University of Alberta

Perceived Competence in Young Learning Disordered Children

by

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Abstract

The perceived competence of children at risk has both theoretical and practical implications for occupational therapists. The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA) and the All About Me (AAM) were used to measure perceptions of competence in Grade 1 and 2 children with a learning disability (LD)(n=13) and Developmental Coordination Disorder (DCD)(n=10). As a group, young children report accurate descriptions of their abilities. The LD group reported lower perceived cognitive competence than the PCSA normative sample. The DCD group reported lower perceptions of physical competence on the AAM gross motor and total scales. The LD group also reported lower peer acceptance. Mothers' attitudes regarding their child's skill success did not predict perceived competence. Stability of competence perceptions on the PCSA and AAM was examined using a separate sample of 24 Grade 1 and 2 children with motor and/or language delays. Acceptable levels of test-retest reliability were found. Replication of both studies is needed with more children.

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Chapter 1

Introduction and Review of Literature

Enhancement of self-esteem is recognized as an inherent goal of occupational therapy. The position paper on the role of occupational therapy in adult physical dysfunction, adopted by the Canadian Association of Occupational Therapists (1990) identified the overall goal of therapy as assisting "the individual to reach his maximum potential to function in each of the occupational performance areas and to enhance his overall well-being and self-esteem" (p.4). The American Occupational Therapy Association (AOTA) has also made reference to the significance of self-esteem to occupational therapy. A position paper regarding the provision of therapy services to the infant and pre-schooler states "Occupational therapists structure activities and adapt the environment in a manner that facilitates learning ... When these purposeful activities are effective, they lead to increased independence and a sense of mastery and self-worth" (AOTA, 1988, p. 793). Mayberry (1990) identifies self-esteem "as an explicit or implicit goal of treatment for children of almost any age and with almost any problem" (p.729). Self-esteem is intrinsically related to the betterment of occupational performance. As described by Harter (1978), self-esteem is an "important consequence as well as mediator of one's motivational orientation" (p. 37).

Competence is viewed as an antecedent of self-esteem (Coopersmith, 1967; Harter, 1978). Motivation and attributional beliefs, correlates of perceived competence, are related to effort and resulting achievement. The interconnection between internal attributional factors such as ability or effort, perceived competence, and external attributional factors such as luck or chance has been the focus of theories of

attribution and achievement motivation (Dweck, 1986; Harter, 1978; Nicholls, 1984; Weiner, 1984).

A positive path of task completion, perceived competence, attribution of success to internal factors, enhanced self-esteem, adaptive motivational efforts and continuing attainment of achievement goals is hypothesized. Conversely, a spiraling cycle of failure, perceived incompetence, attribution of blame to external factors, lowered self-esteem, decreased motivational efforts, and resulting under-achievement may also evolve. Children who perceive themselves as competent may be less afraid of failure and thus less concerned with external environmental factors such as making a mistake in front of teachers or peers. They may be more efficient at attending to and organizing information most salient to task success. Such children may be more willing to problem solve and attempt a greater variety of strategies as well as be more persistent when faced with task difficulty.

Studies have provided support for this linking of perceived competence and self-esteem with achievement and emotional well-being. A correlation between low self-esteem and under-achievement, anxiety and depression has been observed (Battle, 1991; Brooks, 1992). Based on a longitudinal analysis, Kurtz-Costes and Schneider (1994) reported a reciprocal relationship between self-esteem and school achievement. Self-esteem has been identified as a predictor of academic and motor skill performance (Battle, 1993; Boucher, Doescher & Sugawara, 1993). Findings by Rosenberg, Schooler, Schoenbach, and Rosenberg (1995) clarify the relationship between such studies. Global self-esteem is strongly correlated with psychological well-being, whereas specific self-esteem is correlated with individual behaviors such as achievement. Examination of self-esteem theories reveals that

perceptions of competence are an integral component of both specific and global self-esteem judgments.

In facilitating occupational performance by creating an environment whereby clients are "engaging in occupations or in doing" (Christiansen, 1991, p.38), occupational therapists are in the unique position of directly influencing perceived competence and thus, resultant self-esteem perceptions. The implications for occupational therapy practice are significant. Interventions that provide the opportunity for success experiences, alter attributional beliefs, and enhance client-environment fit may be beneficial in preventing the development of or intervening with perceptions of incompetence, low self-worth and the resulting maladaptive achievement and emotional pattern this may engender. To use these interventions effectively one must have knowledge of populations at risk.

This study examined the pattern of perceived competence reported by the Grade 1 and 2 child with a learning disability (LD) or with a Developmental Coordination Disorder (DCD). School, leisure, and other daily living demands for children of this age involve mastery of physical skills (Harter, 1978) and these children would appear to be at risk for lower perceived competence and lower self-esteem. Parents have a significant influence in the child's life. Therefore, the relationship between parental attitudes regarding the successful attainment of skills by their child to that child's perceived competence is also explored.

A possible relationship between a learning disability and developmental coordination disorder with perceived competence and self-esteem becomes apparent when one explores the theoretical foundation of these constructs. Theories of the 'self' and the development of self-esteem, which provide the foundation from which current beliefs evolved are examined in the remainder of

this chapter. The literature dealing with perceived competence and self-esteem in children with learning disabilities and more specifically children with coordination impairments is summarized. Subsequent chapters report the results of a study of the stability of competence perceptions and a study of perceived competence of children with LD and DCD.

Historical Perspectives

'Self' as a Construct

The concept of 'self' was initially addressed by James (1890/1963). James viewed the self from two perspectives, the self as 'I' and the self as 'me'. As the subjective self, the 'I' was the knower and feeler. The self as 'I' existed in the present as the part of one that experienced life. The self as 'me' was the object of one's attentions. This required one to view oneself from the perspective of another. James hypothesized that the self as 'me' was composed of material, social, and spiritual aspects. These components were believed to arouse feelings of satisfaction, a concept congruent with the current differentiated construct of self-esteem. Such feelings elicited behaviors to preserve or alter these feelings of satisfaction. A second component of the theory of the self addressed the personal value of attributes and achievements possessed by the self. James postulated that an individual's belief in his own worth or self-esteem was a function of success relative to aspirations in a particular area. For example, the person who places high value on or has high aspirations in an area, but who meets with little success, will experience low self-esteem. These two elements of the self have continued to be recognized as factors of self-esteem in theoretical models substantiated by current research.

The Social Self

As a social psychologist, Mead (1934) addressed the construct of the self in view of the social process. He too maintained that the self was comprised of an 'I' and a 'me'. He emphasized the role that an individual's social group played in the development of the self. Based on the observation of children, Mead noted that play first consisted of imitation of others. This imitative play grew into game playing wherein the child demonstrated the ability to take on the role of another. Role playing, Mead deduced, could not take place unless the child was capable of understanding the attitude of another. He concluded that the child's behavior is not only influenced by group norms but also, impacts group behavior. The organization of the game was symbolic of man and society. As the doer, the 'I' transforms the social group in which it inhabits whereas the objective 'me' is modified by the norms of this same group. The value of the self is a product of the relationship between the individual and others. Greater superiority of the individual, viewed as the 'me', when compared with others in the group would enhance the perceived value of the self.

The Building Blocks of Self-Esteem

These early scholars provided a description of the 'self'. Others attempted to incorporate the concept of the 'self' into more comprehensive theories of personality. Such theories were "vague, incomplete, and overlapping" lacking "extensive, empirical exploration" (Wylie, 1961, p.317). In an attempt to formulate a theoretical framework on which empirical studies could be based, Coopersmith (1967) concluded that there were four factors identified by earlier theorists, that were related to the development of self-esteem or the evaluative component of the 'self'. Acceptance, the first factor, was a reflection of the value feedback from

significant others. The degree of success attained was the second factor. Social feedback and material worth served as measures of success. The third factor was the individual's expectations or aspirations of what he/she should achieve including the importance ascribed to a particular achievement or attribute. Individual defences comprised the fourth factor. Individuals vary in their emotional and behavioral response patterns to their personal beliefs about the level of acceptance and success they achieved in terms of their aspirations. Variation in response patterns such as minimizing or discounting the importance of success or failure served to alter or maintain self-esteem values.

In addition to the above four factors, Coopersmith (1967) hypothesized that competence, significance, power, and virtue were antecedents of self-esteem. Competence is the proficiency with which the individual fulfills achievement goals. Individuals place varying degrees of importance on each of these areas. For example, if competence is important, its attainment precipitates p[illegible] feelings and emotions regarding one's value. C[illegible]s important when achievement goals are valued by significant others, when meeting such goals results in defined social or material success, and/or when goals are commensurate with aspirations. Failure to attain goals results in feelings of incompetence and precipitates negative self-worth only if the same conditions are encountered again. Paradoxically, maladaptive defence mechanisms which minimize or discount the level of achievement, may accentuate or engender "feelings of incompetence, ..." (Coopersmith, 1967, p.43). Variance in the belief patterns related to the factors associated with self-esteem will influence the impact which an antecedent has on self-esteem. An organizational framework for the inter-relationship between antecedents and contributing factors was not clearly outlined, but

delineation of these elements provided the building blocks for further study.

Self-Concept versus Self-Esteem

The terms self-concept and self-esteem have been utilized interchangeably in the literature. This is apparent when one examines the measures designed to evaluate these attributes (Hughes, 1984; Wylie, 1984). Harter (1983) attests to the problems which arise when measurement is based on ill-defined theoretical constructs. Clarification of these terms is fundamental. In this paper the term self-concept follows the definition adopted by Rosenberg (1979) as the "totality of the individual's thoughts and feelings having reference to himself as an object" (p.7). Self-esteem refers to the evaluative aspects of the concept of self. It encompasses a measure of the individual's feelings of self-worth (Battle, 1993; Coopersmith, 1967; Marshall, 1989).

Self-Concept and Self-Esteem - An Organizational Framework

An organizational framework for the discussion of self-concept was suggested by Rosenberg (1979). Self-concept was said to embody four areas; content, structure, dimensions and ego-extensions. Content included self-descriptors such as age, sex, ethnicity, occupation, traits, abilities, and attributes. The relationship between content areas encompassed the structure of the self. The dimensions of self-concept were the individual's "system of attitudes" (Rosenberg, 1979, p. 22). Attitudes may be positive or negative, stable or unstable, consistent or inconsistent across content areas, and accurate or inaccurate. The fourth component, ego-extensions, was explained as elements which expand upon the boundaries of the self but which "reflect upon the self" (Rosenberg, 1979, p.38). Rosenberg's theoretical formulations contributed not only

to our understanding of self-concept but also offered an organizational framework for self-esteem. Self-valuation of content descriptors provided a basis for the sense of personal worth. The idea of structure was introduced with its connotation of unitary versus global self-esteem. Unitary content areas could be viewed from a number of dimensions. Rosenberg's framework provided the groundwork for empirical study of a hierarchical multi-dimensional construct for evaluating the 'self'.

The Evolving Concept of Self and Self-Esteem in Childhood

The hierarchical, multi-dimensional 'self' construct as described by these early theorists was not specific to age or stages of development. "Any sensitive analysis of the self-concept of children and adolescents must also take into account developmental changes in the structure and content of the self" (Harter, 1990, p. 293). As cognition matures, internal thought processes modify the way children view their interactions with the environment. Concurrently, they must respond to altering environmental demands. Research pertaining to constructs within childrens' self-concept/self-esteem must address these issues.

In formulating a theory which encompasses the evolution of self-esteem/self-concept in the developing child the two related elements of the self, the "I" and the "me", must be considered. Also the inter-relationship between contributing factors and antecedent conditions (e.g., competence, significance, power and virtue) should be addressed. Concepts and values of the self may be formulated as either a unitary construct with multi-dimensional content areas or as a global construct.

A Cognitive - Developmental Model

Extensive theoretical and empirical groundwork by Harter (1983, 1985) led to a hierarchical model which addresses the content and structure of the self. In this model, self-concept is multi-dimensional incorporating such role related categories as physical abilities, academic performance, and social relationships. With maturity, the child is able to differentiate these broad based domains into increasingly refined entities. Both the content and structure of self-concept undergo change (Harter, 1983). Four structural stages were proposed which reflect the influence of cognitive development as theorized by Piaget (Piaget & Inhelder, 1969).

The sensorimotor period of the infant. The emergence of a sense of self in infancy is compared by Harter (1983) with Piaget's sensorimotor period which occurs between birth and 2 years of age. The 'I' or subjective self is defined as elements in the environment act upon the infant and the infant responds. Sensorimotor feedback during these environmental interactions allows the infant to perceive himself/herself as separate from others and from elements in the environment. This first stage is the initial step of a differentiation process which results in a concept of the self and is an important precursor to self-esteem regulation (Cotton, 1983). Infants not only receive social feedback regarding the value others place on their being, but also discover their capacity as a causal agent capable of acting upon the environment, a significant forerunner to the concept of competence (Dickstein, 1977).

Research which substantiates this stage includes studies involving mirror images (e.g., Lewis & Brooks-Gunn, 1979). The infant's ability to respond to objects on the basis of mirror reflection is viewed as an example of the self as a causal agent. Included in this period

is the acquisition of language which enables infants to label not only themselves but also their personal features. Through these processes infants develop a schemata which portrays their uniqueness and represents the self as object.

