Children’s Self-Efficacy, Motivational Intentions, and Attributions in Physical Education and Sport

Melissa A. Chase

The purpose of this study was to examine how differences in children’s self-efficacy, age, and gender impact motivational intentions, future self-efficacy, and attributions following perceptions of failure. Children, ages 8–14 years (N = 289), were assigned to either high or low self-efficacy groups, and measures of intended effort, persistence, choice, future self-efficacy, and attributions for failure were collected following a failure scenario. Results indicated that children with higher self-efficacy chose to participate and had higher future self-efficacy scores than those with lower self-efficacy. Higher efficacy children attributed failure to lack of effort, whereas, those with lower efficacy attributed failure to lack of ability. Age-related differences were also found with choice to participate, effort, and future self-efficacy.

Key words: self-beliefs, age, gender, physical activity

As Bandura stated, “Among the different aspects of self-knowledge, perhaps none is more influential in people’s everyday lives than conceptions of their personal efficacy” (1986, p. 390). Self-efficacy refers to a judgment about one’s capability to successfully perform a task at given levels. Self-efficacy theory (Bandura, 1977, 1986) suggests that efficacy beliefs play a predictive and mediational role in one’s thought patterns, behavior, and motivation. Self-efficacy goes beyond just knowing what behavior is appropriate; rather, it involves organizing cognitive, social, and behavioral subskills and strategies into action. This suggests that judgments are not based on what those skills are; rather, they are based on what one can do with the skills one has. Bandura (1986) proposed that self-efficacy beliefs contribute to psychosocial behavior in distinct ways. These beliefs will influence how people behave, their thought patterns, and emotional reactions in various situations. People will avoid situations they believe they are not capable of handling. Their level of efficacy will determine how much effort they put forth and how long they persist in the face of failure. One’s efficacy regarding stress, attentional demands, and effort affects one’s thoughts and emotional reactions. People with high self-efficacy can focus their attention on the task at hand and expend more effort than those with low efficacy who may be stressed and tend to divert attention from possible solutions. Bandura cautioned that efficacy judgments are believed to be a major determinant of behavior only when requisite skills and proper incentives are present.

The reciprocal relationship between self-efficacy and performance has been studied extensively in academic and physical domains. Recent metaanalytic investigations of the link between self-efficacy and academic achievement (Multon, Brown, & Lent, 1991) and self-efficacy and athletic performance (Moritz, Feltz, Fahrbach, & Mack, 2000) have supported these positive and statistically significant relationships. Self-efficacy theory (Bandura, 1977, 1997) also predicts that this reciprocal relationship between self-efficacy and performance extends to future efficacy beliefs. Individuals who begin with high self-efficacy are more likely to have higher future self-efficacy following performance than those who begin with low self-efficacy.

More recently, interest has grown in examining other tenets of self-efficacy theory, namely the relationship between self-efficacy and motivation. Bandura (1977, 1986) also described the relationship between self-efficacy and motivation as positive. If motivation is defined as choice, effort, and persistence, a person with high self-efficacy will more eagerly

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choose to participate, put forth more effort, and persist longer at a task than an individual with low self-efficacy.

A plethora of research supports the positive relationship between self-efficacy beliefs and academic motivation. In 18 studies of self-efficacy and academic motivation operationalized as persistence (i.e., time on task, number of tasks attempted, or number of academic terms completed), the meta-analysis revealed that self-efficacy beliefs accounted for 12% of the variance in academic persistence (Multon et al., 1991). Overall results indicated that the relationship between self-efficacy and persistence may vary across the type of student, type of measure, and age of the student. Low-achieving students seem to be particularly influenced by level of self-efficacy in predicting their academic motivation. As to type of measure, microanalytic assessments of self-efficacy in a domain and situation-specific manner revealed the strongest relationships. Therefore, as Bandura (1986) has always suggested, measures must pertain to specific tasks with close correspondence between self-efficacy and motivation for these tasks. And when considering students' age, stronger effect sizes were found for high school and college students than elementary students. The authors suggest that older students are more accurate in their self-efficacy appraisals than younger children; however, efficacy interventions with elementary students are still important.

