

Expectancies, Values, and Perceptions of Physical Competence of Children With and Without Learning Disabilities

Deborah R. Shapiro
Georgia State University

Dale A. Ulrich
University of Michigan

This study examined the relationship between components of Eccles' (Eccles et al., 1983) expectancy-value model and perceptions of physical competence of children with and without learning disabilities (LD) across three physical activity contexts (physical education class, outdoor school recess, and at home). Participants, 60 children with and without LD between 10 and 13 years, completed the Modified Pictorial Scale of Perceived Physical Competence (Ulrich & Collier, 1990) and an expectancy-value questionnaire measuring perceived importance, usefulness, enjoyment, and gender orientation of selected motor skills. Gender differences in perceptions of physical competence were found in recess and home settings. No significant group differences were observed in perceptions of physical competence. Expectancy-value subscales contributed differently to understanding competence judgments of boys and girls across context. Results are discussed with implications for improving self-concept and expectancy-value among girls toward sport and physical activity.

Self-perception research in the physical domain is based primarily on Harter's (1978) multidimensional competence motivation theory. Using Harter's theory, researchers have found variations across gender and age in perceptions of physical competence, actual competence, and motivation to participate in sport and physical activity. Boys generally have higher perceived physical competence than girls. With increasing age, children's perceptions of physical competence more closely correlates with their actual motor competence. Lastly, individuals who have high perceptions of competence in a given domain are more intrinsically motivated in that domain, exert more effort, persist longer, have higher levels of achievement, and experience positive affect (McKiddie & Maynard, 1997; Rudisill, Maher, & Meaney, 1993; Weiss & Horn, 1991; Williams & Gill, 1995).

Applying Harter's theory to children with cognitive constraints such as learning disabilities has resulted in similar findings with regard to gender. Boys with learning disabilities (LD) have higher perceptions of physical competence than

Deborah Shapiro is with the Department of Kinesiology and Health, University Plaza, Georgia State University, Atlanta, GA 30303. Email: <dshapiro@gsu.edu>. Dale A. Ulrich is with the Division of Kinesiology at the University of Michigan.

girls with LD (Harter, Whitesell, & Junkin, 1997; Kistner, Haskett, White, & Robbins, 1987). Students with LD have lower self-concepts and lower perceptions of physical competence than their peers without disabilities (Chapman, 1988; Kistner & Osborne, 1987; Kistner et al., 1987; Renick, 1985; Renick & Harter, 1988, 1989). The relationship between perceptions of physical competence and motivational constructs, including effort and persistence, has not been investigated in persons with LD.

The expectancy-value model supported by Eccles and her colleagues explains motivational factors underlying achievement-related choices (Eccles-Parsons et al., 1983). Eccles' model is based on the assumption that activity choices occur in the context of multiple options. These choices are guided by (a) expectations or probability for success, (b) values attached to success and failure on a task, (c) gender-role schemata, and (d) perceptions of the characteristics of the task. Moreover, choices are linked to physical activity participation, task choice, persistence, intensity of effort, affective reactions, and actual performance (Eccles & Harold, 1991; Eccles et al., 1983). *Expectancies* are made up of a combination of concepts among which is perceived competence (Deeter, 1989). *Task value* is a quality of the task that contributes to the probability the task will be selected. The value of a task is a function of three major components: (a) importance of doing well on the task, including the task's ability to confirm salient and valued characteristics of the self (e.g., masculinity, femininity, competence), provision of challenge, or fulfilment of achievement, power, or social needs; (b) enjoyment received from engaging in an activity; and (c) usefulness of the task in meeting immediate or long-range goals (Deeter, 1989; Eccles et al., 1983; Eccles & Harold, 1991).

Gender role beliefs and stereotypes influence the development of children's perceptions of ability, their perceived value of the task, and their performance expectations (Eccles & Harold, 1991). A task that is judged to be more masculine than another will produce gender differences in self-confidence (Lirgg, 1991). When sport activities are gender-linked, males display more confidence in masculine type tasks and females display more confidence in feminine type tasks (Lirgg, 1991). A positive relationship exists between girls' beliefs about the gender-role stereotyping of sports and their evaluation of their own sport ability. The more girls see sports as gender neutral or appropriate for girls, the higher they estimate their own physical competence (Eccles & Harold, 1991; Lirgg, 1992). Similarly, the more masculine the task is perceived by girls, the less confidence girls demonstrate (Lirgg, 1992). To the extent that boys see sports as being male gender-role stereotyped, they also view themselves as having more ability in sports (Eccles & Harold, 1991). Even at the elementary school age, children's gender role stereotyping appears to affect their views of their own ability in the sport domain (Eccles & Harold, 1991).

When examining similarities and differences in self-perceptions and values among children with and without disabilities, one way that children with LD maintain high self-perceptions is to discount domains in which they experience performance limitations (Harter et al., 1997). While the domain of athletic competence is valued least across groups of adolescents with and without LD, when compared to domains such as close friendships, job competence, and physical appearance, no group differences are found in the importance attributed to the physical domain (Harter et al., 1997). When examining ratings of importance of physical competence

across children with and without disabilities, children without disabilities rated success in the physical domain to be more important than did children with LD (Harter et al., 1997). These findings suggest that despite differences in their self-evaluations and their competence judgments, students with and without disabilities share common perceptions with regard to the value of success within the physical domain. Elaborating on the construct of value among students with LD may provide a link between the expectancy-value model and the literature on the self.