The pre-operational period of the toddler and young child. Harter's Stage I, compatible with Piaget's pre-operational period occurring from 2-7 years, signifies the onset of the categorical self. Language abilities expand and symbolic thinking emerges. Recognition of the self within such content areas as gender or years of age begins. This differentiation of the self is the inception of self-concept. Stipek, Gralinski and Kopp (1990) concluded that, during the second and third year, development follows a recognizable pattern. Toddlers expand upon their physical representation of the self. As language abilities unfold they are able to describe and evaluate themselves. Terms such as 'good boy' or 'bad girl' exemplify the beginnings of the evaluative process. Emotions or attitudes associated with wrong doing begin to emerge. These behaviors signify not only the emergence of self-esteem attributes but also represent self-regulatory behaviors. Self-esteem regulatory behaviors are factors significant to the maintenance of self-esteem values (Mack, 1983). At this age, children may blame others, objects in the environment or not admit to actions they perceive as wrong.

By the latter part of Stage I, children describe themselves in terms of skills. Within each stage Harter (1983) identified two levels. Movement between stages involves the integration of higher levels of thinking whereas movement from level to level constitutes differentiation. As an example, children describe themselves as being good at running. At the second level of Stage 1 this view becomes differentiated and children

may state that they are good at running, but bad at drawing.

The concrete operational period of the child. During Harter's Stage II children are able to characterize themselves in terms of traits. This coincides with Piaget's concrete operational period (ages 7-11 years) in which the ability to problem solve and utilize inductive reasoning with regard to concrete issues develops. The ability to classify and organize descriptions of the self assists children to compare themselves with others. Physically, children may view themselves as good at sports or not good at sports. During level two of this stage they may define themselves as good at games they have played (e.g., soccer or baseball) but not good at others (e.g., hockey or tennis) where they have no previous experience. They are now able to see opposing viewpoints simultaneously and use them selectively which denotes the onset of dimensional multiplicity.

Young adolescent to adulthood. Harter's stages III and IV are associated with the onset of higher order abstractions seen in the adolescent and young adult. Stage III is designated by the individual's ability to define himself utilizing a single abstract conceptual model. Traits are integrated into abstract concepts. At level one, the adolescent may define himself as being athletic. By level two, the adolescent may view himself/herself as athletic, but recognize that this ability does not extend to all physical activities. Stage IV signifies the onset of higher order abstractions conceptualized by the young adult.

Self-esteem development. Self-esteem evolves along the cognitive developmental continuum within the same framework as self-concept. Harter (1983) conjectures that self-esteem forms a hierarchical organization with global self-esteem at the apex (see Figure 1.1).

Cognitive-Developmental

Model of Self-Esteem Development

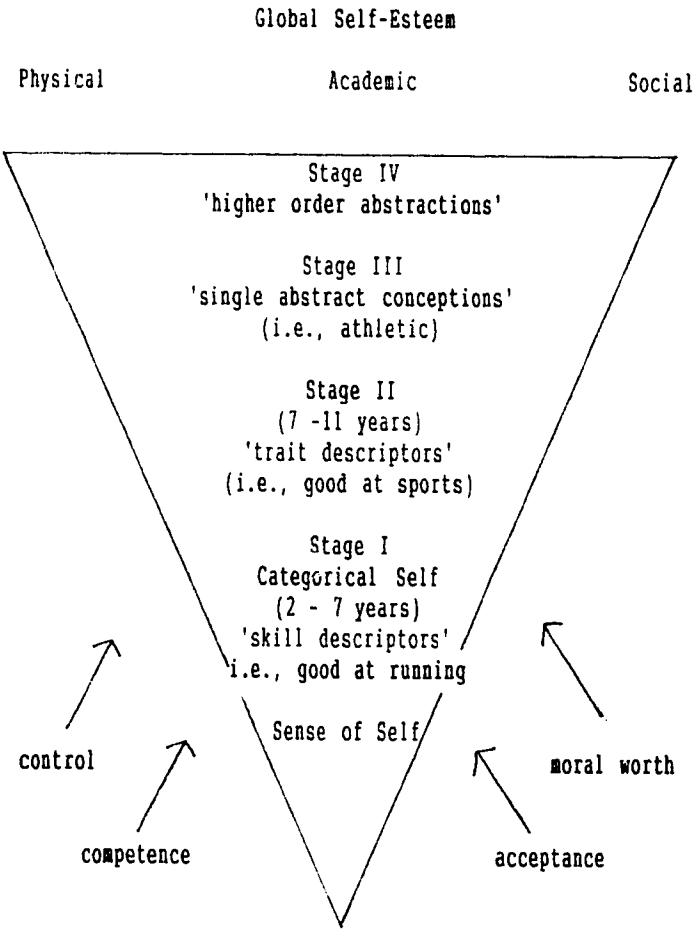

Figure 1.1 Illustration of the Cognitive-Developmental Model of Self-Esteem Development using Harter's (1983) description of the model.

Competence, social acceptance, a sense of control and moral worth are antecedents or second order elements. Unitary self-esteem values constitute self-beliefs regarding individual content areas such as academic abilities, physical abilities, or social skills. The positive or negative value attributed to a content area is a result of the influence of the inter-relationship between antecedent elements and the importance ascribed to the content area.

Developing cognition and changing environmental demands are significant influences in child development. The role of antecedent factors varies as thought processes mature and the interaction between child and environment becomes increasingly diversified.

Competence has been cited frequently as a precursor to evaluative behaviors (Coopersmith, 1967; Harter, 1978, 1983, 1985; Mack, 1983). High levels of perceived competence are contingent upon successful performance (Coopersmith, 1967). The level of performance and the type of performance task is expected to vary with age. Cognitive maturity and environmental factors are integral to perceptions of competence. With advancing age, thinking becomes progressively more abstract. Harter (1983) theorizes that children perceive competence first in terms of skills, then traits, and finally higher order abstractions. At the same time as cognition is maturing, environmental demands are changing. The child moves beyond the sphere of the home environment to meet the challenges of school and community. The child's concept of competence becomes increasingly differentiated to include content areas related to these challenges.

Social acceptance which involves the influence of significant others (e.g., parents and peers) has been documented as a notable modifier of the self-value system (Feagans, Merriwether & Haldane, 1991; Graybill, 1978; Harter, 1983; Mack, 1983; Ruble, Boggiano, Feldman &

Loebl, 1980; Smith, Zingale & Coleman, 1978). The pre-school and young school age child demonstrates self-valuation aligned with the child's perceptions of parental attitudes. As the child matures the effect of peer comparison and peer group social values become salient.

Control is measured by the individual's ability to control his/her own actions and those of others (Coopersmith, 1967). Children in the pre-school and school entry years appear to attribute the probability of success to effort, an internal locus of control (Stipek, 1984). Older children, recognizing the difference between ability and effort, begin to attribute the probability of success to intrinsic factors such as ability and effort as well as to extrinsic factors such as luck or chance. With developing cognition and altering environmental demands, beliefs about locus of control undergo qualitative change.

Moral worth, the adherence to ethical, moral or religious codes, is also an antecedent to self-esteem. Harter (198_) summarizes her earlier findings in which factors associated with moral worth were examined. By four to five years of age children consistently defined pride with good feelings and shame with bad. From this evolved the ability to attribute pride and shame to significant others as related to the child's own behavior (e.g., "my mother is proud of me because ..."). Only after eight years could the child internalize feelings of pride and shame as related to the self (i.e., "I am proud of myself because...").

Based on this theoretical premise, for the young child in the early school years, competence and social acceptance are expected to be the significant antecedent factors influencing self-esteem. Self-perceptions are a product of the child's ability to meet ever-evolving achievement related environmental demands and the

feedback of significant others (e.g., parents, teachers, peers). Rudimentary cognitive development minimizes the role of control and moral worth.

Empirical Support for a Multi-Faceted Hierarchical Model

Current research has substantiated some aspects of the model described. During the development of a measure of perceived competence and social acceptance, Harter & Pike (1984) identified two factors contributing to self-perceptions. Children at the ages of 4-7 years distinguished two domains, that of general competence comprising both physical and cognitive competence and that of social acceptance comprising peer and maternal acceptance. Using a factor analytic approach, Harter (1982) defined three domains (cognitive, social and physical competence) which measured perceived self-competence in the child of 9-12 years. These findings support a hierarchical, multi-faceted model of self-perceptions. As children mature they develop attitudes toward the self across a broadening range of content areas and self-perceptions become increasingly differentiated.

Ongoing research has validated the existence of several content areas in which the children form self-perceptions. Using confirmatory factor analysis, Marsh and Shavelson (1985) reviewed a number of previous studies of self-concept in children from Grade 2 to adolescence. Seven factors were found: physical appearance, physical abilities, peer relations, parent relations, reading, mathematics, and a general school factor. Marsh, Craven and Debus (1991) found seven factors in children in kindergarten, first and second grades, a finding which differed from the Harter (1984) study. Marsh et al. (1991) theorized that the use of confirmatory factor analysis would have supported a more multi-faceted construct had it been used in the development of Harter & Pike's (1984) Pictorial Scale of

Perceived Competence and Social Acceptance for Young Children. Such research serves to confirm the multi-faceted nature of self-concept as well as the differentiation which it undergoes. In all studies, as age increases, the correlations between factors decreases. This suggests that as children grow older their perceptions of self become more refined and less related to each other.

Although global and content specific self-esteem are inter-dependent, they are not mutually exclusive. Rosenberg, Schooler, Schoenbach, & Rosenberg (1995) concluded that global self-esteem demonstrated a stronger relationship to one's general sense of well-being whereas content specific self-esteem was more closely associated with behavioral responses. Content specific self-esteem is more likely to impact global self-esteem than global self-esteem will impact content specific self-esteem. The degree of impact is a product of the importance of the content area to the individual.

Self-Concept/Self-Esteem in the Child with a Learning Disability

Learning Disability (LD)- A Definition

A child with a learning disabled is one who has average cognitive ability as measured by a recognized test of intelligence, but whose achievement in one or more areas of academic ability is found to be at least one standard deviation below the level of intellectual functioning based on accepted measures of academic achievement (Levine, 1987). The disability does not include children with a behavioral/emotional problem (e.g., depression, immature behaviors) or sensory impairment in either vision or hearing. The key determination of this diagnosis is that "the child does not achieve commensurate with his or her age and ability

levels---when provided with learning experiences appropriate for the child's age and ability levels" (Psychological Corporation, 1992, p.185).

Self-Concept/Self-Esteem

Numerous studies have explored self-concept and self-esteem in the learning disabled population (e.g., Battle, 1991; Black, 1974; Huntington & Bender, 1993; Kistner, Haskett, White, & Robbins, 1987; Renick & Harter, 1989) with discrepant findings. Examination of the studies revealed a variety of test measures often based on differing theoretical premises, and disparate methodology in the identification of children with learning disabilities and the reporting of such data (Chapman, 1988).

Early research with children identified as reading retarded found significant differences between the self-concept of these children and a control sample (Black, 1974). Silverman & Zigmond (1983) concluded that the self-concept of adolescents (n=159) in a LD group did not differ from those of adolescents in the normative sample for the Piers-Harris Children's Self-Concept Scale or from a control group (n=10). While some studies using global measures reported that children in their elementary school years experienced lower global self-concepts than their normally achieving peers (DeFrancesco & Taylor, 1985; Rogers & Saklofske, 1985), others, using measures which calculated subscales, found significant differences between groups in academic or cognitive self-concept values (Winne, Woodlands & Wong, 1982). Later studies supported the conclusion that learning disabled students in the elementary school years do not differ in their self-concept from normally achieving students other than in the area of cognitive abilities (Cooley & Ayres, 1988; Kistner et al., 1987).

In summary, learning disabled students from Grade 3 to high school have lower self-concepts than their

normally achieving peers in academic self-concept. In these older children, lowered self-concept scores are associated with ability/effort attributions (Cooley & Ayres, 1988). Maladaptive attributional patterns and external locus of control beliefs are predictors of achievement failure, and potential emotional and behavioral problems (Huntington & Bender, 1993). Rogers and Saklofske (1985) conclude that "only general and academic locus of control and academic self-concept were found to be significant predictors of the extent to which learning disabled children were successful in their academic programs" (p. 276). Early identification of those children at risk is important when helping children to develop strategies which facilitate achievement of their maximum learning potential.

Little research has been conducted with younger LD children. One study, exploring the self-perceptions of children in the first and second grade (Priel & Leshem, 1990) reported significantly lowered self-competence scores in the academic content area for LD children. They found no differences between groups in the area of social support.

Self-Concept/Self-Esteem in the Child with a Developmental Coordination Disorder

Developmental Coordination Disorder (DCD) - A Definition

Increasing interest has been demonstrated in the child "who lacks the motor competence necessary to cope with the demands of everyday living" (Henderson, 1994, p. 111). This impairment impacts on the child's ability to perform such functional activities as printing or engaging in age appropriate games with a motor component (Levine, 1987). Occupational therapists see many of these children. Over the years a number of terms have been applied to such difficulties; perceptual motor

dysfunction, physical awkwardness, clumsy child syndrome, dyspraxia, non-verbal learning disability and as of late, Developmental Coordination Disorder (Fox & Polatajko, 1994; Henderson, 1994; Smyth, 1992). Motor coordination impairment, as described in this paper, meets the criteria of Developmental Coordination Disorder (DCD), (American Psychiatric Association, 1994) as recently adopted during an inter-disciplinary, international, consensus meeting (Fox & Polatajko, 1994). This label is applied to the child who has difficulty in acquiring functional skills which are dependent on motor movements. Such children have at least average cognitive potential and do not experience neurological or gross sensory deficits which might otherwise explain the motor incoordination observed. Neither is the impairment in the quality of skilled movement a function of age.

