
Examination of the Perceived Efficacy and Goal Setting System (PEGS) With Children With Disabilities, Their Parents, and Teachers

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The Perceived Efficacy and Goal Setting System (PEGS) is an instrument and a process that enables children with disabilities to reflect on their ability to perform everyday occupations and to identify goals for occupational therapy intervention. In this study, 117 children with disabilities in grades 1–3 completed the PEGS with occupational therapists who work in school settings. Children from 6–9 years of age with a variety of disabilities were able to self-report perceptions of their effectiveness performing 24 activities that would be expected of them each day. Parents and teachers, who completed a parallel questionnaire, rated their abilities lower than the children did. The School Function Assessment, a measure of the amount and type of support required for school participation, had low correlations with the Parent and Teacher PEGS questionnaires and did not correlate with the Child PEGS. No differences in perceived efficacy were found for children across grades or gender; however, differences were found across types of disabilities. Children were able to use the perceived efficacy information to identify and prioritize goals for intervention and these goals remained stable 2 weeks later. Occupational therapists can use the PEGS within a client-centered practice to help the child set goals for therapy and to incorporate explicitly the perspectives of parents and teachers.

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Introduction

Children with disabilities receive a great number of medical and therapeutic services throughout their childhood aimed at maximizing their health, quality of life and participation in school, play, and community activities. In recent years, service providers have moved to the use of a family-centered philosophy of care where the child and family are active partners in the care process, rather than passive recipients of service (Rosenbaum, King, Law, King, & Evans, 1998). Family-centered service provision has been shown to improve outcomes (Rosenbaum et al.) and one of its central tenets is that the service must be responsive to family-identified priorities. A number of strides have been made in developing tools and processes to help families identify priorities and set goals for therapy; however, these measures have typically involved only the parents, not the child (Winton, 1996). There has been an assumption that the goal-setting process is too abstract for young children. Recent evidence has shown, however, that children can participate more actively in the process of establishing goals for therapy if measures are used that are appropriate to their developmental level (Harter, 1990; Missiuna & Pollock, 2000). One such measure, the Perceived Efficacy and Goal Setting System (PEGS) (Missiuna, Pollock, & Law, 2004) has been designed to help occupational therapists ascertain the child's perception of their competence performing everyday activities and to involve them in defining the direction of therapy. The purpose of this paper is to describe the results of a study that investigated the use of the PEGS with a large sample of children with disabilities.

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Review of the Literature

An extremely robust finding in the goal theory literature is that establishing explicit, challenging goals enhances motivation and improves outcomes (Bandura, 1993; Locke & Latham, 1990). In contrast, simply adopting a goal set by someone else (e.g., therapist, parent), however, has no lasting motivational impact (Bandura, 1997). It is the combined influence of the goal with the cognitive activity involved in evaluating one's performance that heightens motivation. Studies conducted with children have shown that, when knowledge acquisition and basic skill development are the goals (rather than enhancing established skills), children's attitudes and beliefs about their abilities have far more influence on outcomes than the views of their parents (Zimmerman, Bandura, & Martinez-Pons, 1992). If goals are selected by others, children tend to attribute any success to chance or the actions of others rather than to changes in their ability (Sands & Doll, 1996).

Bandura (1977, 1990, 1997) has described a theoretical relationship between sources of self-efficacy, outcome expectations and actual behaviour change. Self-efficacy, a motivational construct, is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). This attribute is not concerned with the skill, but with the judgments of what one can do with whatever skills one possesses (Bandura, 1997). Self-efficacy refers to a child's belief that he or she will be able to perform a task competently (Harter, 1996). Thus, self-efficacy is one's sense of competence and confidence regarding performance of a given task in a given domain.

Perceived self-efficacy influences one's choice of activities and environment, effort, and persistence (Schunk, 1989) and predicts the goals that one sets for oneself and their performance attainments (Bandura, 1997). In general, a strong sense of perceived self-efficacy is crucial to successful performance. Self-efficacy determines the activities persons participate in, the amount of energy they commit to activities and their degree of perseverance in the face of adversity (Bandura, 1986). Perceived self-efficacy has been found to be a significant behavioral determinant of actual performance and to influence psychological well-being (Bandura, 1997). Children's beliefs concerning their academic or physical competence affect their motivation, level of performance, and behavior in achievement situations (Horn & Weiss, 1991; Weiss, Ebbeck, & Horn, 1997).

In very young children, their actual experience performing a task is the most powerful contributor to their self-efficacy beliefs regarding task performance. Toddlers have been shown to selectively choose whether or not to

persist with a task, depending upon its level of difficulty (Redding, Morgan, & Harmon, 1988). It is not until metacognitive skills emerge (at 5 or 6 years of age), however, that children become able to systematically consider task performance across situations and events and to judge their capabilities and limitations more accurately. They become increasingly able to consider how expenditure of effort, persistence, and other factors can compensate for lack of ability (Bandura, 1997). Success and failure experiences merge to form mastery experiences that guide future behavior and the effort put into skill development (Beery & West, 1993). When children identify areas of difficulty and then set goals, they feel empowered (Bandura, 1990). These feelings of empowerment lead to increased goal commitment which may, in turn, increase performance and perceived competence and foster the setting of new goals (Beery & West).