In the sport psychology literature, research has also investigated the relationship between self-efficacy and motivation, although in primarily college-age students. Several studies found that the higher the self-efficacy, the greater the persistence, as measured by muscular endurance (George, Feltz, & Chase, 1992; Gould & Weiss, 1981; Weinberg, Gould, & Jackson, 1979). In more recent work by Chase, Feltz, and Fitzpatrick (1995), persistence was measured as people's willingness to attempt optional trials at a motor task. In this study, self-efficacy was manipulated by varying the temporal pattern and quantity of success and failure feedback. Results indicated that participants who received early failure and late success feedback had higher efficacy expectations and would persist longer than those with lower efficacy expectations.

Effort has been measured by participants rating their intended effort on a task (i.e., George, 1994) or actual performance measures on an Air-Dyne ergometer that recorded performance output (Bandura & Cervone, 1983). In previous research, individuals with a stronger sense of self-efficacy exerted more effort than those with a weaker sense of self-efficacy (Bandura & Cervone, 1983; George, 1994; Weinberg et al., 1979).

A review of the literature on the ways self-efficacy influences motivation (choice, effort, persistence) in sport and exercise demonstrates that much more research is needed. This is particularly evident in examining self-efficacy beliefs and motivational intentions in children and adolescents. The educational psychology literature has already demonstrated (Multon et al., 1991) evidence that a student's age will have an impact on the relationship of self-efficacy, motivational intentions, and future self-efficacy. However, few studies have examined self-efficacy in children in sport and physical activities (Chase, Ewing, Lilleg, & George, 1994; Lee, 1982; Lilleg & Felz, 1991).

To better understand how self-efficacy may vary in children, other child development theories may be useful to determine how children of different developmental ages develop and use information about their physical abilities (Harter, 1978; Nicholls, 1984). First, Harter's (1978) theory of competence motivation examined motivation within a developmental or age-related framework. She suggested that reinforcement, mastery attempts, perceived competence, and perceived control were important mediators of competence motivation that would differ in children of different developmental ages. Harter's work in perceived competence suggests that age-related differences would be found among children 8–14 years of age.

Nicholl's (1984) work in achievement motivation theory is also developmentally based. He suggested that conceptions of ability, task difficulty, and effort will vary in meaning for children of different cognitive maturity levels. Children ages 7–9 years who perform tasks of varying difficulty will believe that outcome depends on the amount of effort they put forth. Children ages 10–11 years are able to partially differentiate conceptions of effort, ability, and task difficulty. They sometimes equate less effort with high ability. Children 11 years and older can typically differentiate ability and effort. They understand that ability is a capacity, so that when an individual performs better than a friend while putting forth an equal amount of effort or as well the friend without putting forth much effort, the outcome is due to higher ability. Nicholl's description of sequential changes in the psychological structure of children, such as their conception of ability and effort, provides an example of the developmental age inquiry needed with self-efficacy theory. These two developmental theories provide examples of a conceptual framework in which inferences could be initiated about children's development and use of self-efficacy at various ages.

In addition to age-related differences in children's self-efficacy, this study examined how gender and attributions for success and failure would interact with self-efficacy and motivation. Several studies have examined gender differences in children's self-confidence about performing various motor tasks (Corbin, Landers, Feltz, & Senior, 1983; Corbin & Nix, 1979; Corbin, Stewart, & Blair, 1981; Lewko & Ewing, 1980) and have found mixed results. In Lilleg's (1991) meta-analysis of self-confidence studies, she found that studies incorporating masculine tasks contributed to boys having higher confidence than girls in some situations. When these results were examined by age, she found that self-confidence decreased by age while gender differences in increased. This suggests that boys and girls in elementary school are similar in levels of self-confidence; however, boys have higher confidence than girls when they are in high school.
As to attributes for success and failure, Bandura (1986) suggested there is a reciprocal relationship between causal attributions and self-efficacy expectations. Individuals with high self-efficacy who experience failure tend to attribute it to lack of effort; whereas, individuals with low self-efficacy who experience failure attribute it to low ability (Bandura, 1990). In turn, success will increase self-efficacy if the attribution is due to ability rather than luck. Failure can result if individuals attribute previous failures to lack of ability rather than low effort or bad luck.