The reported incidence of coordination impairments (including DCD) varies between 2% and 10% of school aged children (Henderson & Hall, 1982; Smyth, 1992; van Dellen, Vaessen, & Schoemaker, 1990) which is a significant number of children. Most incidence studies have been based on screening procedures conducted within school settings by trained professionals. Without the benefit of special education, teachers are less likely to relate problems in academic performance to impaired motor skills (Henderson & Hall, 1982). Therefore, the referral rate for children with DCD may be much lower than the actual incidence rate based on screening of all children.

Self-Concept/Self-Esteem

Until recently, DCD was rarely viewed as a concern. Traditional beliefs existed that as the child grew older, motor incoordination would have less and less impact on the child's life and the child would grow out of these difficulties. Current longitudinal studies reveal that coordination problems continue to be observed into the adolescent years (Cantell, Smyth & Ahonen, 1994; Geuze &

Borger, 1993; Gillberg, Gillberg & Groth, 1989; Losse et al., 1991). Not only do the problems created by the motor skill deficits continue, but there are more pervasive issues. Social and emotional concerns are reported which further impede the child's ability to function effectively in his/her environment (Geuze & Borger, 1993; Gillberg & Gillberg, 1989; Kalverboer, Herlindis & Theo,1993; Losse et al., 1991; Smyth, 1992). Children with coordination impairments also tend to display a higher incidence of hypoactivity and engage less frequently in physical activity (Bouffard, Watkinson, Thompson, Causgrove Dunn, & Romanow, 1996; Cantell et al., 1994; Hay, 1992). Hay (1992) reports that such children "are at significant risk of obesity and its related health difficulties" (p. 198). The establishment of early factors which contribute to such outcomes is therefore an important objective.

Self-concept/self-esteem have been shown to be related to ability attributions, locus of control beliefs and motivational patterns which in turn predict achievement and social/emotional behaviours. Schoemaker and Kalverboer (1994) report not only social and affective problems in young children demonstrating coordination impairments but also, lower perceived competence values, an antecedent of self-esteem (Harter, 1983, 1985). Although a correlation between perceived physical competence and the degree of physical awkwardness was found in Grade 3 children, this was not the case for older children in Grades 4-6 (Causgrove Dunn & Watkinson, 1994). Positive perceived competence values, reported by children in Grades 5 and 6, were attributed to the differing sources of comparative standards. The authors suggested that older children may utilize self-evaluative information versus peer comparison. Physically awkward children's perceptions of

competence were not compared to those of normally achieving children in this study.

Study results exploring perceptions of competence in DCD children are inconclusive. Although social, emotional and behavioral problems have been reported in older children with DCD, the cause of these problems are not well understood. Perceptions of physical competence have received limited study. Young children seem to report low physical competence perceptions. One would expect a pattern of perceived competence, ability attributions, motivation and achievement similar to that found in LD children. Further study is needed to explore these relationships.

There has been little study of the effect of combined LD and DCD on self-esteem. One study by Shaw, Levine and Belfer (1982) suggested that the coexistence of a motor coordination impairment in learning disabled boys of 8 to 12 years compounds the problems pertaining to emotional well-being and self-concept. These authors conclude that "a child's mastery over his own body and, in turn, its efficacy in the physical-spatial world represent important elements of function that contribute to self-esteem and social adjustment" (p. 195).

In summary, perceived competence has not been explored in the young school aged child with DCD and LD. The studies reviewed here did not differentiate between children with a learning disorder and those with a motor coordination impairment. With the exception of the study by Shaw, Levine and Belfer (1982) the impact of both a learning disorder and a motor coordination impairment was not explored.

Implications for Further Research

Lower self-concept/self-esteem has been associated with an individual's sense of well-being and productivity. It is important to identify populations at risk for low self-esteem or related antecedent factors so that suitable interventions can be developed which will enhance these children's achievement behaviors or prevent subsequent emotional problems.

Children with learning disabilities, in general, have low perceived competence and self-concept/self-esteem in academic content areas. A limited number of studies have been conducted with the child with DCD. The relationship between DCD, LD and perceived competence or content specific self-esteem in the young school aged child has not been explored.

Self-esteem has been identified as a multi-faceted, hierarchical construct. Young children, in Grades 1 and 2, describe themselves in terms of what they can do (e.g., running, reading, etc.). Competence has been identified as an antecedent of self-esteem. A child of this age evaluates competence within the content areas of academic skills and physical skills. Social acceptance, the influence of significant others, is a second antecedent of self-esteem. Parental attitudes are expected to be a salient factor in a young child's perception of self. Neither moral worth or locus of control are believed to affect the formation of self-evaluative attitudes of young children.

There is a lack of literature related to young children and perceived competence. Further study in this area is needed. Issues related to measuring perceived competence are explored in Chapter 2. In Chapter 3, a study of perceived competence in young children with LD or DCD is reported. Findings related to perceived

competence and parental feedback are also reported. Directions for future work are explored in Chapter 4.

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Chapter 2
Stability of Competence Perceptions in Young School-Aged Children

The relevance of self-esteem to the profession of occupational therapy has been documented (American Occupational Therapy Association, 1988; Canadian Association of Occupational Therapists, 1990; Mayberry, 1990). Perceived competence has historically been acknowledged as a significant factor influencing self-esteem (Coopersmith, 1967; Harter, 1978, 1983; James, 1963). However, it is only of late that the role of perceived competence in the enhancement of occupational performance has been addressed (Christiansen, 1991). Perceived competence is defined here as an individual's perception that he/she has successfully mastered the skills necessary to meet environmental demands.

Perceptions of competence not only affect an overall sense of well-being or self-esteem, but also directly influence occupational performance. In conceptualizing occupational functioning, Trombly (1993) stated "The overall goal of occupational therapy is to enable the client to gain a sense of efficacy. When a person feels competent, he or she is most likely to esteem himself or herself" (p. 254). The Canadian Occupational Performance Measure (COPM) utilizes the client's perceptions of competence across performance areas to both direct the intervention process and to measure performance outcomes (Law et al., 1990). Measurement of perceived competence provides the therapist with information salient to the development of intervention goals, the documentation of intervention outcomes and the enhancement of perceived competence and self-esteem. This paper focuses on measures of perceived competence for the young school-aged child.

Current researchers postulate that self-concept/self-esteem are part of a multi-faceted, hierarchical framework (Harter, 1978; Marsh & Shavelson, 1985; Shavelson, Hubner, & Stanton, 1976). As an antecedent of self-esteem (Coopersmith, 1967; Harter, 1978, 1983), perceived competence is measurable across varying facets or content areas. For the young child, important areas to measure are academic and physical competence. He or she needs to succeed in both school-related activities, and on the playground or during leisure pursuits.

Few acceptable measures addressing the construct of self-concept/self-esteem or related antecedent factors such as perceived competence have been developed for young school-aged children (Hughes, 1984; Wylie, 1984). Inadequate theory conceptualization, and more specifically lack of clarification between constructs, has resulted in inadequate instrument development. Measurement of global versus content specific self-concept/self-esteem must be a consideration. Further problems of instrumentation for the young child involve cognitive and academic development (e.g., language abilities, reading ability, attention). The Scale of Perceived Competence and Social Acceptance for Young School Aged Children (PCSA)(Harter & Pike, 1984) was designed for use with children ages 4 to 7 with thought to these theoretical and developmental issues. It is unique in its inclusion of items specific to competence across content areas. Although this measure is widely used (e.g., Priel & Lesham, 1990; Schoemaker & Kalverboer, 1994) test-retest correlations are inconclusive. Holguin and Sherrill (1990) found acceptable reliability (.76 to .92) for a sample of learning disordered boys (n=30) with a mean age of 8.5 years. They did not specify the time frame over which the test had been administered. Based on a longitudinal

study of a total school sample of children (n=294), relatively low correlation coefficients (.23 to .51) were reported when the PCSA was administered in the spring of Grade 1 and again in the spring of Grade 2 (F. Morrison- personal communication, May, 1996). A second scale, the All About Me (AAM)(C. Missiuna- personal communication, June, 1994), measures perceived competence of physical abilities in the young child. No test-retest reliability information has been reported for this relatively new scale.

"A basic consideration of the quality of a measurement instrument is the consistency with which the instrument measures what it is supposed to measure, or its reliability" (Flanery, 1990, p. 65). Test-retest correlations have "important implications for evaluating individual and group changes over time or as a function of intervention" (Wylie, 1984, p. 51). Although the PCSA has been recommended for research purposes, caution is advised due to the limited information regarding normative data, reliability and validity (Michael, 1990). Further research would add to the information available regarding the AAM. A measure of test-retest reliability would assist in clarifying the stability of perceived competence self-report judgments in young children. Acceptable reliability coefficients would support use of the scales as guidelines for intervention and as outcome measures for individual or program evaluation. Therefore, the principal purpose of the present study was to determine the test-retest reliability of two measures of perceived competence; the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA) and the All About Me (AAM). As perceived competence of physical abilities, the basis of the AAM, is one content area of the PCSA, the relationship of the two measures to each other was also examined.

In children, development is a naturally occurring phenomenon which is expected to affect assessment results. Psychometric versus true instability becomes an issue (Flanery, 1990; Harter, 1990). Changes in scores over time may be a reflection of developmental change rather than an indication of the measure's lack of stability. The instrument may be reliable, but the construct being measured may be unstable over time. Therapists and researchers must be cognizant of this issue when using measures repeatedly for such purposes as individual or program evaluation. The time between tests must be short enough to eliminate developmental change as an explanation for differences or a control group must be used. However, the time cannot be so short that children recall their previous answers. In this study, two weeks was chosen as the interval between repeat administrations.

Because generalizability of measures to special populations is a concern (Harter, 1990; La Greca, 1990) test-retest reliability was examined using a sample of children with delays/difficulties. Most measures are normed only on a population of children who have average abilities. Occupational therapists are involved with children whose problems in occupational performance impact on their ability to function effectively in meeting environmental demands. The very nature of the problem such as a learning disability, may mean that the measure is not as accurate or stable for the population in question because of associated conditions (e.g., impaired language comprehension).

Method

Participants

The sample was one of convenience drawn from children in Grades 1 and 2 who had attended or were attending a segregated, school based short-term

intervention program due to difficulties in the areas of language development and/or mild motor impairment. Children with such delays were chosen because they typify the population of children referred to occupational therapists for assessment/intervention purposes. Children were included if they spoke English as a first language and had no neurological conditions, visual or auditory impairments, or emotional problems. Children with a full scale IQ of 80 or less on an individually administered standardized cognitive measure were excluded. Silon and Harter (1985) have reported that the self-perceptions of children with an IQ from 55-85 are less complex than children with higher IQs. Consent was given for 24 children to participate in the study; 7 girls and 17 boys. The average age was 6.9 years. Based on chart review, 13 children had language delays and 11 had language delays with mild motor impairment.

Measures

The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA) (Harter & Pike, 1984) was developed as a measure of perceived competence and social acceptance both of which are viewed as antecedents of self-concept/self-esteem (Coopersmith, 1967). Utilizing a multi-faceted hierarchical theoretical framework, the authors sought to develop a measure which would assess self-perceptions across content areas meaningful to the age-specific environment of the 4 to 7 year old child. Children in this age range begin to organize their environment through concrete classification systems (Piaget & Inhelder, 1969) and describe themselves in terms of their skills (Harter, 1983). Two sets of items were created to allow for developmental changes; one for the pre-school/ kindergarten child, another for the child of Grade 1 and Grade 2. Four content areas were considered pertinent to the young child's developing concept of the self:

cognitive competence, physical competence, peer acceptance, and maternal acceptance. These became the PCSA subscales. The scale does not purport to measure self-concept or self-esteem although it assesses antecedents of these constructs (Harter & Pike, 1984).

The scale is administered on an individual basis. Each PCSA subscale has six items presented as line drawings which are gender specific. The responses are made on a 4 point Likert scale: not very good (1), sort of good (2), pretty good (3), really good (4). The child is shown two drawings of a child engaged in an activity. In one drawing the child is successfully completing the task (e.g., reading by him/herself). In the second drawing the child is experiencing obvious difficulty with the activity. The test administrator asks the child to indicate "Which one is most like you?" The administrator then asks "Are you not very good or sort of good?" or "Are you pretty good or really good?" Small and large circles provide the child with a visual representation of the responses. Within each content area, total raw scores may range between 6 and 24.

Harter & Pike (1984) do not describe the test development other than assuring the user that it "has undergone numerous revisions in terms of scale structure, item content, and question format, based on extensive piloting with large numbers of subjects (p. 1971). A description of the final standardization sample is provided (Harter & Pike, 1984). It included 90 preschoolers, 65 first grade children and 44 second grade children. Groups were equally divided for gender. Most of the sample were Caucasian (96%). All attended schools in middle class neighborhoods.

Cronbach alphas for first and second grades were .76 for cognitive competence, .53 for physical competence, .79 for peer acceptance and .74 for maternal acceptance. Exploratory factor analysis supported a two factor model,

one for competence and the other for acceptance. Discriminant validity studies were conducted. The authors found that cognitive competence scores of 12 children repeating Grade 1 were significantly lower than those for normally achieving peers. The physical competence scores of 8 children, who had been born pre-term and were rated as having low physical competence by their teachers, were significantly lower than scores of a sample of full-term children (n=14). Ten children new to a school had lower scores on perceived peer acceptance than a comparison group. Correlations between teachers' ratings and children's ratings for the competence factors were higher within subscales than across subscales (e.g., physical/physical versus physical/cognitive). Although correlations were identified as "significant" (Harter & Pike, 1984, p. 1979), they were not strong (cognitive=.37; physical=.30). When the data was further examined, the authors did find that children, who were identified by their teacher to be at the upper or lower quartiles of the range, differed significantly in their perceptions of cognitive competence.