So, how can we assist children to establish goals? The client, in this case the child, needs to be able to make their wishes known to the therapist if they are to truly collaborate in therapy (Clark & Bell, 2000). It has been assumed that children are not capable of identifying goals for therapy; however, recent research is questioning that assumption (Missiuna & Pollock, 2000). The limitation has been presumed to be a conceptual one—the children's ability to understand a fairly abstract process. It is possible, however, that the difficulty may rest with the methods that we have used to elicit children's input. Curtin (2001) notes, "Though occupational therapists tend to be skilled in giving children a voice in treatment activities, involving children in defining the purpose of therapy is more challenging" (p. 301). In a review of self report assessments used with children, Sturgess, Rodger, & Ozanne (2002) identified several instruments that are valid and reliable when used with children as young as 4 years of age. Careful attention to the language used in the questions, the addition of concrete stimuli such as pictures, the clarity of the response options, and the context of the assessment can improve the validity of the results.

Instruments exist for children to self-report on constructs such as pain (St-Laurent-Gagnon, Bernard-Bonnin, & Villeneuve, 1999), quality of life (Bouman, Koot, Van Gils, & Verhulst, 1999), perceived competence (Harter & Pike, 1984; Missiuna, 1998), and activity preferences (Hay, 1992; Henry, 2000). To date however, there have been no assessments specifically designed for children to set goals for therapy. The Canadian Occupational Performance Measure (COPM) (Law et al., 1998) can be modified for use with children as young as 8 or 9 years of age to set goals; however, children younger than that are not able to respond easily in that format. The Pediatric Interest Profile (Henry, 2000) has a goal-setting section for children in the Preteen

and Adolescent Profiles but, again, children less than 9 years of age are not included.

As the number of self-report instruments for children increases, so does the evidence that the children's perceptions differ from the adults around them (Sturges et al., 2002). This is likely even more so for goal setting, as it involves placing value judgments on the importance of different potential goals (Wigfield & Eccles, 1992). Only the individual can truly do this. Studies conducted with children older than 8 years of age, and particularly with adolescents, show that goals are often quite different among children, their parents, and teachers (McGavin, 1998; Pollock & Stewart, 1998). It is likely that younger children may also have very different priorities.

This review of existing literature leads us to the following conclusions. Children's judgments regarding their competence affect their motivation as well as their level of performance. Self-report is one way to access their beliefs. Children who reflect cognitively on their competence will be more interested in and motivated to change their performance and they can then use this information to set goals. Although it has been presumed that young school-age children are unable to evaluate and report their perceptions, it appears that it may be possible for them to participate if the process is appropriate to their developmental level. Until now, there have been no suitable instruments for use with children that addressed the functional tasks that present difficulty for children with disabilities.

Measures of Perceived Competence

In occupational therapy, the most pertinent self-report measures for children will be those that focus on self-efficacy regarding the performance of everyday tasks that require motor skills (Missiuna, 1998; Wallen & Doyle, 1996). A review of several scales including: the Self-Perception Profile for Children (Harter, 1982, 1985), the Piers and Harris Children's Self-Concept Scale (Piers, 1984), the Self-Administered Student Profile (Rappaport, Levine, Aufseeser, & Incerto, 1983), the Children's Self-Perceptions of Adequacy in and Predilection for Physical Activity (Hay, 1992), and the Children's Physical Self-Concept Scale (Stein, Bracken, Haddock, & Shadish, 1998) showed that, although each contained items that reflect daily motor activities, there were limitations that preclude their use with young children. Most of the scales rely heavily on the child's ability to read and to respond in writing; they include items that address other constructs such as cognitive competence, social and maternal acceptance, or are very specifically targeted towards sports skills.

A recently developed scale, All About Me (AAM) (Missiuna, 1998) was determined to be the most appropriate measure of self-report to use with young children expe-

riencing difficulty performing daily tasks. AAM contains 24 tasks that children would be expected to perform each school day and depicts each activity pictorially. A forced choice format is used that provides a 4-point rating of the child's perception of him- or herself as a lot like a less competent performer of each task to a lot like a more competent performer. In recent years, two other measures have been developed that were adaptations of the AAM. The Perceived Motor Competence Scale for use with 5- and 6-year-olds was derived directly from the AAM and contains 19 paired statements with pictorial dot-child and square-child responses (Pless, Carlsson, Sundelin, & Persson, 2001). The UMESOL Balloon & Flag Child Scale was also developed by the same authors and is similar in design. It is a scale for use with 7- and 8-year-olds and adds items about school and peer relations. Both scales are similar in that they are binomial (a score of 0 or 1 is derived for each item) so the ability of each scale to discriminate across children is quite limited (Pless et al., 2001). The fact that the scales are different for 5- and 6-year-olds than for 7- and 8-year-olds also makes them less useful clinically.