Play experiences in school and at home facilitate motor growth and development, social relationships, and well-being among children (Lorenzi, Horvat, & Pellegrini, 2000). Children spend a large portion of their day in school. Two primary opportunities that children have to be physically active at school are during physical education classes and outdoors during school recess (Sarkin, McKenzie, & Sallis, 1997). Traditional physical education settings often are structured with students having minimal opportunity to control, create, select, and regulate the activity (Bouffard, Watkinson, Thompson, Causgrove Dunn, & Romanow, 1996; Sarkin et al., 1997). In the outdoor recess setting, children can engage in spontaneous physical activity with their peers with minimal prompting and/or intervention from adults (Lorenzi et al., 2000). Students with cognitive constraints are usually included in general physical education classes and outdoor school recess with their peers without disabilities (Lorenzi et al., 2000). While Shapiro (1999) examined perceptions of physical competence of students with and without LD across physical activity settings, additional information is needed to understand expectancy-values, self-perceptions, and perceived gender orientation of motor skills among boys and girls with LD across physical activity contexts.

The present study draws on expectancy-value and competence motivation theories of achievement motivation. The purpose was to identify the relationships among values and perceptions of physical competence of elementary school age boys and girls with and without LD toward 10 fundamental motor skills across three physical activity contexts (physical education class, outdoor school recess, and at home). We extended previous research in several important ways. First, we examined values and perceptions of competence toward a broader range of physical activities than typically reported in the literature. We did this to get a better picture of how values and competence perceptions relate to a range of fundamental motor skills performed by children across physical activity contexts. Second, we examined children's expectations and values toward sport participation across a variety of physical activity contexts. In this way we hoped to improve the generalizability of the results. Third, we used group comparisons to examine differences and/or similarities in expectancies, values, and gender role beliefs between children with and without LD. By involving children with disabilities, we hoped to extend the knowledge base of competence motivation and expectancy-value theory to subsamples of the general population.

The following research questions guided this study: (a) Are there group and/or gender differences in perceptions of physical competence across context? (b) Does perceived importance, enjoyment, and usefulness, of the selected fundamental motor skills vary by group and/or gender across context? (c) Is there a relationship between perceived importance, enjoyment, usefulness, and perceptions of physical competence among children with and without LD across context? and (d) Do boys and girls with and without LD differ in their perceived gender orientation of the selected fundamental motor skills?

Method

Participants

Sixty children, 30 children with LD between 10 and 13 years of age ($M = 11.05$, $SD = .94$) and 30 children without LD between 10 and 12 years of age ($M = 10.98$, $SD = .80$) participated in this study. Within each group were 15 boys ($M = 10.96$, $SD = .76$) and 15 girls ($M = 11.01$, $SD = .51$). Children with and without LD were recruited from five public elementary schools in urban and rural school districts in the Midwest. The children's ethnic background was predominantly Caucasian (93%), with 7% African American. The primary investigator attended all fourth, fifth, and sixth grade physical education classes, introduced herself, explained the study, and gave interested students a consent form to take home, be signed by a parent/guardian, and returned to the students' physical education teacher.

A purposive sampling design was used to select participants. State and federal definitions describe LD as a disorder in understanding or using spoken or written language and/or imperfect ability to speak, read, write, spell, or do mathematics. Disorders associated with LD include (a) perceptual disabilities, (b) brain injury and/or minimal brain dysfunction, (c) dyslexia, and (d) developmental aphasia. The predominant LD of students in the present investigation was reading/dyslexia (6 boys and 10 girls). Other learning disabilities experienced by participants included speech/language, attention deficit hyperactivity disorder, memory, and information processing. All participants qualified for special education services according to federal and state definitions of LD, had an individualized education program (IEP) on file at their school, received part time special education services in a resource room setting, and received physical education instruction with typically achieving peers for a minimum of 1 year. Physical education teachers reported no identifiable emotional or behavioral disabilities that would influence participants' expectancies and/or perceptions of physical competence.

We recruited participants with LD first, then matched them by age (+/- 3 months) and gender to children without LD from the same general physical education class. An exception to this 3-month age match was applied to three 13-year-old children with LD. These 3 children were in sixth-grade classes with their 12-year-old peers without LD. These 3 children were somewhat older than their peers without LD as a result of being held back for academic reasons. Because special education resource room and physical education teachers could not identify reasons that participants' delayed academic performance would influence their perceptions of physical competence, they were accepted as participants. We matched the 13-year-old children with LD within 1 year of the oldest 12-year-old student without LD of the same gender at his or her respective school. Given the range of 2 to 4 students with LD in the general physical education classes sampled in this investigation, the most accessible criterion on which to match students was chronological age and gender.