The All About Me (AAM) was developed to provide a more precise measure of perceived motor competence (C. Missiuna,- personal communication, April, 1994). Utilizing the same forced choice pictorial format of the PCSA, the AAM includes 12 items which portray gross motor abilities and 12 items indicative of fine motor abilities. Pictures are non-gender specific. For example, one item depicts a child who is engaged in cutting with scissors and another depicts a child kicking a ball. The same administration procedures are used for both the PCSA and the AAM although verbal directions vary somewhat. After the child chooses a drawing, the administrator asks "Are you a little like this child or a lot like this child?". Due to the increased number of items (24 versus 6 on the PCSA physical subscale), this

scale may be a more accurate representation of children's perceived competence in the physical domain.

The scale used in this study is the Development Edition (C. Missiuna- personal communication, June, 1995). Using a sample of 24 motor impaired children, 24 age-matched children, and 24 normally achieving children matched to the motor impaired children on motor abilities, Missiuna found perceived competence for the motor impaired group was two standard deviations lower than either control group for both fine and gross motor sub-tests. Results of reliability studies for the AAM have not been reported.

Procedure

The children were assessed in their home (n=21) or at school (n=3) in a quiet area. The PCSA was given first followed by the AAM. The standard directions for administration were used. The time between tests ranged from 10 to 22 days (M=14.7, SD=3.0).

Data were analyzed using SPSS for MS Windows, Release 6.0. Means were calculated and tested to see if they differed significantly from Time 1 to Time 2. Significance levels were set at $p<.01$ to correct for chance when using multiple t-tests (Ottenbacher, 1983). Pearson product moment correlations were used to measure test-retest reliability. For clinical use, .80 is generally accepted as representing good reliability (Flanery, 1990; Law, 1987).

Results

For the PCSA, using paired t-tests, there was no significant difference between the scores for Time 1 and Time 2 for any subscale. As shown in Table 2.2, the cognitive subscale had the highest correlation between times and was at a good level (r=.81). The physical and peer subscales are acceptable but markedly lower.

The PCSA has been identified as having a two factor structure; one of which is composed of the two competence subscales, and the other composed of the two acceptance subscales. The test-retest reliability for the combined competence scales is higher than for the combined acceptance scales. Both the competence and acceptance scales show higher test-retest reliability than the subscales of which they are composed.

For the AAM, there was no significant difference between the scores for Time 1 and Time 2. As shown in Table 2.4 correlation values approached accepted levels of .80 (Law, 1987). Correlations were computed to compare the AAM-Total score with the PCSA scores. The AAM-Total score had a higher correlation with the PCSA physical subscale than with the other PCSA subscales (See Table 2.5). The AAM-Total score was most highly correlated with the PCSA competence score (r=.80).

Discussion

Over a short time interval the PCSA demonstrated moderate to good test-retest reliability. The cognitive competence subscale and the combined competence subscale reached the generally accepted level of .80 for clinical use (Flanery, 1990; Law, 1987). The physical competence, peer acceptance, and the combined acceptance subscales achieved moderate reliability. These scales should be used with caution by the clinician who is trying to measure change over time with individual children.

In general, the competence subscales of the PCSA were found to be more stable than the acceptance subscales. Self-perceptions of competence may be made on the basis of more stable feedback than self-perceptions involving social acceptance. It is hypothesized that children base their self-perception judgments on feedback from parents or other significant persons and/or on peer comparison (Harter, 1990). Perceptions involving skill

attainment or competence (e.g., good at writing words, good at bouncing a ball) may be based on more explicit feedback from significant others than those related to the quality or quantity of social relationships (e.g., identifying whether one has hardly any or a whole lot of friends to play with on the playground). The criteria on which children would compare their own performance to that of a peer would also appear to be more objective for skills involving competence versus acceptance behaviors. This may explain the greater stability of the competence subscales of the PCSA. Because of the greater stability, occupational therapists, wanting to identify treatment needs and intervention outcomes related to occupational performance, should consider the cognitive or the physical competence subscale for clinical use. Interpretations of changes in these scores would be more reliable.

All the AAM scores had moderate to good reliability. As expected, the AAM-Total score demonstrated a stronger relationship to the PCSA physical and combined competence subscales than the other PCSA subscales. The AAM was developed as a more comprehensive measure of perceived competence of physical abilities. A scale with more items is at less risk of sampling error due to extreme scores (Glass & Hopkins, 1984). As there are more items in the AAM subscales, one would expect that it would demonstrate stronger reliability. As expected, the AAM subscales all show greater stability than the PCSA physical subscale. Findings from this study support use of the AAM as a stable measure of perceived competence over short time frames.

Overall, reliability coefficients are comparable to those found in other self-concept/self-esteem measures (Hughes, 1984) with samples of children at similar ages. The results of this test-retest reliability study of the PCSA and the AAM provide moderate to good support for the

use of these instruments as measures of perceived competence.

Mean values for both measures support earlier reported findings of positive bias in young children (Harter & Pike, 1984; F. Morrison, personal communication, May, 1996; Priel & Lesham, 1990). Children of this age appear to see themselves as very competent. High mean values in measures have implications for the use of such measures as a determination of intervention outcome. Mean values which are high are less likely to reflect true change due to ceiling effects. For this reason, both the PCSA and the AAM should be used with caution as measures of outcome.

Development in young children results from both physical and cognitive change. Physical development affects the quantity and quality of skill attainment. Cognitive development affects the complexity with which children regard abilities (Harter, 1983). Measures such as the PCSA may not prove to be stable across longer time frames because of these factors. Low reliability coefficients reported by Morrison (F. Morrison, personal communication, May, 1996) support this position. The PCSA was administered in the spring of Grade 1 and again one year later. Unlike our short term data where cognitive competence was the most stable, cognitive competence was the least stable (r=.23) and physical competence, the most stable (r=.51). Development and education experiences may account for this disparity of findings.

Research indicates that younger children may make achievement related self-perceptions based on differing information than older children. Children as young as Grade 2 have been found to use peer comparison as a basis of self-judgment whereas children in Grade 1 did not (Ruble, Boggiano, Feldman, & Loebl, 1980). In their test-retest study of the PCSA, Holguin and Sherrill

(1990) used an older sample of children (mean age=8.5 years) than intended by the test developers. They also did not report the time interval between administration of the measures. The high correlations found are difficult to interpret, and thus use in practise, because of the limited information provided regarding the study. High correlations may be a product of either shorter time intervals or cognitive maturation.

Further research is needed, but the combined findings of these studies would suggest cognitive maturation may alter the basis on which young children make self-perception judgments. This results in altered stability within measures across increasing time frames. While a finding of test-retest reliability over short time intervals supports use of the measure to provide information related to the development of intervention goals and to the enhancement of perceived competence, it does not ensure support for the use of these measures for the documentation of intervention or program outcomes over longer time periods.

The PCSA and the AAM proved to have adequate reliability for a sample of children with language and/or mild motor impairment delay/disorder. This is an important finding for therapists who are assessing or treating children with mild impairments in occupational performance. Few studies have been conducted with samples of special needs children. Acceptable reliability over time adds support to the generalizability of the PCSA and the AAM to a population with language and/or mild motor impairments/delays.

Implications for Occupational Therapy

In collaboration with the client, occupational therapists seek to identify deficits in occupational performance and to assist the client in facilitating and maximizing competence in those areas through

intervention. Measures such as the PCSA and the AAM aid the therapist by providing information regarding client perceptions of competence.

The results of this test-retest reliability study of the PCSA and the AAM provide moderate to good support for the use of these instruments. Perceptions of competence appear to be a stable attitude of the young child with language and/or mild motor impairment over short time frames. Administration of these measures will assist the therapist in identifying children's perceptions of performance deficits and add to information regarding the child's overall sense of well being. Caution is advised in using such measures for the purpose of individual or program outcomes. Care must be taken when using these measures with individual children as the standard error is relatively large. For program outcomes high positive mean scores may limit the ability to detect true change. Results of this and related studies suggest that over long time frames the construct of perceived competence may alter resulting in measurement instability.

Generalizability of the study is limited by a relatively small sample and the inclusion of children with language and/or motor impairments. Replication with a larger sample would support current findings regarding the stability of the measure. Further studies involving a normative sample would add to the information available regarding the stability of children's self-perception judgments over shorter time frames than one year.

Studies of construct and predictive validity are needed to ascertain the role of these measures in identifying populations at risk for low perceived competence. Further studies are needed to investigate the relationship between perceptions of competence and behavioral/emotional patterns.

Table 2.1

Means and Standard Deviations for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children

Subscale	Time 1 Mean(SD)	Time 2 Mean(SD)	Normative Values
Cognitive competence	3.07(.64)	3.24(.68)	3.4(.35)
Physical competence	3.29(.54)	3.21(.54)	3.4(.39)
Peer acceptance	2.92(.71)	2.92(.82)	3.1(.55)
Maternal acceptance	2.81(.51)	2.57(.61)	2.8(.58)
Competence	3.18(.51)	3.22(.58)	
Acceptance	2.86(.56)	2.75(.64)	

Table 2.2

Test-Retest Reliability Correlation Coefficients-Pictorial Scale of Perceived Competence and Social Acceptance for Young Children

Subscale	Correlation Value
Cognitive competence subscale	.81
Physical competence subscale	.69
Peer acceptance subscale	.69
Mother acceptance subscale	.62
Competence subscale	.86
Acceptance subscale	.76

Table 2.3

Means and Standard Deviations for the All About Me

Subscale	Time 1 Mean(SD)	Time 2 Mean(SD)	Normative Values
Fine motor	3.46(.43)	3.42(.41)	3.62(.31)
Gross motor	3.30(.49)	3.17(.51)	3.49(.28)
Total	3.38(.41)	3.31(.44)	3.55(.24)

Table 2.4

Test-Retest Reliability Correlation Coefficients-
All About Me

Subscale	Correlation Value
Fine motor	.76
Gross motor	.79
Total	.77

Table 2.5

Correlation Values between the All About Me (Total Score) and the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children

Subscale	Time 1	Time 2
Cognitive competence subscale	.64	.62
Physical competence subscale	.77	.76
Peer acceptance subscale	.55	.60
Mother acceptance subscale	.51	.50
Competence subscale	.80	.79
Acceptance subscale	.57	.62

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Chapter 3

Perceived Competence in Young Children with Motor and Learning Difficulties

Self-esteem affects both behavior and psychological well-being. Because low self-esteem is known to be associated with lower achievement, anxiety and depression (Battle, 1991; Brooks, 1992), identification of populations at risk is important. Current theoretical models of self-esteem in childhood hypothesize the development of a hierarchical, multi-faceted construct which evolves through a process of differentiation (Harter, 1978, 1983, 1985; Marsh & Shavelson, 1985; Shavelson, Hubner & Stanton, 1976). It incorporates such role related facets or content areas as physical abilities, academic performance and social relationships. Self-esteem may be measured within a specific content area or from a global perspective.

Self-esteem of children with learning disabilities has been a frequent topic in the literature (e.g., Battle, 1991; Black, 1974; Huntington & Bender, 1993; Kistner, Haskett, White & Robbins, 1987; Renick & Harter, 1989). A learning disabled child (LD) is defined as the child who "does not achieve commensurate with his or her age and ability levels...when provided with learning experiences appropriate for the child's age and ability levels" (Psychological Corporation, 1992, p. 185). Current research suggests that children with LD in Grades 3 and beyond report lower self-esteem specific to academic achievement. Such content specific self-esteem not only impacts general well-being or global self-esteem, but also is directly related to behavior (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995).

Children who have deficits in occupational performance related to motor skill acquisition, diagnosed as Developmental Coordination Disorder (DCD), have

learning related difficulties. Such motor skill deficits result in impaired functioning in day to day activities such as fastening clothing, learning to print or throwing a ball (Henderson,1994; Levine, 1987). Until recently this problem was rarely viewed as a concern. However, recent research indicates that motor skill performance deficits continue to be observed into the adolescent years (Geuze & Borger, 1993; Losse et al., 1991). A more pervasive concern is that these children also show an increased incidence of social and emotional problems (Geuze & Borger, 1993; Gillberg & Gillberg, 1989) as well as physical hypoactivity (Bouffard, Watkinson, Thompson, Causgrove Dunn, & Romanow, 1996; Hay, 1992). Such behavioral and psychological manifestations are suggestive of low content specific self-esteem or low specific and global self-esteem (Rosenberg et al., 1995). Few studies have measured self-esteem in children with DCD. Shaw, Levine and Belfer (1982) found lower self-esteem in a group of 8 to 12 year old boys with a learning disability accompanied by a motor coordination impairment than in a group of boys with only a learning disability. Further, the boys with the accompanying motor coordination impairment also reported more negative evaluations of their peer relationships.

Competence and acceptance are viewed as two of the contributing factors to a global sense of self-esteem. The influence of each factor is observed across role related content areas. Self-esteem is not a summation of these factors (Rosenberg, 1979), but is based on the degree of importance an individual attributes to a particular content area (James, 1890/1963; Rosenberg, 1979). As such, measurement of relevant antecedent factors provides information salient to self-esteem issues.