After careful review of other instruments, a decision was made by the authors to modify the original AAM (Missiuna, 1998). A goal-setting process was added and the new tool was called the Perceived Efficacy and Goal Setting System (PEGS). A pilot study was conducted in which 37 children with disabilities, 5 to 9 years of age, completed the PEGS and their parents completed a questionnaire that contained the same items and forced choice structure but used printed sentences rather than pictures (Missiuna & Pollock, 2000). Children were found to be able to discriminate across tasks and to rate their degree of competence in each task. They were also able to use this information in order to select and prioritize goals for intervention. Parents often rated the child's competence lower than the child did; however, there was a high level of agreement regarding which tasks were difficult for the child. Parents and children did not agree, though, about either the selection or priority of goals for intervention. The results of this pilot study were used to refine the PEGS and to delineate the procedure for goal setting used in the current study. The study described in the remainder of this paper is a validation of the PEGS system with a larger sample of children.

The primary objective of this study was to determine whether children with a disability, 6-9 years of age, could self-report their competence performing everyday activities. The second, perhaps more important, objective was to determine whether these self-reports could be used to establish and prioritize goals for occupational therapy intervention, thereby allowing the child to be a more active participant in the therapeutic process.

Methodology

The PEGS study employed a cross-sectional design to explore the use of the PEGS instrument with children with disabilities who were receiving occupational therapy intervention. The study simultaneously engaged the parents and the teachers of each of these children in a parallel process of rating the children's competence in daily tasks and of setting desired goals for intervention. Teachers also completed Parts 1 and 2 of the SFA (Coster, Deeney, Haltiwanger, & Haley, 1998) for each child, which provided a more objective measure of actual competence. Key research questions addressed in this study were:

1. What is the relationship among child, parent and teacher reported scores on the PEGS?
2. What is the relationship between the child's perceived competence and his or her actual competence, as measured by the SFA?
3. What is the relationship among child, parent and teacher goals selected on the PEGS?
4. How stable over time are the goals that children select?
5. What is the clinical utility of the PEGS from the therapist's perspective?

Participants

Study participants were recruited from the active 2000–2002 occupational therapy caseload of a School Health Support Services Program in three regions of Ontario, Canada. Children on this caseload are referred for occupational therapy when they are unable to participate fully in activities that are required within the school setting. Children may present with a wide variety of neurodevelopmental problems including attention deficit disorder, cerebral palsy, developmental coordination disorder, global delay, learning disabilities, pervasive developmental disorder, spina bifida, and other medical syndromes. In order to participate in this study, each child was required to be in grades 1–3 (6–9 years of age), functioning at or above a 5-year-old level in receptive language, and to be able to make choices between two options. Case managers and occupational therapists identified children who met these criteria, based upon parental and/or therapist report. If parents or therapists were not sure whether the child's cognitive level was sufficient for participation in the study, they were not included.

Procedure

Twenty-five school health occupational therapists attended workshops to learn how to administer the PEGS. Therapists reviewed their caseloads and referred children who were new or who were at a point in therapy that goal

setting would be appropriate; they then contacted the parent and invited the family and child to participate. When consent was obtained, parent PEGS questionnaires were mailed out. The occupational therapists administered the PEGS with the child in the school setting, provided the teacher with the PEGS teacher questionnaire, and completed the SFA with the teacher. All measures were completed within a 2-week period in order to ensure that goals identified by different respondents were set during the same period of time. Two weeks after initial administration of the PEGS with the child, the therapist repeated the goal-setting portion in order to check the stability of the goals that had been identified by the child.

Instruments

The PEGS (Missiuna et al., 2004) was developed using AAM as the basic framework and building onto it a system to assist children in setting and prioritizing goals for intervention. AAM (Missiuna, 1998) is a pictorial scale that was designed by the first author as a measure of perceived physical competence in children from 5 to 8 years of age. The 24 items depicted in the original scale represented 12 fine motor and 12 gross motor tasks that are encountered by most children this age on a daily basis. At the time of the development of this instrument, our focus in occupational therapy was on performance components rather than on occupations; hence, the emphasis on the motor skills required to perform the task. The rationale for the selection of tasks and the initial development of this instrument is reported in Missiuna (1998). In the PEGS, the black and white pictures of AAM were colored and placed onto cards. The pictures reflect daily occupations that would typically be performed on a regular basis by all children who are attending school.