Instruments

Modified Pictorial Scale of Perceived Physical Competence (MPSPPC). This instrument was developed by Ulrich & Collier (1990) based on the format of the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children

(Harter & Pike, 1984). The MPSPPC, like the pictorial scale developed by Harter and Pike (1984), was developed to meet the needs of children who were not at a reading competency level. The pictorial format engages the child's interest, is understandable, sustains the child's attention, and results in more meaningful responses than the written format (Harter & Pike, 1984). Additionally, the MPSPPC was designed to better represent the physical competence domain for children in the 7 to 12 year age range (Ulrich & Collier, 1990). The MPSPPC contains 10 fundamental motor skills: 4 locomotor skills (horizontal jump, running, skipping, and jumping rope) and 6 object control skills (catching, throwing, kicking, batting, shooting a basketball, and dribbling). These items represent the fundamental gross motor skill domain and reflect age-appropriate content taught in general elementary physical education programs (Ulrich & Collier, 1990).

The MPSPPC employs an item format designed to reduce socially desirable responses. Two pictures were presented to each child, one representing a child who was *pretty good* at the skill and the other depicting a child who was *not very good* at the skill. Participants first had to decide which picture was most like him/her. Picture plates were available for both boys and girls. The pictures were explicitly described respective to the context in which the questionnaire was being completed. The stem for each set of pictures was as follows: "In ____ (name the setting) this boy/girl is pretty good/not very good at ____ (identify motor skill). When you play sports and games ____ (name context) are you more like the boy/girl who is pretty good or the boy/girl who is not very good at ____ (name skill)." After making a selection, students indicated whether they felt *a lot* or *a little* like the person in the picture when performing the various skills in the respective contexts (Ulrich & Collier, 1990). Responses were scored on a 4-point scale ranging from *least competent* (1) to *most competent* (4).

Psychometric Properties of the MPSPPC. Given that the MPSPPC was based on other perceived competence instruments developed by Harter and her colleagues and that Harter's and Ulrich and Collier's (1990) scales similarly defined the construct of perceived competence, we predicted a relationship between them. Using other measures to establish the external structure of items is a recommended method of establishing validity (Messick, 1989). For purposes of estimating validity evidence of the MPSPPC, we administered the Self-Perception Profile for Learning Disabled Students (Renick & Harter, 1988). A total physical competence score obtained on the Self-Perception Profile for Learning Disabled Students (SPPLD) from participants in the present study was correlated with a total physical competence score obtained from the same participants on the MPSPPC. The correlation between the scores from the two instruments was .60. The relationship between the SPPLD and the MPSPPC for the same students enables us to infer that a similar construct was being measured by the two instruments and supports concurrent validity (Messick, 1989).

We tested 40 children (21 boys and 19 girls) ages 10 to 12 on both the perceived competence and expectancy-value questionnaires twice over a 3-week interval. Approximately half of this group ($n = 19$) included students with LD. Intraclass correlation was the statistical technique used to estimate test-retest reliability. Test-retest reliability for the total sample on the MPSPPC was .94. Test-retest reliability coefficients for children with and without LD and boys and girls were .96, .92, .94, and .96, respectively.

Expectancy-Value Questionnaire. We developed the expectancy-value questionnaire to examine factors identified in the literature as influencing children's

perceptions of physical competence. Our questionnaire items were essentially minor alterations to questions measuring student valuing of mathematics employed in a study by Midgley, Feldlaufer, and Eccles (1989). For example, in assessing intrinsic value toward mathematics, Midgley and her colleagues asked students, "How much do you like doing math?" We simply replaced the word math with sports and games. Thus in the present investigation, a question on the enjoyment subscale would read "How much do you like playing sports and games in ____?" (name context). The same was done for the importance and usefulness subscales (see Table 1). Additionally, we maintained the original 7-point scale used by Midgley and her colleagues for the expectancy-value questionnaire.

We asked participants to complete a series of questions on perceived task value (usefulness, enjoyment, and importance) of the MPSPPC activities as a whole

Table 1 Expectancy-Value Questionnaire

Subscale	Question
Usefulness	1. How useful are the skills in the pictures for when you play sports and games outside during school recess?
	2. How useful are the skills in the pictures for when you play sports and games in physical education class?
	3. How useful are the skills in the pictures for when you play sports and games outside at home?
	4. How useful are the skills in the pictures for when you play sports and games when you get older?
Enjoyment	1. In general, do you find performing sports and games in physical education class (very boring – very exciting)?
	2. How much do you like playing the sports and games in the pictures when you are outside at home?
	3. How much do you like playing the sports and games in the pictures when you are outside during school recess?
	4. How much do you like playing the sports and games in the pictures when you are in physical education class?
Importance	1. Being good at the skills in the pictures when you play sports and games in physical education class is . . . ?
	2. Being good at the skills in the pictures when you play sports and games outside during school recess is . . . ?
	3. Be good at the skills in the pictures when you play sports and games in physical education class is . . . ?
Gender orientation	1. Are the skills in the pictures mostly for girls to play?
	2. Can both boys and girls play these skills?
	3. Are the skills in the picture mostly for boys to play?

Note. With the exception of the gender orientation subscale, all questions are scored on a 7-point scale.