Perceptions of competence and acceptance are viewed as the antecedents to self-esteem most relevant to

children, particularly younger children (Harter, 1983). Few studies have explored perceived competence in the LD and DCD population. Kistner et al. (1987) reported lowered perceptions of cognitive and physical competence in a group of LD children in the middle school years when compared to normally achieving children. No difference in social acceptance was found. Lower perceived physical competence was related to greater motor impairment for children in Grade 3 but not Grade 4 as measured by the Test of Motor Impairment (TOMI) (Causgrove Dunn & Watkinson, 1994). For children in Grades 5 and 6 higher perceived physical competence was associated with greater motor impairment. The authors attributed this discrepancy to differences in the basis of self-perception judgments across this age span. For example, older children may have used self-evaluative strategies, such as "I try hard", rather than peer comparison. Use of an altered comparative basis may be a mechanism which serves to maintain positive perceptions of competence relative to the child's physical ability. The perceived competence of these physically awkward children with motor impairments was not compared to that of normally achieving children. Results of these studies which explore competence perceptions are inconclusive. Further study of perceived competence may provide a better understanding of the social and behavioral problems presented by some children with DCD.

Few North American studies have focused on perceived competence of the child in Grades 1 and 2. Impairments in cognitive and physical abilities are felt to be particularly important to the young child due to age specific environmental demands (Harter, 1983). Significantly low perceptions of cognitive competence were reported in a sample of 44 LD Israeli children, ages 6.5 to 7.5 years old, when compared to a normally achieving group of 36 children (Priel & Lesham, 1990).

For both groups, cognitive competence was not significantly correlated with achievement scores. There were no significant differences between groups in perceptions of physical competence or peer acceptance although the LD group's scores were lower. Schoemaker and Kalverboer (1994) found that 18 Dutch children, ages 6 to 9 who were clumsy (as determined using the TOMI) had lower perceptions of physical competence when compared with a matched group of children with average physical skills. Perceptions of peer acceptance were lower for the clumsy group. Perceptions of cognitive competence were not measured. The correlations between TOMI scores and perceived physical competence were not significant but in the expected direction ($r = -.32$). These two studies provide limited support for the premise that children as young as Grade 1 and Grade 2 report low self-perceptions related to impaired abilities.

Although factor analysis demonstrated that young children differentiate between perceptions of competence and acceptance, it did not support the ability of children to make content specific perceptions of competence (Harter & Pike, 1984). Clarification of whether a child differentiates self-perception judgments across content areas is salient to prevention and intervention strategies for children at risk of developing more pervasive problems such as children with LD or DCD. Determining whether the child with Developmental Coordination Disorder develops a self-evaluative pattern which differs from a child experiencing a learning disability would provide valuable information about how a child differentiates between areas of competence.

Parent-child relationships, and hence, parent attitudes regarding the developing child are viewed as a significant influence in the development of content specific and global self-esteem. Although peer

comparison is a source for comparative standards on which perceptions are based, they do not appear to have a strong influence in the early school years in children younger than ages 7 to 8 (Ruble, Boggiano, Feldman & Loebl, 1980). Graybill (1978) reported a positive association between high self-esteem and maternal acceptance. Morvitz and Motta (1992) observed a high correlation between children's self-esteem and children's perceptions of maternal and paternal acceptance. Utilizing a goodness of fit model, Feagans, Merriwether and Haldane (1991) explored the relationship of maternal expectations in the home to school achievement. Children who displayed characteristics which did not fit the family's expectations for them demonstrated lower achievement behaviors. Limitations of this study such as failure to obtain teacher perceptions of the child's behavior are acknowledged by the authors. Stronger support for parent/child, expectancy/performance discrepancies was found by Smith, Zingale & Coleman (1978). Low achieving children were found to have lower self-concepts when they were from high socio-economic backgrounds than when they were from low socio-economic backgrounds. The researchers attributed this to the discrepancy between parental expectations and achievement.

Based on these studies, it was hypothesized that children with less ability would have lower perceived competence when parents had high expectations for the child in that content area. Parents who perceive a content area as high in importance presumably project higher expectations on the child due to effects of reinforcement and modelling behaviors. Harter (1978) hypothesized that reinforcement, by defining success and failure, serves to identify the important elements for the child. Furthermore, in praising or otherwise rewarding the child, the parent models behaviors and

emotions which the child later internalizes as a self-reward system.

In summary, productivity and psychological well-being are associated with content specific and global self-esteem. Perceived competence is an antecedent to such self-esteem perceptions. The productivity and sense of well-being of individuals who show low perceptions of competence may also be at risk. In general, children with LD have low perceived competence and content specific self-esteem. Few studies have been conducted in this area with DCD children, although there is limited support that DCD negatively impacts on competence perceptions and self-worth of children. Perceived competence in the young school aged child with LD and DCD has not been explored. Parental attitudes have been identified as one intervening factor which influences perceived competence.

In this study, the perceived competence of two groups of Grade 1 and 2 students who differed in learning and physical competencies were compared in order to determine if perceptions were related to abilities. Because children of this age have a high need for physical skills, it was hypothesized that the groups would be significantly different in the pattern of self-perceptions in the content areas of physical and cognitive competence.

In children of this age, parental attitudes were expected to be a significant factor. As a secondary objective, parental perceptions of the importance of the child's success in the academic and physical areas were measured and compared to the perceived competence of the child in the same areas. It was postulated that children whose parents attributed higher importance to skills within a domain in which the child had decreased competency, would report lower perceived competence in that area.

The specific research hypotheses examined were:

1. The perceived cognitive competence of children with LD is significantly lower than that found in the normative sample of the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA).
2. The perceived physical competence of children with DCD is significantly lower than that found in the normative samples of the PCSA and the All About Me (AAM).
3. The perceived physical competence of children with DCD is significantly lower than that found in the LD group.
4. Perceived importance of the academic domain to the parent contributes significantly to the child's perceived competence in that same domain.
5. Perceived importance of the physical domain to the parent contributes significantly to the child's perceived competence in that same domain.

Method

Participants

Informed consent was received from a convenience sample (n=36) of parents of Grade 1 and 2 children. Thirty-four children were recruited from a population of children referred to an outpatient clinic for a multi-disciplinary assessment which included an occupational therapy assessment. Referrals were made due to suspected learning difficulties. Two children had been admitted to a short term diagnostic/intervention school based program for children with learning difficulties. Twenty-two boys and 14 girls participated in the study. The cognitive abilities of all children were at least within the Low Average range (IQ = 80+) based on assessments completed by a qualified psychologist using the Wechsler Intelligence Scale for Children-III (WISC-III)(Wechsler,

1991) and the Wechsler Preschool and Primary Scale of Intelligence - Revised (WPPSI-R)(Wechsler, 1989). One child had been given the fourth edition of the Stanford-Binet Intelligence Scale (Binet)(Thorndike, Hagen & Sattler, 1987). Only the range of cognitive abilities was available for 3 children. For these children, the mean score for the range was used.

Children were divided into groups based on academic achievement and motor abilities. One group (n=13), with 7 boys and 6 girls, met the commonly accepted criteria for learning disability (LD) and did not meet the criteria for DCD. The children had average cognitive ability based on results of the WISC-III, the WPPSI-R, or the Binet and an academic achievement/intellectual functioning discrepancy of at least minus one standard deviation based on an accepted measure of academic achievement, the Wechsler Individual Achievement Test (WIAT). The WIAT (Psychological Corporation, 1992) has been correlated with the WPPSI-R, and the WISC-III to determine the ability-achievement discrepancy. Actual achievement is compared to the expected achievement level based on cognitive ability. Children were identified as learning disabled if they showed the predicted ability-achievement discrepancy in reading, spelling or mathematics. Ability-achievement discrepancy between the WIAT and the Binet was determined using a similar one standard deviation difference. Children with a behavioral/emotional problem (e.g., depression, immature behaviors) or sensory impairment in either vision or hearing were excluded. Children for whom English was a second language were excluded due to the potential difficulties with language and comprehension. One child with a diagnosis of neurofibromatosis was included. Learning difficulties frequently found in neurofibromatosis are consistent with the criteria of a learning disability (Stine & Adams, 1989).

The second group (n=10), 6 boys and 4 girls, was children who met the criteria for DCD described by the American Psychiatric Association (1994) and The London Conference (Fox & Polatajko, 1994). These children had deficits in age appropriate motor based functional abilities which were not explained by neurological impairment, gross sensory deficit or impaired cognitive abilities. Assignment of the child to the DCD group was based on a combination of standardized assessments and observation of impaired functional performance as recommended by Missiuna and Pollack (1995). Observational reports of impaired functional performance were obtained from parent and teacher questionnaires which accompanied the initial referral. To be included in the DCD group, children had to have motor skill deficits as determined using the short form of the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP);(Bruininks, 1978), a standardized developmental assessment of both gross and fine motor skills. Scores at or below the 23rd percentile are equivalent to one standard deviation below the mean and are described as below average motor performance. Seven children fell within this range. Three more children scored in the borderline range (24th to 27th percentile) and were included in the DCD group based on parent and teacher reports of impaired functional performance, one of the emphases of the DCD diagnostic criteria. One child's motor abilities had been assessed in the community prior to the clinic referral. Only the fine motor subscale score was known. This score, which was lower than one standard deviation below the mean and therefore, below average, was used in conjunction with clinical observations of functional performance as inclusion criteria.

Five children, 3 boys and 2 girls, met the criteria for both the LD and DCD groups. These children were not

included in either group as having limitations in both academic and physical areas may affect perceptions in a different manner than having impairments in only one area. Descriptive information is provided for this group of children with LD and DCD.

Another group was 8 children, 6 boys and 2 girls, who had been referred for learning related difficulties, but on assessment they had all scored in the normally achieving range. These children are referred to as the clinic control group and are included for descriptive purposes only.

Comparisons were also made to the normative samples for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA)(Harter & Pike, 1984) and the All About Me (AAM)(C. Missiuna, - personal communication, April, 1994). These normative samples are described below.

Thirty-three mothers (12 mothers of LD; 10 of DCD; 4 of DCD-LD and 7 of the clinic control group) and 15 fathers (4 fathers of LD; 5 of DCD; 3 of DCD-LD and 3 of the clinic control group) participated in the study. Parents accompanying the child to the clinic assessment were asked to complete the Parent Scale of Skill Importance. For those children assessed at school this scale was sent to the home. Parents were asked to complete the scale and return it. No parent scales were received for one child.

Measures

Perceptions of competence and peer acceptance were measured using the Grade 1 and 2 version of the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA)(Harter & Pike, 1984). The PCSA was developed as a measure of perceived competence and social acceptance for the child 4 to 7 years old using a multi-faceted hierarchical self-concept/self-esteem framework.

The PCSA is an individually administered measure which uses a forced choice format of gender specific line drawings depicting success or failure at tasks requiring concrete skills. The response categories are not very good (1), sort of good (2), pretty good (3) and really good (4). As there are 6 items within each subscale, total raw scores can range from 6 to 24.

Information regarding the development phase of the measure has not been provided by the authors (Harter & Pike, 1984). Reference is made to an extensive piloting stage which focused on measure format, structure and content using "large numbers of subjects" (p. 1971). The final standardization sample included 65 first grade and 44 second grade children from the United States with approximately equal numbers of girls and boys. All were attending schools in middle class socio-economic neighborhoods. Ninety-six per cent were Caucasian.

For children in Grades 1 and 2, internal consistency using Cronbach alphas was reported as .76 for cognitive competence, .53 for physical competence, .79 for peer acceptance and .74 for maternal acceptance. Short term test-retest reliability for a sample of children (n=24) with language and mild motor delays was .81 for cognitive competence, .69 for physical competence, .69 for peer acceptance and .62 for mother acceptance (Klein, 1996).

Only two factors (i.e., competence, acceptance) were identified during the instrument development phase using exploratory factor analysis. However, current research substantiates the use of a model of four factors (i.e., the cognitive competence subscale, the physical competence subscale, the peer acceptance subscale and the maternal acceptance subscale) (Marsh, Craven & Debus, 1991). Divergent validity for cognitive competence was obtained through comparison of 12 children who repeated a grade with children who had not repeated a grade. For physical competence, children who had been pre-term

infants (n=8) had lower scores than children who had been full-term. Children new to a school (n=10) had lower scores on perceived peer acceptance. All studies found significant differences ($p<.01$). For this study only the cognitive competence, physical competence and peer acceptance subscales were used. Perceptions of both cognitive and physical competence were felt to have a relationship to academic and physical achievement. Based on the results of previous studies, perceptions involving peer acceptance were explored.

The Development Edition of the All About Me (AAM)(C. Missiuna, - personal communication, April, 1984) was administered as a more comprehensive measure of perceived motor skill competence. Due to the increased number of items (24 versus 6 in the PCSA subscale), it was viewed as a more accurate representation of children's perceived competence in the physical content area. The AAM uses the same forced choice pictorial format as the PCSA although line drawings are not gender specific. There are 12 items on the fine motor subscale and 12 items on the gross motor subscale. Perceived competence of motor impaired children (n=24) was two standard deviations lower than either that of a control group of normally achieving children (n=24) or that of a group of children with comparable motor ages (n=24)(C. Missiuna, - personal communication, June 8, 1994). Short-term test-retest reliability was reported as .76 for the fine motor subscale, .79 for the gross motor subscale and .77 for the total measure (Klein, 1996). The normative sample consisted of 24 normally achieving Canadian children (C. Missiuna- personal communication, June, 1996). Children were recruited as a control group for a study the author was conducting with DCD children. Children ranged from 6.5 to 8.5 years (M=7.45; SD=.88). Twenty were boys and 4 were girls. No information is available regarding socio-economic status or ethnicity.