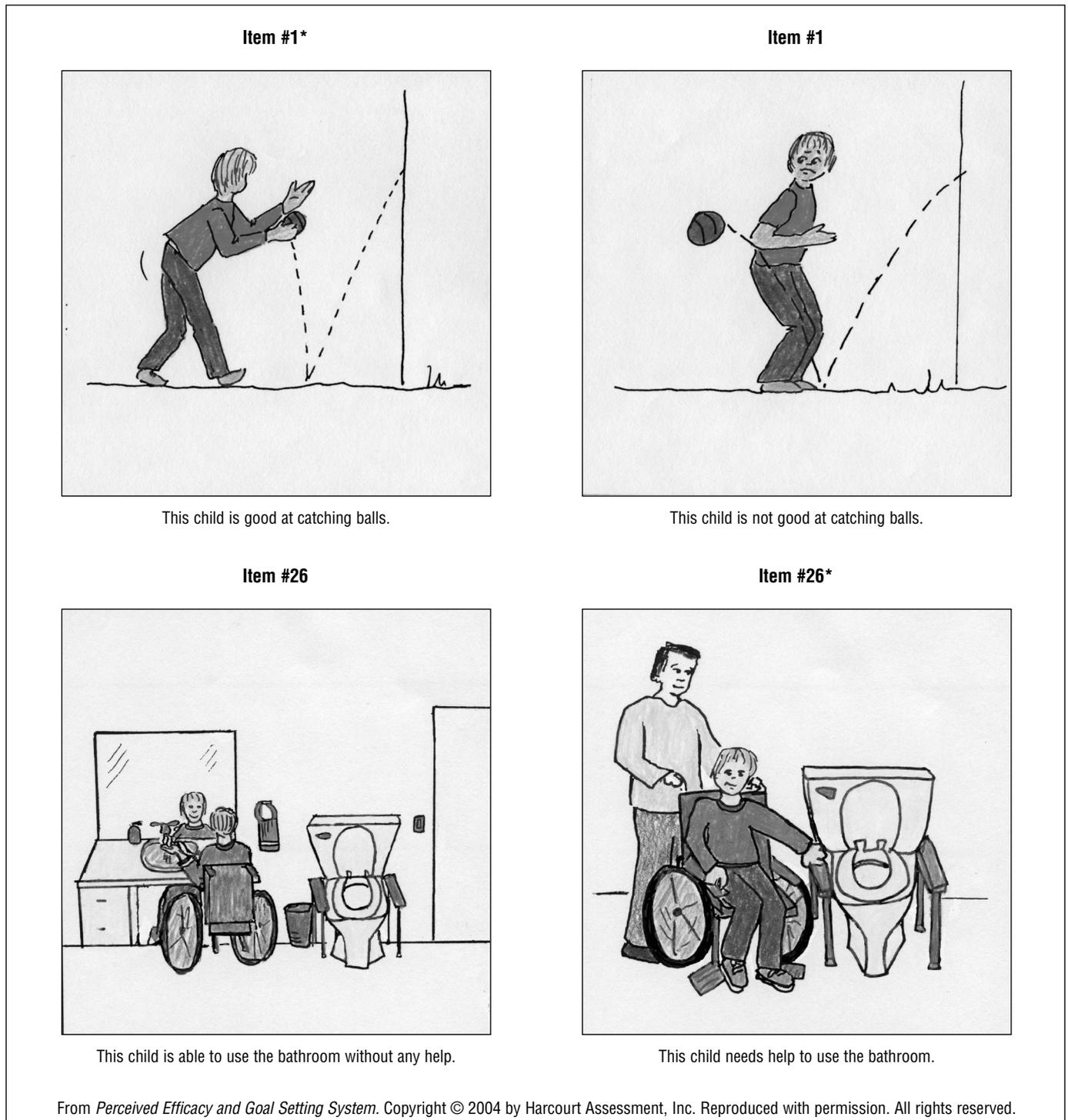
The PEGS is composed of 24 scored items that are presented to the child in pairs. Two sample items are introduced first to ensure that the child understands the process with the therapist stressing that there is no "correct" answer. The 24 items are presented sequentially as sets of two picture cards with one picture depicting a child performing a daily task competently and the other showing a child who demonstrates less competence. A forced choice format is used in which the therapist reads the statements under each picture and then asks the child to select which picture is most like him or her. The therapist then asks the child whether the picture is "a lot" or "a little" like him or her. During administration, the therapist notes any additional comments about performing the task that are made by the child during the selection process. The therapist places cards into four piles reflecting the child's stated competence from "a lot like the less competent child" through to "a lot like

the more competent child.” Sample cards are illustrated in Figure 1. A slightly modified version of the PEGS is used for children who have mobility limitations. Three cards depicting children who are using mobility aids are substituted for three cards in the original set. An example of these items is also provided in Figure 1.

When the therapist has administered all 24 items, the child is asked whether there are any additional things that were not mentioned that the child would like to improve at or work on in therapy. The therapist prints the task (e.g.,

brushing hair, math) on a sticky note, and places it onto a blank card, adding it to the “less competent” pile.