Only a few studies have examined children’s causal attributions for performance in a sport situation (Bird & Williams, 1986; Bukowski & Moore, 1980). Bird and Williams (1980) studied age differences in children ages 7–18 years and found that 7–9-year-old children attributed success mainly to effort and luck. Children ages 10–15 years attributed performance success to effort, whereas 16–18-year-old boys attributed performance to effort, and girls of this age attributed performance to luck. Bukowski and Moore (1980) investigated perceived causes for success and failure among boys ages 7–16 years. They found that attributions for luck and task difficulty had little importance for boys. Ability was found to be an important attribute only for success, whereas effort was viewed as important for both success and failure. In the sport and physical activity literature it would be beneficial to further investigate the relationships proposed by Bandura (1977, 1986) for self-efficacy and attributions for success and failure when examining the relationship between efficacy beliefs and motivation in children.

Therefore, this study examined how differences in children’s level of self-efficacy may impact their motivational intentions (choice, persistence, effort), future self-efficacy beliefs, and attributions following their perceptions of failure in physical education and sport skills. In addition, age-related and gender differences were examined in future self-efficacy, motivational intentions, and attributions. Based on self-efficacy theory and previous research, the following research questions guided this study: Will the level of self-efficacy, age, and gender of children influence their choice to participate? Will the level of self-efficacy, age, and gender of children influence their persistence, effort and future self-efficacy? Will children with higher self-efficacy beliefs attribute their failure to lack of effort rather than lack of ability, whereas children with lower self-efficacy beliefs attribute their failure to lack of ability rather than lack of effort? Will gender of the child influence his or her selection of attributes for failure?

Method

To examine age-related differences in this study, children and adolescents ages 8–14 years were targeted. These ages were selected because they represent important periods of cognitive growth and maturity differences (Harter, 1978; Nicholls, 1978; Piaget, 1972). Participants were initially contacted by the grade level corresponding to the desired ages (i.e., third grade: 8–9-year-old students; fifth grade: 10–12-year-old students; eighth grade: 13–14-year-old students). Three hundred seventy-two children volunteered to participate in this study and completed the first set of questionnaires. Of these participants, 89 were eliminated from the study due to absence from school on subsequent testing days (n = 26), failure to meet required standards for incentive to participate (n = 23; Bandura, 1986; George et al., 1992), failure to be dissatisfied with performance failure (n = 18), or failure to indicate high or low self-efficacy on performance tasks (n = 16).

Participants and Design

Two hundred eighty-nine children (143 girls, 146 boys) from grades 3, 5, and 8 participated in this study. Third and fifth grade students were selected from four physical education classes in two elementary schools. The third grade children ranged in age from 8 to 9 years (M = 8.28 years, SD = .45), and fifth grade children ranged in age from 10 to 12 years (M = 10.23 years, SD = .42). Eighth grade students were selected from six physical education classes in two middle schools in the same school districts as the elementary schools. These children ranged in age from 13 to 14 years (M = 13.26 years, SD = .47). All schools were public schools in the Midwest. The children’s ethnic background was predominately Caucasian (95%), while 5% represented several ethnic minorities.

A 3 x 2 x 2 (Age x Efficacy Group x Gender) between-participant design was used. The investigator assigned participants to a high or a low efficacy group. Accordingly, children in the high efficacy group were asked to name a specific physical education or sport skill in which they had high self-efficacy. Children in the low efficacy group were asked to name a specific physical education or sport skill in which they had low self-efficacy. The specific skill they named served as the “task” for each participant. To ensure the efficacy groups represented high and low efficacy beliefs, the children were asked to rate their self-efficacy for their chosen skill after they had been assigned to the groups and had selected their task. Children who could not rate their self-efficacy as definitely high or low were not included in this study (n = 16). Some types of physical education and sport skills chosen by the participants included basketball (dribbling, shooting, passing), soccer (kicking, defense, dribbling), dancing (jazz, ballet), softball or baseball (batting, fielding), running, rope climbing, pull-ups, or gymnastics (bars, beam, tumbling).