For this study the Parent Scale of Skill Importance was developed. The PCSA was modified by the author to measure parental perceptions of importance of success. The PCSA has been previously adapted for use with teachers using the physical competence, the cognitive competence and peer acceptance subscales. The parent scale for the present study uses the same three content areas. Items in the physical subscale were replaced with items from the All About Me measure which were believed to be representative of motor skill tasks often identified as being problematic in DCD children (e.g., good at games and sports, drawing, printing, dressing). The scale listed 18 skills; 6 from each of the subscales described. Parents were asked how important it was to them that their child achieved success with each skill listed. Importance of the skill was rated on a four point Likert scale ranging from Not Very Important to Very Important. Ease of use and face validity were evaluated using a sample of five parents of Grade 1 and 2 children. The scale was then pilot tested with a sample of 10 parents of children who had been diagnosed with language and/or motor skill delays. Test-retest reliability coefficients were .91 for cognitive skills, .56 for physical skills and .86 for peer relationships.

Procedure

When possible, the results of cognitive assessments were used to screen children referred to the clinic for eligibility for the study. Those children known to have cognitive abilities below the Low Average range (IQ<80) were automatically excluded. When a child appeared to be appropriate the parents were asked if they were interested in the study and signed consent forms. Three parents refused to allow their child to participate. The majority of children were assessed during the regular multi-disciplinary assessment process (n=33). Two

children were assessed at school and one child was assessed in his home. Standard administration directions were followed for the PCSA and the AAM. The children completed the PCSA, followed by the AAM in a quiet room. The parents were not present. During the administration of these measures with the child, the parents completed the Parent Scale of Skill Importance. BOTMP and WIAT scores were obtained from clinic personnel following administration of the PCSA and the AAM to determine in which group the child was to be placed. A research assistant administered the WIAT to a number of children who were not scheduled to receive educational testing. In two cases, the WIAT was administered by the principal researcher following administration of the PCSA and the AAM.

Data were analyzed using SPSS for MS Windows, Release 6.0. Descriptive statistics were calculated for all variables. A Hotelling T^2 analysis was used to compare groups across independent variables. One-way ANOVAS were calculated to examine dependent variable group differences. Post hoc comparisons were based on the Scheffe test. Only the LD and DCD groups with a sample size of 10 or larger were included in the comparative analysis. All significance levels were set at $p<.05$. To explore the relationship between variables, Pearson Product Moment correlations of all dependent variables as well as BOTMP and WIAT scores were calculated. Stepwise multiple linear regression analyses, using the entire sample, were done to examine the relationship between mother attitudes and child perceptions. Both mother's and father's ratings were available for 10 children but a decision was made to use only the mothers' scores ($n=33$) in the multiple linear regression analysis because of the small numbers of children with scales available from both parents.

Results

Using the Hotelling T^2 analysis to compare the LD and DCD groups for age, IQ, WIAT scores and BOTMP scores (see Table 3.1), the groups were different, $F(4,18)=11.40$, $p<.001$. Examining the Univariate F tests, the only significant difference was on the BOTMP scores, $F(1,21)=39.58$, $p<.001$, as expected. Mean BOTMP scores of the DCD group were significantly lower than the LD group. Failure to identify group differences on the WIAT may have been a function of the LD criteria. As previously described, a designation of LD is based on the discrepancy between ability (i.e., IQ) and achievement (i.e., WIAT reading, spelling, or mathematics scores). Therefore, children with high IQs may have relatively high WIAT scores and still meet the one standard deviation discrepancy criteria for the LD group.

Two-way analyses of variance (ANOVA)(group x gender) was used to examine the differences between the LD group and the DCD group on the physical and cognitive subscales of the PCSA. No significant effects of gender or interactions between gender and group were identified. Therefore, subsequent data analyses combined results for boys and girls.

For each of the subscales of the PCSA and AAM, a one-way ANOVA was calculated to determine if significant differences existed among the LD group, the DCD group, and the normative samples. For the cognitive and peer acceptance subscales on the PCSA there were significant main effects of group (see Table 3.2). Post hoc comparisons revealed that the LD group had significantly lower scores than the PCSA normative sample. Although the mean score for the DCD group was lower than the normative sample on the PCSA physical subscale the groups did not differ significantly. The LD and DCD groups were never significantly different.

For the AAM, the gross motor subscale and total score showed significant main effects by group. For both, post hoc comparisons revealed the DCD group as having significantly lower scores than the normative sample. Mean scores of the DCD group on the PCSA fine motor subscale were lower than the normative sample but not significantly lower. The DCD and LD groups did not differ significantly on any of the subscales.

Means and standard deviations of the PCSA and AAM subscales for the children who met criteria for both LD and DCD and the clinic control group (see Table 3.3) were computed. Because of the small sample sizes, these groups were not included in the statistical analysis. However, the means were graphed (see Figure 3.1). Mean scores for the group of children with both LD and DCD were lower across all PCSA subscales than those of other groups. This is consistent with ability scores (see Table 3.4). Mean scores for the clinic control group were higher than those reported by the DCD and LD groups and this is also consistent with their ability scores (see Table 3.4) although these children had been referred to the clinic because of learning related difficulties.

Effect sizes were examined for the DCD-LD, the LD and DCD groups (see Table 3.5). The effect sizes can only be viewed as estimates as complete information on normative samples were not available (see Appendix A for method used to calculate effect size). As expected young children reported accurate descriptions of their abilities when compared to other children of the same age. Effect size for the LD group was higher than that of the DCD group for perceptions of cognitive competence. The effect size of 1.30 was somewhat higher than the average effect size of .88 reported by Chapman (1988) based on a meta-analysis of academic self-concept studies. It was comparable to the effect size found by studies which only examined academic self-concept in LD

children who were in regular classes and not receiving resource assistance. As this study involved children referred to a clinic for assessment, it is presumed that few of the children were receiving resource assistance. Effect sizes of the DCD group were higher across physical competence subscales than were those of the LD group. Interestingly, the combined sample of DCD-LD children had larger effect sizes for both physical and cognitive competence subscales than either the DCD or the LD groups.

Prior to doing the multiple regressions, the correlations were examined (see Table 3.6) for the total sample (n=36). As expected, BOTMP scores showed a stronger relationship to perceptions of physical competence than to perceptions of cognitive competence or peer acceptance. WIAT scores showed a stronger relationship to perceptions of cognitive competence than to those of physical competence or peer acceptance. Peer acceptance was more strongly associated with perceptions of physical competence, particularly for the AAM-Total (r=.77) and AAM gross Motor subscale (r=.76), than with the PCSA cognitive subscale (r=.34). The importance fathers place on physical competence was correlated with the child's BOTMP (r=.52), the PCSA physical perceived competence scores (r=.54) and the AAM total score (r=.72). For mothers, these relationships were very low. Fathers' and mothers' scores for the importance placed on cognitive competence were not related to WIAT scores or to cognitive perceived competence scores.

To test the hypothesis that children's perceived competence is influenced by the importance mothers place on a skill, stepwise multiple linear regression analyses were done. Only two variables were entered into each regression. The mother's attitudes and the WIAT scores did not significantly predict the child's perceived cognitive competence. The child's perceived physical

competence score was not predicted by the mother's attitudes within the physical domain but was predicted by BOTMP scores, B=.02, T=2.30,p<.05. Based on the adjusted R^2 the regression accounted for 11% of the total variance.

Discussion and Implications

When considered as groups, young children appear to provide an accurate description of their cognitive and physical abilities in relationship to the abilities of other children of a similar age. As hypothesized the perceived cognitive competence of the LD group was lower than the PCSA normative sample. The LD group had WIAT scores that were lower although not significantly lower than other groups. Similarly, only the DCD group reported physical competence scores significantly lower than the normative group which was in keeping with their lower BOTMP scores. The LD group did not differ from the normative sample in their perceptions of physical competence or their BOTMP scores. Their BOTMP mean scores indicated that they were similar to or slightly above the test mean unlike the DCD group who were well below the test mean. As groups, the LD and DCD groups' perceptions of their physical competence reflected their physical competencies. When the correlations were examined there was a consistent relationship between perceptions of competence and standardized test results although the relationship was not strong (BOTMP, r=.37; WIAT, r=.34). This finding supports the premise that factors other than level of competence also affect children's competence perceptions as suggested by Causgrove Dunn and Watkinson (1994).

Mean scores for the sample of children with both DCD-LD were lower than scores for other groups for all PCSA and AAM subscales. They also had the largest effect

sizes. As this is a small sample, the results must be viewed with caution, but it does suggest that a child with below average competency in more than one skill area may be at increased risk for low competence perceptions. Further research is needed with a larger sample, but current findings imply an additive effect where these children see themselves as less capable across skill areas.

Mean perceived physical competence scores of the LD and DCD groups in this study did differ but not significantly despite significant differences in motor scores. Marsh et al. (1991) proposed a 4 factor model for the PCSA of perceived cognitive competence, perceived physical competence, perceived peer acceptance and perceived maternal acceptance. Findings of this study, however, suggest that children in Grades 1 and 2 may have difficulty differentiating between perceptions of cognitive and physical competence reflecting Harter and Pike's initial position (1984). For example, little difference was observed between LD and DCD groups for mean perceived physical competence scores of the AAM fine motor subscale. Children who have difficulty printing or coloring (items on the AAM fine motor) may not view the skill as distinct from the ability to write words or spell (items on PCSA cognitive competence). Harter (1983) theorizes that self-concept in the cognitively maturing child not only changes from stage to stage (e.g., skill descriptions versus trait descriptions) but also undergoes a process of differentiation within each stage (e.g., competence descriptions between skills). Children in this study may have had difficulty differentiating between school achievement tasks and motor skill tasks. Their understanding that they may be good at some skills but not good at others is only just emerging. Alternatively, the manner in which the two areas are measured may be a contributing factor. This

finding may be a product of the measures used to determine group eligibility or the content of the perceived competence measures.

A further finding from this study involved the differences across groups for the peer acceptance subscale. The LD group had significantly lower perceptions of peer acceptance than those in the normative sample. Although children in the DCD group did not show significantly lower peer acceptance perceptions than those in either the LD or the normative sample, there was a significant correlation between perceived physical competence and perceived peer acceptance (r=.48). That is, children who felt they had low physical competence also tended to view themselves as having fewer friends. Schoemaker and Kalverboer (1994) reported lower perceived peer acceptance when comparing a group of clumsy 6 to 9 year olds with a control group who scored in the normal range. The findings of this study support Schoemaker and Kalverboer's contention that below average physical abilities not only impact on the child's perceptions of physical competence but also influence peer relationships. The children in their study saw themselves as not only having fewer friends with whom to play but also as less frequently approached by or included in other children's games. Shaw et al. (1982) reported that older boys with LD and a motor coordination impairment experienced more negative peer relationships and lower self-esteem. Examination of mean peer acceptance scores of the combined sample of DCD-LD children indicates lower scores for this group. Effect sizes were higher than for either group suggesting the possibility of a cumulative effect. The findings of this study suggest that both below average cognitive and physical competencies not only impact on the child's perceptions of their competence in these areas but also influence peer relationships.

Mothers' reports of the importance of their child succeeding in each domain did not predict children's perceptions of their competence. Academic achievement as measured by the WIAT was not a significant predictor of perceived cognitive competence. Motor ability as measured by the BOTMP was a predictor of physical competence although the total variance accounted for was only 11%. This suggests that other factors not identified here play an important influence in the development of children's perceptions of competence.

The influence of parent attitudes requires further examination. This study explored the relationship of the importance of a skill to the mother with the child's perceptions of competence, but it did not examine whether mothers viewed their children as competent across domains. The discrepancy between the mothers' perception of actual competence of their children and the importance of the task to adults may have been a better predictor of the children's perceived competence. Presumably mothers who believe their children achieve at a level congruent with their feelings of the importance of the skill will reinforce and model different behaviors for their children than mothers who experience a discrepancy between these elements. The relationship of fathers' attitudes to perceived competence must also be considered. Fathers' attitudes regarding the importance of skill success in the physical content area were more strongly associated with children's competencies and perceived physical competence than were mothers' attitudes. Enlarging the sample size of fathers would allow us to determine if children's perceived competence is predicted by fathers' attitudes of skill importance. Also, young children may be using standards other than parent attitudes on which to base their self-perception. Competence perceptions may be associated with other significant adults such as performance evaluation and

feedback of teachers, peer comparison or a combination of such factors.

It is important for educators and health professionals to recognize that young children who experience difficulties with day to day functional tasks involving academic or motor skill performance are at risk for low perceptions of competence and its related effects on self-esteem. Low perceptions of competence are also associated with lower perceptions of peer acceptance. Mal-adaptive emotional and behavioral patterns identified in the adolescent may begin in the very early school years. Long term studies to examine the predictive validity of these measures and the effects of early perceptions of low competence are needed. Further development of the PCSA and the AAM is encouraged to allow therapists to use these measures with individual children.

Professionals who are offering early intervention programs for young children with learning and motor difficulties are encouraged to not only assess the children's functional ability but also to be aware of the children's perception of their competency. Attainment of specific skills which provide opportunities for success experiences should be the primary objective of such programs.

The small sample size is a major limitation of this study. The study would have been stronger with larger groups of children with LD, DCD, and DCD-LD, as well as a non-clinical matched control group. This range of variation in the sample would further clarify the extent to which young children accurately discriminate between competence content areas. Using a clinic population, it proved difficult to obtain a sample of children of sufficient size who met clearly defined criteria. Replication with a larger sample would further our understanding of perceived competence. Sampling of whole

classrooms may be a better method than using a clinic sample.

Not all children who demonstrate below average competence perceive their abilities as such. For example, 4 children in the LD group had scores at or above the mean of the normative group on the PCSA cognitive competence subscale and 4 children in the DCD group had scores at or above the normative mean of the PCSA physical competence subscale. Other factors, such as children's temperament, may be associated with their attitudinal response to life experiences of success and failure. Further studies are needed to explore these relationships and help children attain their full functional abilities despite impairments.

