing), and 4) the specific degree of success desired by a specific deadline.<sup>33</sup> Other participatory functional goals addressed transitions from the classroom to a line of classmates or from the hallway to sitting at an art table as part of Heather's participation in her classroom routines.

### Devising Interventions to Achieve Participatory Outcomes and Functional Goals

The pediatric physical therapist identified the intervention strategies appropriate to Heather's participation in home and community settings. Considerations included 1) the importance of the intervention within the school or at Brownies, according to the wishes of Heather, her parents, and her teachers; 2) type of intervention; and 3) method of implementing the intervention. Intervention was partly remedial, which emphasized training functional skills. It was also compensatory, which stressed using adaptive technology, physical environmental accommodations, or consultation with people working with Heather in the community.

Heather's physical therapist used a number of interventions within the school and community, including cognitive and motor learning strategies, which have been documented to facilitate skill acquisition.<sup>35,36</sup> Modifying the task or environment and sharing information learned during evaluation, goal-setting, and the intervention process with other team members were additional interventions used by the physical therapist.<sup>35</sup> For Heather, examination of the ankle-foot orthoses and evaluation of her walker suggested that compensatory changes might increase efficiency of walking performance. Additionally, the physical therapist concluded that entrance via another door would be quicker and more efficient for Heather's participation with her peers and shared this observation with school personnel.

The pediatric physical therapist chose not to practice component skills with the intention of improving some aspect of gait (such as appropriate weight shifting with trunk rotation during the gait cycle) even within the natural setting. Current evidence does not provide clear support for the efficacy of such practice as part of a neurodevelopmental intervention for Heather or for component

abilities potentially enhancing inclusion or participation.<sup>37</sup> On the other hand, practicing gait with classmates in the hall and ascending the stairs of the recreation hall to Brownies involved repetition of the participatory activity itself (and not necessarily the components of that activity) as a purposeful means to accomplish the functional goal. Thus, Heather's regular participation in art class was enhanced by her ability to walk with forearm crutches at a certain pace to arrive on time with her class.<sup>30</sup>

Current research provides some support for providing intervention for Heather within natural settings such as school or Brownies. One study documents that practice of gross-motor abilities by individuals with severely limited cognitive and physical skills did not necessarily transfer from the therapy room to recess or home settings.<sup>38</sup> Additionally, two other studies illustrate that performance in natural contexts promoted task development. In one study, case reports of three children with spastic quadriplegia found that speed and quality of gait performance improved in the natural educational setting, as opposed to the isolated therapy room.<sup>39</sup> In a second recent study of children with mild to moderate spastic cerebral palsy, teaching specific adaptive skills, defined by the functional goals within the children's natural environment, enhanced the development of motor skills, as measured on the PEDI.<sup>40</sup>

In Heather's case the practitioner emphasized participation while considering essential motor components in evaluation and intervention. Heather practiced walking in her daily routine with her classmates and stair ascent with peers to attend a Brownies meeting. Concurrently, Heather was developing competency in a crucial motor task, gait, which she and the adults in her life identified as a priority.

### CONCLUSION

The ICF provides practitioners with a health enablement perspective. The enablement model supports a global view of an individual's performance in various contexts. Participation is the result of interaction among body structure/function, activity demands, contexts, and the person's goals and desires. Within the enablement perspective, how children with disabilities participate in daily routines that promote their health and well-being is a central concern in the evaluation process.

The disablement model, including multiple levels of

dysfunction, highlights deficits due to disease, injury, or developmental disability. When using a disablement framework, practitioner's perceptions of the client's capacities and goals are moderated by parents', teachers', and society's definitions of impairment, functional limitation, and resulting disability. The ICF has added another dimension to pediatric physical therapy's model of practice by providing a positively oriented activity/participation language and a classification system based on what a person can do in natural contexts.

Given the enablement model's focus on health rather than dysfunction, determining goals and planning interventions takes into account the child's desire for participation. Then the child can be observed performing a desired daily task at home, school, or in the community. Consequently, the practitioner can modify the environment or teach motor tasks. The ultimate outcome would be reflected in enhanced participation of the child in his or her daily life.

Disability outcome research in physical therapy in the past has not fully investigated how an intervention affects participation. For example, few studies examining outcomes of neurodevelopmental treatment measure participation.<sup>37</sup> Furthermore, no participation effects or consideration of contexts were noted in the review of Butler and Campbell<sup>41</sup> of studies that examined treatment results with intrathecal baclofen for spasticity in cerebral palsy. As new interventions are used by pediatric physical therapists and the changes related to body structure/function outcomes are explored, practitioners need to ask how such changes affect a child's motor performance and resulting participation in the settings in which the child spends his/her day. Pediatric physical therapists have an obligation to promote the healthy functioning embodied by ICF and strive for optimal participation for the children who seek pediatric physical therapy services.<sup>42-44</sup>

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