Measures

For the measures described below, a one-item question was used. While one-item questions measuring self-efficacy...
have not been as predictive of performance and have lower reliability and validity than multiple-item scales, this format considered children's developmental needs (Feltz & Chase, 1998). The same consideration was given to motivational intentions, importance, and attribution measures.

**Current and Future Self-Efficacy Questions.** The term self-confidence was used instead of self-efficacy, because it was believed to be a term with which children would be more familiar and likely to have a clearer understanding. Self-confidence was defined as "how sure you are that you can successfully perform a specific activity or sport skill in physical education or sport." This is based on Bandura's (1986) definition of self-efficacy and was modified slightly so that the language was appropriate for children. The designated definition was read to children determined to have a clear understanding of self-confidence to reinforced their understanding. The definition was read to those who were unsure or did not know what self-confidence meant; they were given time to ask questions and asked again for their understanding. The completion of questionnaires did not proceed until the children were using the identified definition of self-confidence.

Children were asked to indicate on an 11-point scale their self-efficacy for performing their selected skill. In the high efficacy group, children were asked to rate "How sure are you that you can successfully perform your skill." In the low efficacy group, children were asked to rate "How sure are you that you cannot successfully perform your skill." The term "successfully perform" was further defined as "doing the skill right or correctly." For both groups, 0 indicated "not sure," 5 indicated "somewhat sure," and 10 indicated "very sure." This question was derived from previous self-efficacy research that stipulates the importance of asking how sure participants are about successful performances in specific skills. The future self-efficacy question was changed only by adding, "In the future or the next time you played your skill, how sure are you...."

**Importance of Skill Questions.** Self-efficacy theory states that the incentive or importance one places upon performing the task will have a significant impact on whether the relationships between self-efficacy beliefs and motivational intentions (i.e., choice, effort, persistence) and attributions are present (Bandura, 1986). Therefore, children were asked to indicate on an 11-point scale "How important is it to you that you successfully perform this (your chosen) sport skill?" Zero indicated "not important at all," 5 indicated "somewhat important," and 10 indicated "very important." Children were required to select a rating of 6 or higher on this question or they were eliminated from the study (n = 23). This measure and standard for level of importance used in previous self-efficacy research (George et al., 1992) proved instrumental in examining the relationships between self-efficacy, performance, and effort.

**Motivational Intention Questions for Effort, Persistence, and Choice.** Children rated on an 11-point scale "How much effort or how hard will you work the next time you practice your sport skill?" Zero indicated "not much effort at all," 5 indicated "some effort," and 10 indicated "a lot of effort." This question was developed from previous research involving self-efficacy and intended effort (George, 1994). Children's willingness to persistence at their sport skill was assessed by asking, "The next time you practice your sport skill, if you had 30 minutes to practice, how long would you practice?" The children then circled the number of minutes out of 30 that they would choose to practice. Persistence is often measured by the amount of time participants are willing to continue practicing a task (Multon et al., 1991). A child's decision to participate was assessed by asking, "If you had a choice, would you choose to practice this sport skill or a different sport skill the next time?"

**Attribution Questions.** Following a scenario of a performance failure, the children were asked to rate how true two attributions were for why they might have failed. For effort and ability, the participants rated each attribution on a scale from 0 (not true) to 4 (very true). These attributions were chosen, because they represent the traditional attributions cited in the literature and are described in self-efficacy theory as having significant relationships with self-efficacy level (Bandura, 1986). A simple Likert scale was used, because results from some studies indicate young children have difficulty differentiating among too many attributions (Fry & Duda, 1997; Nesdale & Pope, 1985).