Table 3.1

Means, Standard Deviations and Analysis of Variance for Age, IQ, WIAT, and BOTMP scores by Group

	LD (n=13)	DCD (n=10)	F	Significance of F
Variable				
Age[a]	92.3(8.3)	89.5(5.72)	.76	.393
IQ	102.6(12.5)	92.5(12.7)	3.66	.070
WIAT	86.2(10.1)	92.2(8.8)	2.26	.148
BOTMP	53.6(6.3)	38.7(4.5)	39.58	.000

Note - LD refers to learning disabled group.
DCD refers to developmental motor coordination group.

Age[a] age in months

Table 3.2

Means, Standard Deviations, and Analysis of Variance for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children and the All About Me by Group.

Subscale	LD (n=13)	DCD (n=10)	Normative	F	Difference by group
PCSA[a]					
Cognitive	2.88(.75)	3.17(.30)	3.40(.35)	10.53***	LD<Normative
Physical	3.32(.47)	3.15(.62)	3.40(.39)	1.76	ns
Peer	2.54(.94)	2.88(.80)	3.10(.55)	5.10**	LD<Normative
AAM[b]					
Fine motor	3.38(.46)	3.29(.51)	3.62(.31)	2.98	ns.
Gross motor	3.16(.46)	3.11(.51)	3.49(.28)	4.83*	DCD<Normative
Total	3.26(.40)	3.20(.47)	3.55(.24)	5.02**	DCD<Normative

Note - LD refers to the learning disabled group.
DCD refers to developmental coordination disorder.
Normative refers to the normative sample of the PCSA or AAM.

PCSA[a] PCSA normative group (N= 109)
AAM[b] AAM normative group (N= 24)

*p<.05, **p<.01, ***p<.001

Table 3.3

Means and Standard Deviations for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children and the All About Me for all Groups.

Subscale	DCD-LD	LD	DCD	Clinic	Normative
PCSA[a]	(n=5)	(n=13)	(n=10)	(n=8)	
Cognitive	2.50(.79)	2.88(.76)	3.17(.30)	3.67(.40)	3.40(.35)
Physical	2.94(.52)	3.32(.47)	3.15(.62)	3.75(.31)	3.40(.39)
Peer Acceptance	2.40(.96)	2.54(.94)	2.88(.80)	3.54(.63)	3.10(.55)
AAM[b]					
Fine motor	3.18(.28)	3.38(.46)	3.29(.51)	3.67(.33)	3.62(.31)
Gross motor	2.68(.67)	3.16(.46)	3.12(.51)	3.54(.46)	3.49(.28)
Total	2.93(.41)	3.26(.40)	3.20(.47)	.61(.38)	3.55(.24)

Note:

DCD-LD- children with developmental coordination disorder and learning disability

LD- children with a learning disability

DCD - children with developmental coordination disorder

clinic- children referred to clinic but found to be normally achieving on standardized measures

PCSA[a] N=109

AAM[b] N=24

Table 3.4

Means, Standard Deviations for Age, IQ, WIAT, and BOTMP Scores for all Groups

	DCD-LD (n=5)	LD (n=13)	DCD (n=10)	Clinic (n=8)
Variable				
Age[a]	99.6(7.09)	92.3(8.3)	89.5(5.72)	84.5(9.93)
IQ	89.2(3.11)	102.6(12.5)	92.5(12.7)	95.5(6.28)
WIAT	76.6(4.67)	86.2(10.1)	92.2(8.8)	100.8(19.81)
BOTMP	36.8(5.54)	53.6(6.3)	38.7(4.5)	55.4(9.69)

Note - DCD-LD - learning disabled and developmental coordination disorder group
LD - learning disabled group
DCD - developmental coordination disorder group
Clinic - clinic control group

Age[a] age in months

Table 3.5

Effect Sizes for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children and the All About Me by Group Compared to the Normative Samples

Subscale	DCD-LD (n=5)	LD (n=13)	DCD (n=10)
PCSA			
Cognitive	2.37	1.30	.66
Physical	1.15	.20	.60
Peer acceptance	1.21	.93	.38
AAM			
Fine motor	1.33	.63	.85
Gross motor	2.19	.92	1.03
Total	2.14	.97	1.06

Note:

DCD-LD- children with developmental coordination disorder and learning disability

LD- learning disabled group

DCD- developmental coordination disorder group

Table 3.6

Intercorrelations Between Variables.

Subscale	BOTMP	WIAT	AAM FM	AAM GM	AAM T	PCSA PH	PCSA C	PCSA PE	MIS PH	MIS C	MIS PE	FIS PH	FIS C	FIS PE
BOTMP	1.0	.25 (36)	.20 (36)	.28 (36)	.27 (36)	.37* (36)	.10 (36)	.11 (36)	.00 (33)	.07 (33)	.37* (33)	.52* (15)	.45 (15)	.44 (15)
WIAT		1.0	.13 (36)	.07 (36)	.11 (36)	.09 (36)	.34* (36)	.12 (36)	.04 (33)	.13 (33)	.08 (33)	-.05 (15)	.03 (15)	-.18 (15)
AAM-FM			1.0	.68*** (36)	.89*** (36)	.56*** (36)	.36* (36)	.60*** (36)	-.18 (33)	.03 (33)	-.06 (33)	.55* (15)	.77*** (15)	.44 (15)
AAM-GM				1.0	.94*** (36)	.67*** (36)	.43** (36)	.76*** (36)	-.01 (33)	-.10 (33)	.03 (33)	.76*** (15)	.61* (15)	.59* (15)
AAM-T					1.0	.67*** (36)	.43** (36)	.77*** (36)	-.09 (33)	-.04 (33)	-.01 (33)	.72** (15)	.73** (15)	.57* (15)
PCSA-PH						1.0	.32 (36)	.48** (36)	.12 (33)	.19 (33)	.21 (33)	.54* (15)	.55* (15)	.64** (15)
PCSA-C							1.0	.34* (36)	.07 (33)	-.09 (33)	.12 (33)	.20 (15)	.14 (15)	-.07 (15)
PCSA-PE								1.0	-.16 (33)	-.17 (33)	-.08 (33)	.57* (15)	.75*** (15)	.27 (15)
MIS-PH									1.0	.58*** (33)	.32 (33)	.43 (13)	.45 (13)	.48 (13)
MIS-C										1.0	.12 (33)	.55* (13)	.59* (13)	.63* (13)
MIS-PE											1.0	.55* (13)	.56* (13)	.64* (13)
FIS-PH												1.0	.67** (13)	.65** (13)
FIS-C													1.0	.27 (13)

Note:- Sample size found in brackets.

*p<.05, **p<.01, ***p<.001

Table 3.6 (continued)

Variables:

BOTMP - Bruininks-Oseretsky Test of Motor Proficiency

WIAT - Wechsler Individual Achievement Test

AAM-FM - All About Me (fine motor subscale)

AAM-GM - All About Me (gross motor subscale

AAM-T - All About Me (total score)

PCSA-PH - Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (physical subscale)

PCSA-C - (cognitive subscale)

PCSA-PE - (peer acceptance subscale)

MIS-C - Mother's Scale of Skill Importance (cognitive subscale)

MIS-PE - (physical subscale)

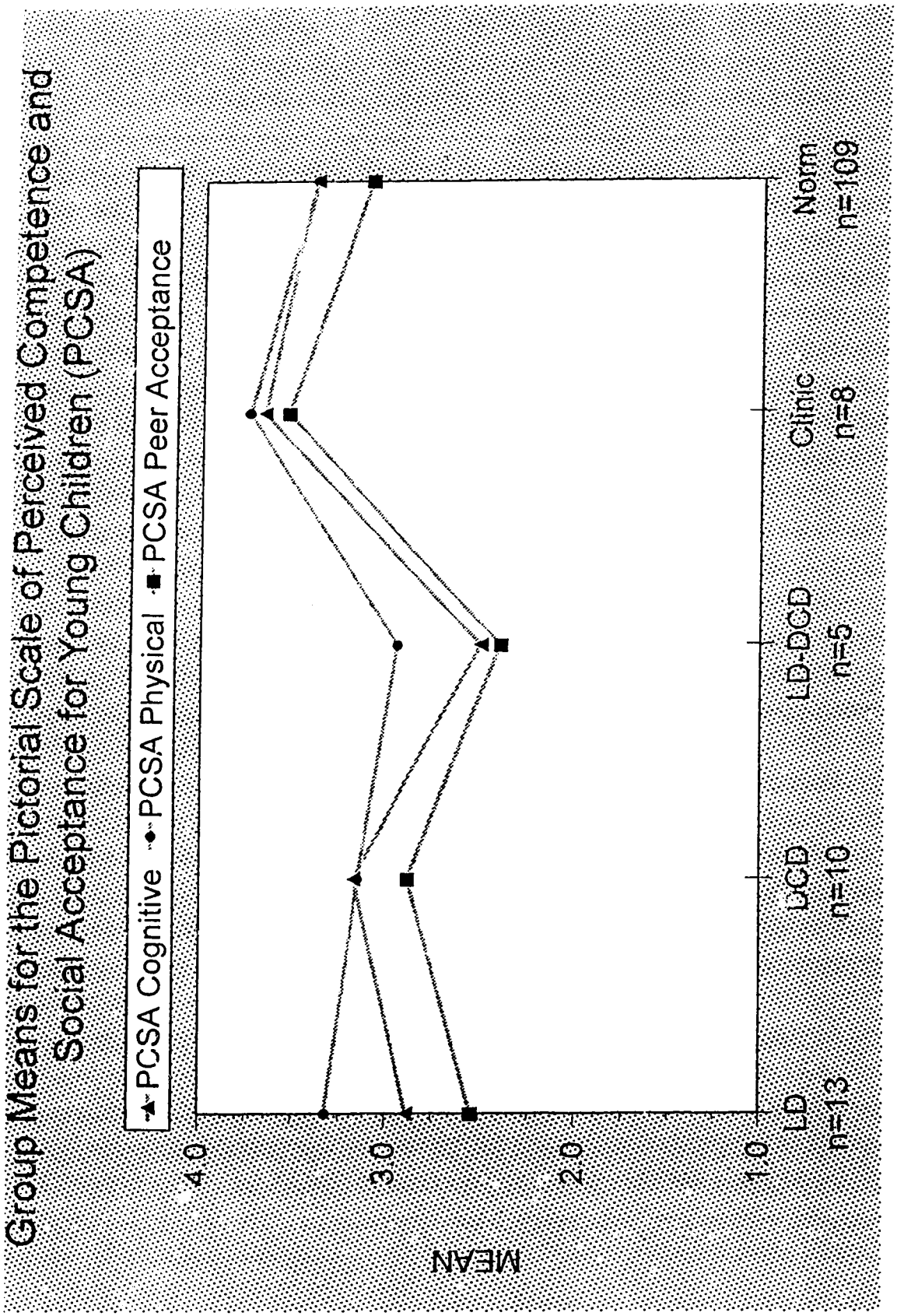
MIS-PE - (peer acceptance subscale)

FIS-C - Father's Scale of Skill Importance (cognitive subscale)

FIS-PH - (physical subscale)

FIS-PE - (peer acceptance subscale)

Figure 3.1


Group Means for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA)
PCSA Cognitive
PCSA Physical
PCSA Peer Acceptance
MEAN
4.0
3.0
2.0
1.0
LD n=13
LCD n=10
LD-DCD n=5
Clinic n=8
Norm n=109

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Chapter 4

Implications and Future Directions

Traditionally, occupational therapists have recognized the significance of psychological well-being, including self-esteem, as an important outcome of the intervention process. Current theories and models of practise attest to the importance of self-esteem and its related factors not only as an outcome of intervention but as a predictor and mediator of the success of that intervention process.

Self-esteem, defined as the evaluative element of an individual's concept of the self, has both global and content specific components. Specific self-esteem can be measured for such content areas as cognitive abilities, physical abilities and social relationships. Specific content areas appear to become increasingly refined as the child matures. Global and content specific self-esteem are inter-related. Content specific self-esteem influences global self-esteem and is directly related to behavior. Global self-esteem is closely associated to psychological well-being.

Perceived competence, the perception that one is proficient at the skills necessary to meet environmental task demands, is one antecedent factor of content specific and global self-esteem and is addressed by occupational therapists. "Occupational therapy assists patients in overcoming performance deficits related to living. Therapists devise strategies which enable patients to acquire the physical, psychological, and social abilities and skills necessary to meet the requirements and cope with the demands of daily living" (Christiansen, 1991, p.32). Clients' perception of their competence may be used by occupational therapists to direct the therapy process. Clients identify content areas and more specifically skills and abilities in which

they do not perceive themselves as competent. The client has a sense of control over the direction of intervention, a practise which is client centered. Perceived competence is inter-related with attributional beliefs and motivation. As such, this factor is a mediator of behaviors which impact on an individual's success in developing abilities and skills. Success in turn influences global self-esteem and thus, psychological well-being. It is believed that better understanding and use of competence perceptions in the practise of occupational therapy can assist therapists with the development of appropriate strategies to enable the client to overcome performance deficits.

The studies reported here examined perceived competence in the "at risk" young school aged child with a learning disability (LD) and with developmental coordination disorder (DCD). The stability of Grade 1 and 2 children's perceptions of competence over the short term were examined. Parental attitudes related to the same competence areas were explored. The general issues related to perceived competence in the areas of cognitive and physical function arising from the studies' findings are now discussed.