The goal-setting process begins with the therapist selecting all of the cards on which the child had indicated that she or he was “a lot” like the child who was less competent. The therapist lays all of the cards out in front of the child and asks the child about them. The therapist prompts the child to tell her about the context of the task, what make the task difficult, how frequently the child performed the tasks, and so on. Then the child is asked to indicate



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Figure 1. PEGS Card Examples

which task she or he would most like to work on or get better at in therapy. This process continues until all of the cards have been put in order of the child's priorities for goals to work on in therapy. The child has complete freedom to indicate that, although the task may not be performed that well, she or he does not wish to work at it or improve performance on it during therapy.

PEGS Parent and Teacher Questionnaires (Missiuna et al., 2004) were developed that contained written statements regarding the same 24 tasks that are presented pictorially on the PEGS Child cards. Parents and teachers rate the child's competence by circling their selection, on a 4-point scale, for each of these items. A forced choice format is also used for the written items to enhance comparability with the child scale. Parents and teachers also identify any additional tasks that they believe are difficult for the child that were not represented by the stimulus items. Finally, parents and teachers list the goals that they believe should be priorities for the child in therapy.

The SFA (Coster et al., 1998) is an occupation-based measure that evaluates a child's participation in six school-related settings (Participation Scale) and also examines the amount of assistance and or the type of adaptations required for the child to perform essential school tasks (Task Support Scale). The third section of the SFA contains 21 separate scales that measure each child's activity performance on specific tasks. For the purpose of this study, only Parts 1 and 2 were used. The manual reports good construct and content validity. Reliability estimates for the two scales that were used are high with the range of coefficients for test-retest reliability from .95-.99 and for internal consistency from .92-.98. The SFA requires observation of functional performance over time so it is completed through interview of the teacher by the occupational therapist.

Results

In three regions of Ontario, school-based occupational therapists or case managers identified 121 children with disabilities whom they believed met the eligibility criteria. Three of the children were subsequently found not to meet the cognitive inclusion criteria and one child was not able to complete the PEGS due to behavioral difficulties. The final sample included 117 children on whom complete child and teacher data were obtained. In eight instances, parent PEGS forms were returned too late or not at all due to illness or personal difficulties. Analyses of child and teacher data were therefore performed on 117 cases; any comparisons that involve parent data were performed with only 109 subjects.

Thirty-seven girls (31.6%) and 80 boys (68.4%) participated in the PEGS study. Children were enrolled in first

grade (38), second grade (39), and third grade (40). The mean age of children in the study was 7.7 years with a range from 6 to 10 years. Diagnostic labels, as reported by parents and therapists, were extremely variable in terminology so all files were reviewed by a pediatric occupational therapist and then grouped into categories as indicated in Table 1.

In addition to their primary presenting problem, 33 (28.2%) of the children also presented with a learning disorder, 31 (26.5%) with developmental delay, 25 (21.4%) with communication difficulties, 10 (8.6%) with a behavior disorder, 6 (5.1%) with hearing impairment, 2 (1.7%) with epilepsy or a seizure disorder, and 22 (18.8%) reported "other" additional problems. Most of the children were placed in regular classrooms, although 46 (39.3%) received special education resource assistance or remedial programming out of the classroom for significant portions of each day. All of the children were receiving occupational therapy service in the school, and 74 (63.3%) accessed one or more additional services including physiotherapy, speech-language pathology, psychology, and special education.

The PEGS tool has 24 items that are each scored on a 4-point scale from 1 (a lot like the less competent card) to 4 (a lot like the more competent card). A total score indicating a rating of a lot like the more competent child on all items would be 96. Children and parents typically completed all items. Teachers systematically failed to rate the child's competence on four particular items: cutting food, buttoning shirts, playing video games, and riding a bicycle. These four items were therefore eliminated for all teachers and total scores were calculated out of 80, then adjusted to provide a score out of 96 that could be compared more

Table 1. Mean Perceived Efficacy and Goal Setting Scores* by Gender, Grade, and Disability

	Child	Parent	Teacher
<i>Gender</i>			
Male (n = 80)	76.6	61.8	57.0
Female (n = 37)	74.3	61.7	58.7
<i>Grade</i>			
1 (n = 38)	77.6	60.1	54.9
2 (n = 39)	76.7	62.8	57.6
3 (n = 40)	73.3	62.3	59.9
<i>Primary diagnosis or presenting problem</i>			
ADHD (n = 21)	80.5	61.2	56.2
DCD (n = 53)	74.5	61.5	55.2
Fine motor delay (n = 22)	77.0	68.9	64.9
Global delay (n = 6)	77.8	57.6	52.9
Physical disability (n = 10)	65.9	56.0	52.9
Psychiatric diagnosis (n = 5)	83.8	56.7	63.6
Total mean PEGS score	75.9	61.7	57.5

Note. *Higher scores indicate that the respondent reported greater perceived competence performing daily tasks. ADHD = attention deficit hyperactivity disorder; DCD = developmental coordination disorder; PEGS = Perceived Efficacy and Goal Setting System.