**Scenarios**

The investigator read a scenario to all children. The fifth and eighth grade children were invited to also read the scenario written on a handout. Children were asked to imagine that the situation in the scenario had happened to them while practicing their chosen skill. They were told that their teacher had asked them to practice the skill they had selected. A specific practice setting (i.e., alone, with peers or teacher) was not described because of the variety of skills chosen and the many options available. The children were told that after repeated practice, they had failed to correctly perform their skill. Failure to successfully perform this skill was reinforced throughout the scenario. As a check, to be sure the children believed the scenario was a failure situation, they were asked whether they were satisfied or happy with the results of their performance in the scenario. If the children believed the scenario, this should have produced a dissatisfaction with performance. Bandura (1977, 1986) warned that the relationship between self-efficacy and future behavior and motivational thought will be evident when there is a discrepancy between what an individual wants to do and what they accomplish. In the "face of failure," level of self-efficacy will greatly influence motivational intentions (Bandura, 1977, 1986). Children who were satisfied with their performance were not included in the study (n = 18).
Procedure

Permission to conduct this study was obtained from the University Committee on Research Involving Human Participants and the principal and physical education teacher of each school where data were collected. Participants and their parent or guardian provided informed consent prior to participation in the study. Data collection was completed on 2 separate days, given the number of questions and short attention spans of children. On the first day, children were randomly assigned to high or low efficacy groups and asked to select a physical education or sport skill that reflected either high or low efficacy, according to their group membership. Then they completed the self-efficacy and importance questionnaires. On the second day, all children completed a background questionnaire to provide various demographic information. Then high and low self-efficacy groups met with the investigator in a classroom. They were informed that the remaining questionnaires would pertain to the sport or physical education skill they had previously selected. All children were given a questionnaire with their skill listed on top and their rating for high or low self-efficacy. The children listened to the scenario and read along with the investigator. Following the scenario, children completed the questionnaires for motivational intentions, attributions, and future efficacy. The investigator read each question twice to the third grade children. The fifth grade children read along with the investigator as she read each question aloud. The eighth grade children read the questionnaires on their own, and the investigator was available for questions.

Results

Results are organized by the dependent variables of motivational intentions and future self-efficacy and attributions. Independent variables used in the analyses were age (8–9, 10–12, and 13–14 years), gender (male, female), and self-efficacy (high, low). All analyses were conducted at the \( p < .05 \) level of significance.

Motivational Intentions

Choice. Six Chi-square analyses were conducted for each age group and gender by efficacy group. Results indicated significant differences across efficacy groups in the choice to participate. These differences were found between 13–14-year-old girls, \( \chi^2 (1, N = 85) = 8.14, p = .004 \), and boys, \( \chi^2 (1, N = 66) = 19.38, p < .001 \). Sixty-nine percent of the high self-efficacy girls chose to participate in the future compared to 31% of the low self-efficacy girls. Seventy-six percent of the high self-efficacy boys chose to participate in the future compared to 24% of the low self-efficacy boys. There were no other significant associations for the other age groups. It is important to note that 70% of the low efficacy girls ages 10–12 years chose not to participate in the future compared to 30% of the high self-efficacy girls. While the difference (40%) for the 10–12-year-old students was comparable to the difference (38%) for the 13–14-year-old group, the lack of a significant difference was likely influenced by the smaller cell size (\( n = 15, 16 \), respectively) for the 10–12-year-old girls. Table 1 lists the frequencies with which high and low efficacy girls and boys chose to participate by age group.

Effort, Persistence, and Future Self-Efficacy. Pearson product-moment correlations were calculated for persistence, effort, and future self-efficacy. Because these variables were moderately correlated (i.e., correlations ranged from .27 to .48 and were significant at \( p < .01 \)), a \( (3 \times 2 \times 2) \) multivariate analysis of variance (MANOVA) was conducted to examine age, gender, and efficacy group differences. Results of the MANOVA revealed a significant main effect for efficacy group, Wilks’ \( \Lambda = .892, F(3, 274) = 10.98, p < .001 \). Standardized discriminant coefficients were used to determine which variables maximized self-efficacy group differences. The standardized discriminant coefficients indicated that future self-efficacy (.84) maximized the efficacy group differences, while persistence (.27) and effort (.11) did not contribute significantly to the differences. As the means in Table 2 show, high efficacy children had higher future self-efficacy than low efficacy children.