(see Table 1). Participants responded to the questions by circling the number on a scale from 1 to 7 (1 = *low importance, usefulness, or enjoyment*, to 7 = *very important, useful, or enjoyable*) that reflected their perceptions of the usefulness, enjoyment, and importance of the MPSPPC skills in each of the three contexts. Participants also responded to the perceived gender orientation of the skills on the MPSPPC (see Table 1). Participants indicated by putting an "x" next to one of three options on the questionnaire, whether they thought the skills were (a) more appropriate for boys than for girls, (b) more appropriate for girls than for boys, or (c) equally appropriate for boys and girls.

Psychometric Properties of the Expectancy-Value Questionnaire. The meaning of test scores can be validated by appraising the degree to which empirical and theoretical relationships with other measures are consistent with that meaning (Messick, 1995). Empirical evidence supports the hypothesis that perceived competence predicts expectancies and performance in both mathematics and sport (Deeter, 1989). Additionally, correlations between self-perceptions of competence and the importance of doing well with sports and free time physical activity are larger in the sport domain than in the math domain. Given that the theoretical constructs of importance, usefulness, enjoyment, and gender orientation are defined similarly in studies of mathematics and the present investigation, questions worded to assess these constructs should be similarly relevant whether applied to math or the sport and physical activity domain. Given that the degree of fit of the relationships between perceived competence and expectancy-value is stronger in sport than in math and that combined with the theoretical rationale underlying the definitions of the constructs, we perceived score interpretation to be trustworthy and valid in accordance with the practices recommended by Messick (1989).

Additionally, validity evidence can be established by asking respondents to explain their answers (Messick, 1989, 1995), as was the case in the present investigation. Querying respondents about their solution and/or rationale or asking them to think aloud while responding is a method of examining question content relevance and construct validity (Messick, 1989, 1995). Students' comments were consistent with their reported scoring of the importance, enjoyment, usefulness, and gender orientation of the motor skills depicted on the MPSPPC. This suggests that items on the expectancy-value questionnaire and scores were valid.

Factor analysis of the expectancy-value questionnaire subscales indicated that the items assessing each of the importance, usefulness, and enjoyment subscales loaded on their respective factor. With the exception of the importance of being good at sports and games at recess, factor scores for the importance subscale ranged from .46 to .86. Similarly, factor scores for the enjoyment subscale ranged from .46 to .87. The questions assessing the degree to which students like playing sports and games at home and outside during school recess did not load on this factor above the criterion level of .40. Lastly, all questions of the usefulness subscale loaded on a single factor ranging from .50 to .82.

Test-retest reliability using intraclass reliability for the usefulness subscale on the expectancy-value questionnaire was .84 for the total sample. Test-retest reliability for the usefulness subscale for boys and girls and for children with and without LD ranged from .78 to .89. On the enjoyment subscale, test-retest reliability for the total sample, children with and without LD, and boys and girls were .91, .95, .83, .73, and .95, respectively. Lastly, test-retest reliability for the importance subscale ranged from .73 to .92 for the total sample, participants with and without LD, and boys and girls.

Data Collection Procedures. We administered the MPSPPC and the expectancy-value questionnaire to participants in each of the physical education, outdoor school recess, and home contexts. Although physical education classes can vary from a student-driven mastery climate to a teacher-driven performance climate (Ames, 1992), the classes in this investigation reflected a structured environment in which the skill, task, equipment, and group selection were established by the teacher. The order of content taught in the physical education class was outlined by the school districts. All but one of the five schools participating in this study followed the same curriculum guidelines. Each of the five schools had similar outdoor playground equipment. At home, participants selected a room in their house (kitchen, living room, bedroom) in which to complete the survey. In each context, participants were tested individually in an area removed from but in view of the activity. Administration of both instruments required approximately 15 min.

Following the completion of the expectancy-value questionnaire, students were asked to explain in writing why they answered the questions the way they did. These qualitative data were recorded on their questionnaires and used to (a) confirm participants' understanding of the task; (b) ensure that participants selected reasons based on personal preferences rather than perceived socially appropriate responses; (c) provide insights into why the various skills may or may not have been important, useful, and/or enjoyable in the three contexts; and (d) provide insights into the reasoning for students' perceptions of the gender orientation of the skills.

The order in which the instruments were administered was not randomized. Completion of the MPSPPC enabled students to become familiar with the 10 fundamental motor skills and provided time for students to reflect on their competence on each of the skills. Administration of the expectancy-value questionnaire followed the MPSPPC. Having responded to their perceived competence on the fundamental motor skills, participants could then determine the importance, usefulness, enjoyment, and gender orientation of the MPSPPC skills, considered collectively as sports and games. Randomizing the contexts resulted in six different orders in which participants were tested. Participants with LD were tested first. Children without LD were tested in the same context order as their matched peer with LD. In each context, participants in both groups completed the same two instruments. To ensure understanding, we read instructions and questions aloud with a practice question provided for each instrument. Children were reassured there were no right or wrong answers and encouraged to be honest.

Although our testing took place in naturalistic/ecologically valid settings, we recognize that there often is a trade-off between reliability and validity (Messick, 1995). While generalizability of the results tends to increase, control over time and testing arrangements may decrease. The time of day that students completed the questionnaires could not be controlled given that schedules for physical education and recess times varied for grade and school. Similarly, testing at home depended on individual family schedules. Participants were tested in one context on any given day. Depending on availability of families for the home context, testing ranged from 7 to 20 days.