Measure and Construct Stability

Over the short term, young children's perceptions of their cognitive and physical competence are stable. Perceived cognitive competence was more stable than perceptions of physical competence based on the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA). Perceptions of physical competence were more stable on the All About Me (AAM) than on the PCSA. The difference between measures in the stability of physical competence perceptions lies in the scale construction. The AAM includes 24 items versus the 6 items which comprise the physical competence subscale of the PCSA. The increased number of items provides a

broader perspective of children's perceptions of their abilities in one content area. The increased number of items lessens the chance of sample error wherein a single item may skew a total score. The AAM, with its larger number of content items, is the more stable measure of perceived physical competence for the occupational therapist.

The greater stability of cognitive versus physical perceived competence may be a product of the evaluative feedback on which children make self-perception judgments. In this study, objective measures of ability were not a strong predictor of perceptions of competence. Evaluative feedback may serve as a stronger influence. Stipek (1984) concludes that young children tend to be affected by the social feedback of significant adults. Children appear to receive more day to day feedback related to cognitive abilities than to physical skills. Children in Grades 1 and 2 receive feedback from both teachers and parents in the form of report cards, reinforcements such as stars or happy faces as well as verbal comments regarding competence levels that serve an evaluative function about their cognitive competence. This feedback may also serve as a gauge from which children develop perceptions. Adults' perceptions of children's academic skill development is not likely to fluctuate greatly over the short term. Less direct reinforcement concerning physical skills is usually forthcoming particularly for such physical skills as running, swinging, skipping or climbing as found on the PCSA. Activities such as running and swinging most often occur during play with peers. Young children up to Grade 3 make little use of peer comparison (Ruble, Boggiano, Feldman & Loebl, 1980) and, thus, peer play may not serve the same equivalent evaluative function as adult feedback. Perceptions related to cognitive competence may be more stable because the feedback on which children

base these perceptions is more consistent and in a form that children of this age are able to cognitively process. Lack of consistent evaluative feedback regarding physical competence may leave the child more subject to day to day variation in judgments of physical performance.

Young children in Grades 1 and 2 may have difficulty discriminating between their level of cognitive and physical competence. It was hypothesized that young children with low academic achievement would have differing views of their competence than children with low physical abilities. For example, a child with low academic ability but average physical ability would report low cognitive competence but average physical competence compared to other children of his/her age. Although differences between groups occurred in the expected direction, they were not as strong as ability levels would suggest. Based on the results of this study it is hypothesized that children of this age do not readily differentiate between tasks with motor based and academic demands. Replication with a larger sample is needed. Support for this finding with a larger sample would be an important finding for the therapist who foresees the use of perceived competence measures to direct the intervention process.

Influence of Parental Attitudes

Parental attitudes related to skill importance were explored as one possible influence on young children's perceptions of competence. It was hypothesized that the value parents place on a content area would be an important modifier of children's perceptions. Parents not only provide positive and negative reinforcements but also model emotions related to success and failure experiences (Harter, 1978). However, in this study a relationship between the child's ability, parent values of a content area and perceptions of competence reported

by that child was not established. Fathers' attitudes showed a stronger relationship to the children's perceptions of competence than did the attitudes of mothers and were directly related to competence perceptions rather than inversely related as hypothesized. For physical skills, fathers' attitudes regarding skill importance may be mediated by the child's competence level. That is, fathers' attitudes do not influence children's perception. However, the child's competence may have an impact on how highly the father values a skill. If a child has low physical competence the father may downplay the importance of physical competence presumably focusing on other attributes of the child. The parents in this study acknowledged their child's difficulties as seen in their willingness to have their child referred to a clinic. The attitudes of these parents may not be consistent with parents of children who do not recognize the problems that the child encounters.

The stronger correlation between fathers' attitudes and perceived competence than mothers' attitudes and perceived competence suggests that paternal acceptance plays a more important role in a child's perceptions than does maternal acceptance. The role of acceptance by both parents and its relationship to perceived competence needs to be further examined.

Related Issues

The factors which influence perceptions of competence and the interplay between factors may be difficult to understand due to direct and indirect effects. Factors such as ability level, effort, social feedback and peer comparison among others have been suggested as influences. It is likely that such factors have differing influences at varying ages. In the present study, physical and cognitive ability levels showed a relationship to perceptions of competence, but

this relationship was not strong. Not all children who had lower academic or physical abilities reported low perceptions of competence. Performance feedback from significant others has been suggested as a modifier of children's competence perceptions (Harter, 1978; Nicholls, 1984; Stipek, 1984). Although the importance of skill success, as examined in this study, was not found to be a predictor of self-perceptions, other influences in the parent relationship may be important. For example, the discrepancy between the child's competence and the importance of skill success to the parent may prove to be a better predictor of the child's perceived competence than importance alone. Teachers also provide children with performance feedback which may modify cognitive and physical competence perceptions. The child's temperament may be a significant influence. While some children are described as easy, others are known as difficult. These children show varying emotional and behavioral responses. Such responses may minimize or discount success and failure experiences for the child. Identification of these relationships would further clarify which individual children within an "at risk" group would be most vulnerable to subsequent problems.

The findings of both studies indicate that children tend to be positively biased in reports of their competence, similar to young children in previous studies (e.g., Priel & Leshem, 1990). Stipek (1984) attributes this bias to "cognitive processing" and "wishful thinking" (p. 158). Young children may not integrate previous experiences with the present and if so, failure does not have the same implications. Stipek also contends that children of this age foresee future performances in terms of what they wish them to be. Both Stipek and Nicholls (1984) suggest that young children do not differentiate between ability and effort. Young

children may not view ability as a stable trait (Stipek, 1984) but rather, as a function of the effort expended. Children in this study reported higher competence perceptions than ability levels would suggest, but as a group they did report lower competence perceptions than normally achieving children. This would suggest that even at young ages repeated failures do influence perceptions. These children appeared to integrate previous experiences when forming perceptions of competence. Children recognize their difficulty in performing a task although perceptions may be swayed by the effort expended or wishful thinking.

High mean values have implications for client directed intervention and outcome measurement. Therapists who wish to use children's perceptions of competence to assist in the identification of occupational performance deficits should be aware of the possibility of positive bias. Child perceptions should be used in conjunction with objective ability measures and clinical observations to identify performance deficits. Also, high mean values may result in ceiling effects. Evaluations of intervention programs may not detect true change.

Perceived peer acceptance mean scores were found to be lower, in general, for children with a learning disability or developmental coordination disorder than for children without learning or motor difficulties. The presence of both a learning disability and developmental coordination disorder appeared to compound this effect. Present findings suggest that LD children see themselves as having fewer friends than other children. Children with DCD also appear to be at risk for peer relationship problems, a finding which supports prior research (Schoemaker & Kalverboer, 1994). Competence and social acceptance are antecedent factors which are believed to be most relevant to the development of self-esteem in

young children. It is hypothesized that children who report low perceptions of competence and peer acceptance are at increa d risk of not only developing low specific self-esteem but also low global self-esteem. While specific self-esteem is associated with behavior and productivity, global self-esteem is related to psychological well-being. It is hypothesized that these children are at more increased risk of long term emotional and behavioral problems than children who do not experience low perceptions. Long term follow-up regarding competence and acceptance beliefs of children with LD and DCD would provide useful information pertaining to this premise. The pattern of pervasive emotional and behavioral problems identified in children in middle childhood and adolescence might begin in the early school years. Identification of those children at risk and the development of preventive programs is an important objective of therapists.

Therapists should not only be able to identify children at risk for potential problems related to low perceptions of competence, but they must also understand associated factors. Such associated factors as the existence of strong support systems or substitute avenues for success experiences provide directions for future research involving the development and efficacy of intervention processes. It is important for the therapist who is developing preventive and intervention programs to not only be aware of precipitating factors but also recognize factors which contribute to adaptive functioning. Children with either LD or DCD appear to be at risk for behavioral or emotional problems. Therapists may be able to minimize these potential problems by facilitating stronger support systems and enhancing other content areas in which the child has more potential of achieving success.

Secondly, perceptions of competence are inter-related with success or failure experiences, attributional beliefs and motivation. Studies are needed to explore the influence of success or failure experiences, attributional beliefs such as effort or chance, and motivation in the therapy process. Therapists who recognize that groups of children, such as those with LD or DCD, are likely to develop lower perceptions of competence are encouraged to create and research intervention processes which enhance positive attributional and motivational approaches.

In summary, findings of this study have identified young children in Grades 1 and 2 with LD and DCD as being at increased risk for developing lower perceptions of competence. This may affect content specific and global self-esteem. Measurement of perceived competence is salient to the therapist's understanding of performance deficits in the child and the development of appropriate intervention goals and processes. Perceptions of competence were found to be adequately stable in the short term. Further development of the two measures used in this study is warranted. Research examining associated factors such as the role of support systems, attributional beliefs and motivation or the function of alternate success experiences provides an avenue for future research which will enhance and facilitate the therapeutic process.

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Appendix A

Calculation of effect size:

$$\text{Effect size} = \frac{\text{Mean of the control group } (\bar{X}_c) - \text{mean of the experimental group } (\bar{X}_e)}{\text{Pooled standard deviation (Sd) of the control and experimental groups}}$$

$$\text{Pooled standard deviation} = \frac{(n_c \times Sd_c) + (n_e \times Sd_e)}{(n_c - 1) + (n_e - 1)}$$

For example:

On the PCSA cognitive subscale,
the mean and standard deviation of the normative group is 3.10(.55) with a sample size of 109.
the mean and standard deviation of the LD group is 2.54(.94) with a sample size of 13.

The pooled standard deviation is:

$$\frac{(13 \times .94) + (109 \times .55)}{(13 - 1) + (109 - 1)} = .60$$

Effect size is:

$$\frac{3.10 - 2.54}{.60} = .93$$

Appendix B

Consent Form

Title: Children's Perceived Competence and the Influence of Parental Attitudes

Investigator: Sheryl Klein, Graduate Student
Phone: 437-6523

Advisor: Dr. J. Magill-Evans
Associate Professor
University of Alberta
Phone: 492-0402

The purpose of this project is to learn more about young children who may have learning problems. The project will explore how children view their ability in areas such as school work, making friends, and playing sports and games. The project also looks at the importance parents place on abilities in these areas.

Your assistance with this study will help us understand how children grow and learn about themselves. Your child will answer some questions related to their reading and math ability. They will also answer some questions about how they see themselves at school work, making friends and playing sports and games. To help him/her answer these questions about him or herself, he/she will be shown pictures. This will take 50 to 60 minutes. You are also asked to complete a short questionnaire about your child's involvement in school and play activities. This will take 15 minutes of your time.

Participation in this study is entirely voluntary. You may withdraw at any time. This will not affect the services received from the Glenrose Rehabilitation Hospital. To ensure confidentiality, all families will be identified only by a number. When results are published, no names will be mentioned. All results will be used for research purposes only and will be reported on a group basis.

Information from one of the questionnaires will be given to the person who developed the questionnaire. No names will be given to this researcher.

Consent

I, _____, (please print) agree to take part in the above project which has been described to me. I agree to allow my child _____ (please print) to take part. I understand that I may withdraw from the study at any time without affecting the services that I or my child will receive at the Glenrose Rehabilitation Hospital.

I understand that all records will be given a code number. No information identifying my child or my family will be released or printed. I understand that some of the information will be shared with the developer of one questionnaire. Neither my child nor my family will be identified by name when this information is shared.

I am aware that neither I or my family will receive direct benefit from our involvement in this study. I am also aware of the associated risks.

I have read and understood the information provided. I sign this consent form willingly and have received a copy. All questions that I had about the project have been answered. I understand that I may call either Sheryl Klein or Dr. Magill-Evans at the phone numbers provided if I have more questions.

_____ _____

(Signature of Parent/Guardian) (Date)

_____ _____

(Signature of Investigator) (Date)

Appendix C

Consent Form (Pilot Study)

Title:	Children's Perceived Competence and the Influence of Parental Attitudes
Investigator:	Sheryl Klein, Graduate Student Phone: 437-6523
Advisor:	Dr. J. Magill-Evans Associate Professor University of Alberta Phone: 492-0402

The purpose of this project is to assist in the development of an assessment which will help us understand how children view themselves in areas such as school work, making friends and playing sports and games. A second part of this questionnaire looks at parents' attitudes in these areas. We are also interested in how children's and parents' perceptions change with time.

Assistance with this study will involve two visits by the investigator to your home. Your child will answer some questions. To help him/her answer the questions he/she will be shown pictures. This will take 20 to 30 minutes. You are also asked to complete a short questionnaire about your child's involvement in school and play activities. This will take about 15 minutes of your time. The second visit will be made two weeks after the first. You and your child will complete the questionnaires again.

Information from one of the questionnaires completed by your child will be shared with the person who developed the questionnaire. No names will be given to this researcher.

Involvement in this study is entirely voluntary. You may withdraw at any time. This will not affect the services you receive from the Glenrose. To ensure confidentiality, all families will be identified only through a number. When results are published, no names will be mentioned. All results will be reported on a group basis only.

Consent

I, _____, (please print) agree to take part in the above project which has been described to me. I agree to allow my child _____ (please print) to take part. I understand that I may withdraw from the study at any time without affecting the services that I or my child receive at the Glenrose Rehabilitation Hospital.

I understand that all records will be given a code number. No information identifying my child or my family will be released or printed. I understand that some of the information will be shared with the developer of one questionnaire. Neither my child nor my family will be identified by name when this information is shared.

I am aware that neither I or my family will receive direct benefit from our involvement with this study. I am also aware of the associated risks.

I have read and understood the information provided. I sign this consent form willingly and have received a copy. All questions that I had about the project have been answered. I understand that I may call Sheryl Klein or Dr. Magill-Evans at the phone numbers provided if I have more questions.

_____ _____

(Signature of Parent/Guardian) (Date)

_____ _____

(Signature of Investigator) (Date)