There was also an age group main effect, Wilks’ \( \Lambda = .885, F(6, 548) = 5.70, p = .001 \). Standardized discriminant coefficients indicated that future self-efficacy (.35) and effort (.66) maximized age group differences, while persistence did not contribute (.09). Tukey post hoc tests revealed that children ages 8–9 years had higher effort and future self-efficacy, than children ages 10–14 years. Table 2 displays the means and standard deviations for each dependent variable by age group.

The main effect for gender was not significant, Wilks’ \( \Lambda = .997, F(3, 274) = .238, p = .869 \). The interaction effects for Age x Gender x Self-Efficacy group, Wilks’ \( \Lambda = .967,\)
F(6, 548) = 1.53, p = .164; Gender x Self-Efficacy group, Wilks’ Λ = .994, F(3, 274) = 1.509, p = .676; Age x Self-Efficacy group, Wilks’ Λ = .968, F(6, 548) = 1.46, p = .189; and Age x Gender, Wilks’ Λ = .960, F(6, 548) = 1.87, p = .084, were not significant.

Attributions

A 2 x 3 x 2 (Self-Efficacy Group x Age x Gender) MANOVA was conducted to determine whether there were self-efficacy, age, and gender differences in ability or effort attributions for failure. Results from this analysis indicated a significant efficacy group main effect, F(2, 276) = 44.01, p < .001. Standardized discriminant coefficients were used to determine which variables maximized self-efficacy group differences. The standardized discriminant coefficients indicated that the ability attribution (.99) contributed to self-efficacy differences, while the effort attribution did not contribute significantly (.12). Low self-efficacy children attributed their failure to lack of ability (M = 2.60, SD = 1.05) more than high self-efficacy children (M = 1.51, SD = .77).

The main effect for gender was not significant, Wilks’ Λ = .989, F(2, 276) = 1.40, p = .247. The main effect for age was not significant, Wilks’ Λ = .975, F(4, 552) = 1.72, p = .143. The interaction effects for Age x Gender x Self-Efficacy group, Wilks’ Λ = .992, F(4, 552) = .540, p = .706; Gender x Self-Efficacy group, Wilks’ Λ = .989, F(2, 276) = 1.52, p = .220; Age x Self-Efficacy group, Wilks’ Λ = .981, F(4, 552) = 1.27, p = .279; and Age x Gender, Wilks’ Λ = .989, F(4, 552) = .728, p = .573, were not significant.

Discussion

This study examined how children’s level of self-efficacy influenced their motivational intentions (choice, persistence, effort), future self-efficacy beliefs, and attributions following perceptions of failure in physical education or sport skills. Age-related and gender differences were also examined in self-efficacy, motivational intentions, and attributions. Self-efficacy theory states that a person’s level of self-efficacy will influence the choice to participate, effort put forth, persistence in the face of failure, and attributions (Bandura, 1986). Previous research had not confirmed these beliefs with children in sport skills and physical activities. Overall, results from this study support self-efficacy theory and contribute to the literature in identifying age-related differences.

The first research question examined whether level of self-efficacy, age, or gender would influence motivational intentions for choice. Differences in the choice to participate were found for the oldest age group only (13–14 years). The finding is significant for this age group, because it indicates that self-efficacy or the lack thereof influences adolescents’ decisions to participate. The youth sport literature often cites the 13–14-year-old age group as being at high risk for not participating in various activities. Therefore, the level of self-efficacy may be a factor to consider when trying to increase participation rates, and interventions should be aimed at self-beliefs. One finding was the 10–12-year-old girls’ choice to participate by level of self-efficacy. Seventy percent of the low efficacy girls chose to participate in the future, and only 30% of the high efficacy girls indicated that they would choose to participate in the future (a difference of 40% in favor of low efficacy girls). While this finding was not statistically significant, it is practically significant, surprising, and unexplainable.