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easily to the scores for children and parents. Adjusted teacher scores have been used in all subsequent analyses.

Perceived Efficacy

The PEGS scores can be totaled, but it should be noted that, other than for the purpose of comparison across respondents or subgroups, the total PEGS score is not particularly meaningful and is not designed to be reported clinically as a “score” out of 96. The internal consistency of the scale itself was examined using the children’s data and a Cronbach’s alpha reliability coefficient of .795 was determined. As shown in Table 1, children rated themselves as more competent performing daily tasks than did parents and teachers. An analysis of subgroup trends revealed no significant grade or gender effects. Children with attention deficit hyperactivity disorder (ADHD) and psychiatric disabilities rated themselves as considerably more competent than children with other disabilities, and those children with physical disabilities rated themselves much less competent than other children.

Although children tended to rate themselves as more competent than parents and teachers rated them, there were weak relationships among the three groups regarding the overall rating of a child’s competence. Pearson correlations among groups of respondents for the total PEGS scores were all significant at the $p < .01$ level with the correlation between scores reported by children and parents ($r = 0.307$) being slightly higher than for children and teachers ($r =$

0.287) or parents and teachers ($r = 0.261$). The shared variance among each of these pairs of measures was quite low, however, suggesting that each respondent is contributing a different perspective.

Although children were more likely to indicate that they were “a little” less competent, and parents and teachers tended to indicate “a lot” less competent, the issue of agreement about which tasks were more difficult or less difficult for each child is still an important question. Agreement about the child’s level of competence for individual items were calculated using weighted *kappa* scores which indicate when agreement between each of the respondent pairs is higher than would be expected by chance. The actual *kappa* values and percentage of agreement regarding each individual child’s performance on each task are reported in Table 2. Children and teachers did *not* tend to agree on the child’s competence when making things with their hands, cutting with scissors, printing, and drawing. Like the teachers, children and parents did *not* agree on the child’s competence when making things with their hands, their willingness to try new playground activities, printing, or working on the computer.

Although actual competence on daily tasks is a difficult construct to validate, the relationship between perceived competence and a child’s actual competence was explored by comparing PEGS scores with the SFA. No significant correlations were found between child PEGS and SFA scores (see Table 3). As can be seen in this table, there were,

Table 2. Weighted Kappa Calculations and Percentage of Agreement for Each Item

PEGS Item	Children–Parents (<i>N</i> = 109)	Children–Teachers (<i>N</i> = 117)	Parents–Teachers (<i>N</i> = 109)
Catching balls	.271** (63.3%)	.275** (62.8%)	.177 (59.1%)
Cutting food	.256** (62.4%)	.057 (52.7%)	.115 (57.4%)
Sports	.104 (57.4%)	.041 (57.8%)	.103 (56.4%)
Playing video games	.161 (72.4%)	.237* (63.9%)	.133 (58.5%)
Finishing work on time	.172* (55.1%)	.318** (63.3%)	.186 (64.2%)
Making things with hands	.048 (42.2%)	–0.065 (23.3%)	.126 (65.7%)
Taking part in games and sports	.248** (68.8%)	.242** (70.1%)	.221* (68.8%)
Tying shoes	.597** (79.8%)	.547** (77.4%)	.514** (75.8%)
Skipping	.344** (67.0%)	.118 (55.7%)	.146 (66.7%)
Cutting with scissors	.186** (53.2%)	–0.043 (35.0%)	.179 (65.1%)
Taking part in playground activities	–0.107 (68.8%)	.074 (67.3%)	.081 (63.8%)
Doing up buttons	.263** (63.3%)	.127 (53.4%)	.229* (61.5%)
Working on computer	.120 (74.3%)	.013 (59.5%)	.295** (89.3%)
Building things	–0.030 (57.4%)	.030 (61.7%)	.075 (57.0%)
Bicycle	.453** (76.9%)	.306** (66.1%)	.172 (59.3%)
Putting on clothes	.175* (64.2%)	.150 (59.5%)	.290** (65.1%)
Ball games	.145 (56.9%)	.032 (49.6%)	.240* (62.6%)
Printing	.097 (46.8%)	–0.029 (38.5%)	.466** (78.9%)
Kicking balls	.194* (76.2%)	.160* (65.8%)	.167 (64.2%)
Doing up zippers	.182* (71.6%)	.163 (67.3%)	.209* (65.1%)
Keeping desk tidy	.073 (50.5%)	.119 (51.7%)	.136 (59.8%)
Painting	.123 (55.6%)	.145** (47.8%)	.279** (63.7%)
Running	.315** (71.6%)	.042 (52.6%)	.389** (69.4%)
Drawing	.090 (47.2%)	.028 (35.0%)	.378** (72.2%)

* $p < 0.05$, ** $p < 0.01$

Table 3. Pearson's Correlation of the Perceived Efficacy and Goal Setting System Scores With the School Function Assessment

	SFA Participation Scale	SFA Task Support Scale
Child PEGS	Not significant	Not significant
Parent	0.21**	0.29**
Teacher	0.33**	0.31**

Note. PEGS = Perceived Efficacy and Goal Setting System; SFA = School Function Assessment.