Data Analysis

A total perceived physical competence score was established for each context resulting in three dependent variables for perceived competence. We used a 2×2

(Group \times Gender) multivariate analysis of variance (MANOVA) to examine differences in perceptions of physical competence across contexts. Similarly, for each context, total expectancy-value scores for importance, enjoyment, and usefulness subscales were used resulting in three dependent variables for importance, three for usefulness, and three for enjoyment. We used three separate 2×2 (Group \times Gender) MANOVAs to examine differences in expectancy-value subscales across context. Omega-squared effect size was calculated to determine the meaningfulness of the findings. The relationships between perceptions of physical competence on the MPSPPC and the expectancy-value subscales were examined using Pearson product moment correlations. SPSS for windows was used for all analyses.

Results

Descriptive statistics for group and gender across the three contexts are presented in Table 2. Participants reported high perceptions of competence across the three contexts. Mean perceived competence scores ranged from 3.11 to 3.51 out of a possible 4. Responses on the expectancy-value questionnaire ranged from *somewhat* (4.28) to *very* (6.38) useful, important, and/or enjoyable across the three contexts. Treatment of the remaining data was divided into the four main analyses. Results are presented in that format.

Group and Gender Differences in Perceptions of Competence Across Context. Analyses of differences in perceived physical competence across context resulted in a main effect for gender in recess: $F(1, 56) = 6.58, p = .01$, with an effect size of .16 and home, $F(1, 56) = 4.09, p = .04$ settings, with an effect size of .12. In both contexts, boys had significantly higher mean scores on perceived physical competence than girls. No gender differences were found in perceptions of physical competence in the physical education setting. Additionally, no significant group differences (LD vs nonLD) were found in perceptions of physical competence across context.

Group and Gender Differences in Perceived Usefulness, Importance, and Enjoyment Across Context. A significant difference in perceived importance of the skills on the MPSPPC was found for gender in the context of physical education: $F(1, 55) = 6.10, p = .02$ and recess, $F(1, 55) = 12.80, p = .01$. Significant differences in perceived enjoyment of the skills on the MPSPPC was observed for gender in the context of physical education: $F(1, 56) = 6.46, p = .01$. No significant differences were observed for group or gender on the perceived usefulness of the skills on the MPSPPC across context. No significant group differences were found on perceived importance, usefulness, and enjoyment of the skills on the MPSPPC across context. Where significant differences were found, boys perceived greater importance and enjoyment for the skills on the MPSPPC than girls.

The effect size for gender on the enjoyment subscale in physical education was .15. Effect sizes for gender on the importance subscale in physical education and recess were .16 and .27. Based on the effect size statistics, approximately 15 to 27% of the variance of perceived enjoyment and importance of the skills on the MPSPPC was accounted for by gender.

Relationships Between Perceived Competence, Usefulness, Enjoyment, and Importance Across Group and Gender. To interpret the relationship between perceived competence and expectancy-value questionnaire subscales, perceived competence, usefulness, importance, and enjoyment scores were summed across all

Table 2 Participants' Responses on the Two Instruments Across Contexts

Instrument/Context	Group				Gender			
	LD		NonLD		Boys		Girls	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Modified Perceived Competence Pictorial Scale								
Physical Education	3.20	.52	3.41	.87	3.36	.40	3.25	.94
Recess	3.22	.45	3.29	.45	3.39	.42	3.11	.43
Home	3.33	1.00	3.30	.42	3.51	.94	3.12	.46
Expectancy-Value Questionnaire								
Physical Education								
Usefulness	6.23	3.67	5.70	1.10	6.38	3.58	5.54	1.27
Enjoyment	5.94	1.21	6.16	.88	6.38	.73	5.72	1.22
Importance	5.69	1.39	5.17	1.47	5.89	1.21	4.97	1.53
Recess								
Usefulness	5.86	1.11	6.19	3.05	6.00	.91	6.05	3.12
Enjoyment	6.03	1.11	6.29	1.96	6.35	.87	5.96	2.07
Importance	5.28	1.65	4.76	1.88	5.76	1.47	4.28	1.77
Home								
Usefulness	5.87	1.02	5.68	.97	5.87	.94	5.68	1.04
Enjoyment	6.08	1.57	6.33	.74	6.35	1.13	5.06	1.30
Importance	5.32	1.51	5.14	1.23	5.57	1.16	4.90	1.50

Note. Modified pictorial scale scores range from 1 to 4. Expectancy-Value Questionnaire scores range from 1 to 7.

three contexts for the total sample, boys and girls. Significant high and moderate correlations were found between perceived physical competence and usefulness ($r = .76$), enjoyment ($r = .57$), and importance ($r = .51$) of the skills for the total sample, respectively. Among boys, the correlations were .89, .58, and .44 for the usefulness, enjoyment, and importance subscales. For the total sample and for boys, the three subscales appeared to contribute differentially to understanding participants' perceptions of physical competence. For girls, correlations between perceived competence, usefulness, enjoyment, and importance were .60, .55, and .50, respectively. These subscales were perceived more equally among girls. There was a substantial difference in the variance explained by the usefulness subscale for boys and girls. The relationship between perceived competence and the usefulness of the skills was greater for boys ($r = .89$) than for girls ($r = .60$). The usefulness subscale contributed more to understanding perceived competence in boys than in girls. In contrast, the importance subscale contributed more to understanding perceived competence in girls than in boys.

Perceived Gender Orientation of the Selected Skills. Participants were asked whether the skills on the MPSPPC as a group were mostly for girls to play, appropriate for both boys and girls, or mostly for boys. Participants indicated that the skills on the MPSPPC could be played both by boys and girls. Two children in only one context each indicated that the skills on the MPSPPC were mostly for boys. When these 2 children were tested in the remaining contexts, they indicated that the skills could be played by both boys and girls.

Discussion

Across three physical activity settings (physical education, outdoor school recess, and home), students with and without disabilities had similar perceptions of competence. The lack of significant differences in perceptions of physical competence between children with and without LD observed in the present investigation conflicts with results reported by Chapman (1988), Cleaver, Bear, and Juvonen (1992), Harter et al. (1997), Kistner and Osborne (1987), and Kistner et al. (1987). The present findings, however, are consistent with those reported by Renick and Harter (1988) and by Smith and Nagle (1995).

The similarities in perceptions of physical competence between children with and without LD may be related to their classroom placement. Renick (1985) reported that resource room students (students with LD who are placed in specialized classrooms for specific instruction but who are in the general class for many activities), like those in our study, have higher self-perceptions of physical competence than self-contained students (students who are in special education classrooms for all of their instruction). When students with and without LD judged their physical competence, it is possible that a "proximity effect" may have influenced their reference group and subsequent perceptions of competence. Across the three activity contexts, comparisons were made with peers in the immediate environment and those most similar to oneself physically rather than cognitively (Bear, Cleaver, & Proctor, 1991; Shapiro & Ulrich, 2001). Other variables potentially used by students with LD for social comparison included race, socio-economic background, and competence level; however, we did not examine these variables.

Although the effect size value indicated that gender accounted for a small amount of the variance of perceived physical competence (Sutlive & Ulrich, 1998),

boys had higher perceptions of physical competence than girls in the recess and home settings but not in the physical education context. Gender differences favoring males have been found for children from kindergarten to age 13 (Rudisill, Maher, & Meaney, 1993; Ulrich, 1987) for typically achieving children in inclusion classes with children with LD and in noninclusion classes (Bear et al., 1991) and on activities ranging from fundamental sport skills to muscular endurance tasks (Corbin, Landers, Feltz, & Senior, 1983; Rudisill et al., 1993; Ulrich, 1987). The lack of gender differences in perceptions of physical competence in the physical education setting in our study is hypothesized to be a reflection of the differential structure of the physical activity environments. The mastery and/or performance orientation of the various physical activity contexts and their impact on perceived physical competence and motivation provides a fruitful line of study for future research.

The perceived usefulness, enjoyment, and importance of the skills on the MPSPPC were identified in conjunction with expectancy-value theory as influential factors on children's perceptions of physical competence and motivation. Enjoyment contributed 30 to 34% of the variance of perceived physical competence for girls and boys, respectively. This was interpreted to provide a meaningful contribution to understanding perceptions of physical competence and its link to motivation. It has been suggested by Eccles and Harold (1991) that differences in the perceived enjoyment of the skills on the MPSPPC between boys and girls may reflect the characteristics that persons associate with the sports. If an individual sees an activity as requiring strength, flexibility, agility, or coordination, for example, and the participant perceives oneself as having these competencies, then the like-ability of the sports is increased. Theoretically, the likelihood of engaging in sports during recess and at home also should increase. The magnitude of the contribution of this variable to understanding children's perceptions of physical competence may be enhanced by examining the characteristics that the participants associate with the sports (Eccles & Harold, 1991).

While boys and girls perceived the skills on the MPSPPC to be equally useful across the three contexts, the magnitude of the relationship between perceived physical competence and usefulness contributed more to understanding perceptions of physical competence of boys than girls. This finding is reflected in the research of Eccles and Harold (1991) that boys rated what they learned in sport as more useful than girls. In a comparison of three contexts (sports, math, and language arts), girls rated sport as the least useful domain (Eccles & Harold, 1991). Upon explaining their ratings of the perceived usefulness of the skills on the MPSPPC, participants in the present study indicated that the skills were useful in all three contexts. This may partially be reflected by participants' selection of specific sports in which to participate. During recess, some participants indicated that dribbling and shooting were more useful for them because they played basketball. Others suggested that running and jumping were more useful for recess because they tended to play tag. Similarly, at home, participants reported being involved in particular sports such as basketball, softball/baseball, or soccer. This made these skills and their overall assessment of the skills on the MPSPPC appear more useful.