** $p < .01$

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however, significant relationships between teacher and parent report of children's ability to participate in school settings and to complete school tasks independently and their scores on the PEGS Questionnaires.

Goal Setting

Children's perception of their efficacy is important; however, the purpose of this measure is to assist the children to use this information to set goals for therapy. The goals most frequently selected by children (in descending order) were finishing work on time, tying shoelaces, cutting food, skipping, printing, organizing their desk, and "other" goals. Additional ("other") goals chosen by children included items such as telling time, math, riding a scooter, cursive writing, skating, and whistling. Parents' most common goals were printing, finishing work on time, tying shoelaces, and "other" (such as math, reading, initiative, organization, coordination). From the list of PEGS items, teachers most frequently chose printing, use of scissors, and finishing work on time as primary goals; however, teachers overwhelmingly added behaviorally oriented goals, including paying attention, adhering to classroom routines, and working independently. The extent to which each child's goals matched with their respective teacher or parent is shown in Table 4. It is important to note that, although there was a modest level of agreement about each child's competence performing specific tasks (see Table 2), there was very little agreement among respondents about the selection of goals as a priority for intervention.

The question of whether children can set goals for themselves that are stable over time is critical since a process for defining goals would not be meaningful if children's

Table 4. Percentage of Agreement Among Respondent Pairs Across Top Four Goals

	No matches	One goal matched	Two goals matched	Three goals matched
Child-Teacher ($N = 117$)	54	35	11	—
Child-Parent ($N = 109$)	39	39	18	4
Parent-Teacher ($N = 109$)	44	36	16	4

goals changed too frequently. The goal-setting process was repeated with each child 2 weeks after the initial PEGS session to determine how consistent the children were in selecting goals. Analysis showed that 32% of children selected the same four goals at the second PEGS administration as they had at first administration. It was found that 37% of children selected three of four same goals at the second administration and 23% selected two of the four same goals. Therefore, 92% of children selected between two and four of the same goals 2 weeks later, whereas only 8% of children selected only one or none of the same goals.

Clinical Utility

In order to determine the clinical utility of the PEGS, occupational therapists filled out a follow-up form for each child (completed 6 weeks after the PEGS session), a clinical utility questionnaire about the tool in general and attended a feedback session to discuss the usefulness of the tool for occupational therapists who were practicing in schools. Therapists reported that they found the tool quick and easy to administer. The perceived efficacy portion took between 10 and 20 minutes to administer, depending upon the extent to which the child described their performance issues, and the goal-setting process took an additional 10 minutes. The children enjoyed completing the PEGS and therapists reported that it was a good opportunity to build rapport with the child and hear his or her priorities. Occupational therapists indicated that the pictures helped to provide structure for the process and the PEGS broadened their thinking beyond immediate school issues. Some had previously voiced concerns that discussing activities which the child feels less competent performing might lower a child's self-esteem. After using the PEGS, however, therapists noted that the tool provided a positive focus on goals rather than on deficits. Finally, therapists reported their perceptions that relations and communication with teachers and parents improved significantly. They reported their belief that children, teachers, and parents each gained an understanding of the role of the occupational therapist and were willing to engage in a more collaborative process.

Discussion

Children with a variety of disabilities were able to successfully complete a pictorial measure that asked them to rate their competence performing everyday tasks in collaboration with the therapists who were working with them in school settings. All of the children understood the process and were able to identify tasks that were, for them, relative areas of strength or weakness. This ability was present even in the youngest children which confirms the findings of

Missiuna and Pollock (2000) who showed, in a pilot study of the PEGS, that therapists were able to engage 37 children with disabilities in this process at home. Children in both studies were able to use this information to assign a sense of importance in identifying priorities for occupational therapy intervention. Children did not just select all of their “less competent” items as goals; rather, they selected only those items that were important to them to work on in therapy.

In contrast with the pilot study (Missiuna & Pollock, 2000), differences were not found on the basis of the child’s age or gender. The children in this study were all in grades 1 to 3, which is a fairly narrow age range. It is possible that the inclusion, in the pilot study, of children who were kindergarten age might have created some distinctions in perceived efficacy. The gender ratio of 2.2:1 boys was quite typical of a sample of children with developmental issues. The possible gender difference noted by Missiuna and Pollock, that parents were more likely to rate girls as more competent than boys on fine motor tasks, was not replicated in this study.

Children with ADHD and psychiatric diagnoses rated themselves as more competent than children with other types of disabilities. This is not surprising as many of the tasks shown in the PEGS cards have a high motor demand, and these children are likely more motorically competent than those in the other groups.