The magnitude of the differences between gender on the importance subscale was small (Sutlive & Ulrich, 1998). Importance contributed 19% and 25% of the variance of perceived physical competence for boys and girls, respectively. While boys in the present study reported higher mean scores for the importance subscale

than girls, boys were not as likely as girls to use their perceptions of the importance of being good at the skills on the MPSPPC in their determination of competence. The higher mean scores among boys for the importance of being good at sports is consistent with the reported importance of sports for boys and girls in the literature. Boys typically rate sports as more important than girls (Chase & Dummer, 1992). Among middle and elementary school children in Grades 4, 5, and 6, *being a good athlete* was the most important criterion in determining social status for boys. *Getting good grades* was the most important criterion in determining social status for girls. Being a good athlete was the second most important criterion for girls (Chase & Dummer, 1992). Similarly, studies with high school males found that *being a good athlete* was the most important criterion for determining male social status among peers. Studies of high school females found that *being a leader in activities* was the most important criterion for determining social status among peers (Chase & Dummer, 1992).

While there was no significant gender by context by subscale interaction, when interviewed following the completion of the questionnaire, boys and girls provided qualitatively different reasons for the importance of doing well in physical education, recess, and at home. Boys and girls both commented that doing well in physical education was important because they received a grade. Meece and her colleagues (1990) found a moderate correlation ($r = .30$) between the importance of getting good grades in math and perceived competence at math. While this specific relationship was not examined in the present study, the comments from participants suggest that receiving a grade influenced their perceived importance of being good at sports and games, participating in sports and games in physical education, and possibly their perceptions of physical competence. Boys also indicated that if they did not do well in physical education, their friends would tease them. Girls indicated that it was not so important to do well at sports and games in physical education because they were just learning and practicing.

At recess and at home, boys said if they were not good at sports, no one would want to play with them and/or they could not play on teams. Girls said that it was not as important to be good at sports at recess or at home because they could play other games or do other things that did not involve sports. As a result of these differences in perceptions, we believe that the effort girls exert in sport and physical activity may be reduced.

The skills on the MPSPPC were perceived as being gender neutral and were assessed by participants as being equally appropriate for both males and females. In coeducational classes, it often is hypothesized that boys dominate physical activity and provide negative feedback to girls when attempting traditional male oriented activities. Participation of boys and girls in coeducational physical education classes in the present study and the instruction of the same skills for boys and girls within their respective classes may have constrained participants from thinking that some skills were more appropriate for boys than for girls. Had students been asked to indicate whether boys and girls were equally good at the skills perceived to be gender neutral or whether it was equally important for boys and girls to be good at the various sports depicted in the MPSPPC individually rather than judging the skills as a group, it would be hypothesized that differences in gender orientation of the skills on the MPSPPC would appear.

The potential outcomes of low and/or inaccurate perceptions of physical competence among the girls in this study are avoidance of participation, little effort

and persistence, negative affect, low achievement levels, and withdrawal from sport and physical activity (Harter, 1978), thereby compromising physical and psycho-social development (Rose & Larkin, 2002). Intervention is needed to increase girls' perceptions of physical competence and their value for sports across activity contexts (Eccles & Harold, 1991; Lirgg, 1992). Given the use of the family as a source of competence information for participation in sports and games across the three contexts (Shapiro & Ulrich, 2001), efforts to increase perceived competence, importance, enjoyment, and usefulness of sport for girls must originate at home. While teachers themselves were not directly used as sources of competence information in children with LD (Shapiro & Ulrich, 2001), their ability to emphasize the importance, enjoyment, and usefulness of sports and games for girls across the three contexts can influence participants indirectly through their peers (Chase & Dummer, 1992; Shapiro & Ulrich, 2001). Physical educators need to highlight, particularly for girls, the usefulness and importance of skills taught in physical education to settings outside the classroom as well as to create exciting and new activities for learning where girls can enjoy opportunities for physical activity. Additionally, physical education teachers and researchers need to connect children's activity choices and preferences during outdoor school recess and at home to content taught in elementary physical education classes, thereby enhancing the perceived value of what is being taught in physical education.

References

- Ames, C. (1992). Classrooms: Goals, structures and student motivation. *Journal of Educational Psychology, 84*, 261-271.
- Bear, G.G., Clever, A., & Proctor, W.A. (1991). Self-perceptions of nonhandicapped children and children with learning disabilities in integrated classes. *Journal of Special Education, 24*, 409-426.
- Bouffard, M., Watkinson, E.J., Thompson, L.P., Causgrove Dunn, J.L., & Romanow, S.K.E. (1996). A test of the activity deficit hypothesis with children with movement difficulties. *Adapted Physical Activity Quarterly, 13*, 61-73.
- Chapman, J.W. (1988). Learning disabled children's self-concepts. *Review of Educational Research, 58*, 347-371.
- Chase, M.A., & Dummer, G.M. (1992). The role of sports as a social status determinant for children. *Research Quarterly for Exercise and Sport, 63*, 418-424.
- Clever, A., Bear, G., & Juvonen, J. (1992). Discrepancy between competence and importance in self-perceptions of children in integrated classes. *Journal of Special Education, 26*, 125-138.
- Corbin, C.B., Landers, D.M., Feltz, D.L., & Senior, K. (1983). Sex differences in performance estimates: Female lack of confidence vs. male boastfulness. *Research Quarterly for Exercise and Sport, 54*, 407-410.
- Deeter, T.E. (1989). Development of a model of achievement behavior for physical activity. *Journal of Sport and Exercise Psychology, 11*, 13-25.
- Eccles-Parsons, J.S., Adler, T.F., Futterman, R., Goff, S.B., Kaizala, C.M., Meece, J.L., & Midgley, C. (1983). Expectancies, values, and academic behavior. In J.T. Spence (Ed.), *Achievement and achievement motivation* (pp 74-146). San Francisco: W.H. Freeman.
- Eccles, J.S., & Harold, R.D. (1991). Gender differences in sport involvement: Applying the Eccles expectancy-value model. *Journal of Applied Sport Psychology, 3*, 7-35.

- Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model. *Human Development, 21*, 34-64.
- Harter, S., & Pike, R. (1984). The pictorial scale of perceived competence and social acceptance for young children. *Child Development, 55*, 1969-1982.
- Harter, S., Whitesell, N.R., & Junkin, L.J. (1997). *Similarities and differences in domain specific and global self-esteem of learning disabled, behaviorally disordered and normally achieving adolescents*. Unpublished manuscript, University of Denver.
- Kistner, J., Haskett, M., White, K., & Robbins, R. (1987). Perceived competence and self-worth of learning disabled and normally achieving students. *Learning Disability Quarterly, 10*, 37-44.
- Kistner, J., & Osborne, M. (1987). A longitudinal study of LD children's self-evaluations. *Learning Disability Quarterly, 10*, 258-266.
- Lirgg, C.D. (1991). Gender differences in self-confidence in physical activity: A meta-analysis of recent studies. *Journal of Sport and Exercise Psychology, 13*, 294-310.
- Lirgg, C.D. (1992). Girls and women, sport, and self-confidence. *Quest, 44*, 158-178.
- Lorenzi, D.G., Horvat, M., & Pellegrini, A.D. (2000). Physical activity of children with and without mental retardation in inclusive recess settings. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 160-167.
- McKiddie, B., & Maynard, I.W. (1997). Perceived competence of school children in physical education. *Journal of Teaching in Physical Education, 13*, 324-339.
- Meece, J.L., Wigfield, A., & Eccles, J.S. (1990). Predictors of math anxiety and its influence on young adolescents' course enrollment intentions and performance in mathematics. *Journal of Educational Psychology, 82*, 60-70.
- Messick, S. (1989). Meaning and values in test validation: The science and ethics of assessment. *Educational Researcher, 18*, 5-11.
- Messick, S. (1995). Validity of psychological assessment. *American Psychologist, 50*, 741-749.
- Midgley, C., Feldlaufer, H., & Eccles, J.S. (1989). Student-teacher relationships and attitudes toward mathematics before and after transition to junior high school. *Child Development, 60*, 981-992.
- Renick, M.L. (1985). *The development of learning disabled children's self-perceptions*. Unpublished master's thesis, University of Denver.
- Renick, M.L., & Harter, S. (1988). *Manual for the self-perception profile for learning disabled students*. Denver, CO: University of Denver.
- Renick, M.L., & Harter, S. (1989). Impact of social comparisons on the developing self-perceptions of learning disabled students. *Journal of Educational Psychology, 81*, 631-638.
- Rose, E., & Larkin, D. (2002). Perceived competence, discrepancy scores, and global self-worth. *Adapted Physical Activity Quarterly, 19*, 127-140.
- Rudisill, M.E., Maher, M.T., & Meaney, K.S. (1993). The relationship between children's perceived and actual motor competence. *Perceptual and Motor Skills, 76*, 895-906.
- Sarkin, J.A., McKenzie, T.L., & Sallis, J.F. (1997). Gender differences in physical activity during fifth-grade physical education and recess periods. *Journal of Teaching in Physical Education, 17*, 99-106.
- Shapiro, D.R. (1999). *The influence of context on the generalizability of children's perceptions of physical competence*. Unpublished doctoral dissertation, Indiana University, Bloomington.
- Shapiro, D.R., & Ulrich, D.A. (2001). Social comparisons of children with and without learning disabilities when evaluating physical competence. *Adapted Physical Activity Quarterly, 18*, 273-288.

- Smith, D.S., & Nagle, R.J. (1995). Self-perceptions and social comparison among children with learning disabilities. *Journal of Learning Disabilities*, **28**, 364-371.
- Sutlive, V.H., & Ulrich, D.A. (1998). Interpreting statistical significance and meaningfulness in adapted physical activity research. *Adapted Physical Activity Quarterly*, **15**, 103-118.
- Ulrich, B.D. (1987). Perceptions of physical competence, motor competence, and participation in organized sport: The interrelationships in young children. *Research Quarterly for Exercise and Sport*, **58**, 57-67.
- Ulrich, D.A., & Collier, D.H. (1990). Perceived physical competence in children with mental retardation: Modification of a pictorial scale. *Adapted Physical Activity Quarterly*, **7**, 338-354.
- Weiss, M.R., & Horn, T.S. (1991). The relationship between children's accuracy estimates of their physical competence and achievement-related characteristics. *Research Quarterly for Exercise and Sport*, **61**, 250-258.
- Williams, L., & Gill, D.L. (1995). The role of perceived competence in the motivation of physical activity. *Journal of Sport and Exercise Psychology*, **17**, 363-378.