In addition to the setting and size of the sample, another distinction between the pilot study (Missiuna & Pollock, 2000) and the current study was the involvement of teachers as respondents on the PEGS. Teachers consistently rated children as less competent performers than either children or parents but their relative rating of strengths and weaknesses was similar to the child’s perception on many items. Parents and teachers see children in very different settings and the child’s performance may, in fact, be quite different in those settings. Teachers also have a ready peer group for comparison. As discussed below, it is important to ascertain the perception of different respondents as this can lead to discussions about the focus of therapy and, ultimately, to collaborative participation of all parties.

Although children were clearly able to identify which tasks were less successful for them, they consistently indicated an overall belief about their competence that was higher than that identified by teachers and parents. Some might suggest, therefore, that the scale is not valid for use with young children but an alternative view should also be considered. Bandura (1993) suggests that the stronger the perceived self-efficacy, the higher the goal challenges people will set for themselves, and the firmer their commitment to them. After people reach their goals, those with a strong sense of self-efficacy will set higher goals (Bandura, 1993)

and, in a bi-directional fashion, those self-set goals will lead to the highest levels of self-efficacy and skill (Schunk, 1989). It is important for therapists to know what the child believes, his or her perceived self-efficacy, and goal interests, because an understanding of this view is critical for motivation and mutual cooperation in the therapeutic milieu (Wallen & Doyle, 1996). As Prout and James (1997) point out, it is really only the child’s view, as the actor in multiple social situations, that can be considered to be authentic. It is important to note, in this study, the lack of agreement between the goals established as priorities by the children and those selected by the adults who were involved with each child. A detrimental consequence of increased adult involvement in goal setting may be that children feel that they cannot affect their own successes (Sands & Doll, 1996). We may be able to foster self-determination in our very young clients by increasing their autonomy and decision making regarding services.

It is interesting to note that children’s perceptions of their competence did not correlate with their school participation, as measured by the SFA. Children may not be fully aware of the amount of assistance and/or adaptation that is being provided by teachers to support their participation in school settings. Teacher and parent reports of the child’s competence on the PEGS questionnaires showed weak correlations with teacher reports of the amount of assistance that the child requires to participate in a variety of school settings and to perform tasks at school. This may reflect the different constructs measured by these two instruments. The teacher’s perceptions of the child’s competence may not have a direct relationship with the amount of support the child is receiving.

The benefits associated with the use of the PEGS in clinical settings were supported strongly by the therapists who participated in this study. They reported that the PEGS helped in building rapport and was a positive experience for the child. They were able to hear the child’s priorities and to get the perspectives of parents and teachers as well. The children were able to identify goals that were important to them and the majority of their selections remained consistent when checked 2 weeks later.

The PEGS also has many potential research applications and has already been used to explore differences in the goals established by children with developmental coordination disorder (Dunford, Missiuna, Street, & Sibert, in press) and as an outcome measure following a cognitive intervention (Rodger, 2004). In the latter case, the scoring system of the COPM (Law et al., 1998) was used to provide ratings of change in performance and satisfaction for each goal focused upon in therapy. Other research applications will need to be explored.

Limitations of the Study

The age range of the children who participated in this study was quite narrow and all were attending integrated schools in grades 1 to 3. The possible impact of its administration in other settings (e.g., hospitals, children's treatment centers) on the children's ability to report competence performing school tasks is not known. Although the occupational therapists who took part in this study provided the researchers with feedback, we do not know the extent to which information about the child's perception of their competence or the goals that the child selected were actually used in therapy as this was beyond the scope of the study. Most therapists who participated in this study reported that they provided therapy on a short-term or consultative basis. It would be interesting to gather information concerning the use of the PEGS by therapists who practice within different service delivery models. Finally, the use of the PEGS with children who are living in other countries needs to be investigated to determine whether the tasks represented by the cards are culturally bound. Further research is required.

Conclusions

Children with a variety of neurodevelopmental disabilities were able to complete a measure that examined their beliefs about their competence performing everyday activities. They were also able to use this information to establish goals for occupational therapy intervention. In comparison with competence ratings given by parents and teachers, children systematically rated themselves higher on PEGS, probably overestimating their competence. Children's goals appeared to be relatively stable over time suggesting that, if a child is committed to working on something, that child is likely to remain committed to achieving that goal 2 weeks later.

PEGS appears to be an effective tool for collaborative goal setting with children with disabilities. It provides a vehicle for children to identify goals for client-centered therapy, thereby taking ownership of the therapeutic process and ultimately of their successes. It is important that the PEGS only be used in circumstances where the therapist is committed to working on the goals identified by the child. Asking the child for his or her input and then ignoring it would be very detrimental to the child. The tool appears to be clinically useful for therapists working under time constraints as it focuses therapy on goals that the child finds meaningful. Teachers and parents indicate that they enjoy completing the PEGS tool and engaging more actively in the goal-setting process with the child and therapist. ▲

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