For effort and persistence, it was predicted that children with higher self-efficacy would have higher motivational intentions than those with lower self-efficacy. This hypothesis was not supported. While effort and persistence were not found to be statistically significantly different, the results were in the predicted direction and similar to previous research in this area (Bandura & Cervone, 1983; Brown & Inouye, 1978; George, 1994; Weinberg et al., 1979). These findings should be interpreted with caution, because they could have important implications for teachers and coaches working with children. When children learn a new skill, it often takes time and practice before the skill is acquired. If the child quits immediately after failure occurs without trying hard or persisting, then learning is unlikely. Changing children’s beliefs about their ability to be successful should provide them with the motivation to continue past that learning curve. One of the most important tenets of self-efficacy theory is that efficacy beliefs will sustain effort, persistence, and choice in the face of failure. When individuals are successful, not as much intervention is required. However, when failure occurs, that is when motivational intentions become critical so that, with time, individuals can overcome mistakes, learn new skills, and improve performance.

The most influential difference between children with varying levels of self-efficacy is for future self-efficacy.

Table 2. Means, and standard deviations for effort, persistence, and future self-efficacy by self-efficacy level and age group

<table>
<thead>
<tr>
<th>Groups</th>
<th>Effort M</th>
<th>Effort SD</th>
<th>Persistence M</th>
<th>Persistence SD</th>
<th>Future self-efficacy M</th>
<th>Future self-efficacy SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>High self-efficacy</td>
<td>9.44</td>
<td>0.94</td>
<td>27.98</td>
<td>4.52</td>
<td>8.33</td>
<td>1.75</td>
<td>189</td>
</tr>
<tr>
<td>Low self-efficacy</td>
<td>8.88</td>
<td>1.86</td>
<td>25.71</td>
<td>6.46</td>
<td>6.93</td>
<td>2.18</td>
<td>119</td>
</tr>
<tr>
<td>8–9-year-old children</td>
<td>9.74</td>
<td>0.72</td>
<td>26.26</td>
<td>6.29</td>
<td>8.40</td>
<td>2.23</td>
<td>67</td>
</tr>
<tr>
<td>10–12-year-old children</td>
<td>9.25</td>
<td>1.11</td>
<td>27.42</td>
<td>5.19</td>
<td>7.76</td>
<td>1.98</td>
<td>71</td>
</tr>
<tr>
<td>13–14-year-old children</td>
<td>8.90</td>
<td>1.70</td>
<td>27.21</td>
<td>5.29</td>
<td>7.45</td>
<td>1.95</td>
<td>150</td>
</tr>
</tbody>
</table>
beliefs. This suggests that self-efficacy beliefs prior to performing a task will have an impact on self-efficacy beliefs following a task, which supports the previous findings for athletic performance (Felz, 1994) and academic achievement (Pajares, 1996). While this study does not test for causal relationships, one might predict that, as Bandura suggested (1986), self-efficacy beliefs influence motivational intentions, which influence self-efficacy beliefs, which influence motivational intentions, and so on, in a cycle or reciprocal fashion. While it is not clear what comes first in this cycle, it is clear that if efficacy beliefs are enhanced, motivational intentions will benefit.

Self-efficacy theory states that after performance failure individuals with higher self-efficacy will attribute their failure to lack of effort, whereas individuals with lower self-efficacy will attribute their failure to lack of ability (Bandura, 1986). As predicted, results from this study support that statement and the research conducted by Collins (1982). Children with higher self-efficacy attributed their failure to low ability. Although the predicted differences were found, the scores were rather low and may indicate that effort and ability are not the most salient attributions children use to explain failure. An open-ended type of question might be able to gather more information about the other types of attributions children make for failure experiences.

Overall, the attributions children make for their failure is important to future self-efficacy and motivation. If children believe they fail because of lack of ability and their ability will never change (i.e., their performance will never improve), why should they continue to try? Failure is neither fun nor viewed as acceptable in our society. Attributions such as this will certainly lead to dropout. Therefore, teachers and coaches should encourage children to attribute their failures to lack of effort or preparation (Schunk, 1994) and view ability as a fixable or acquirable state (Bandura, 1990).

A prediction not supported by these results was the proposed gender differences. There were no gender differences in attributions, intended choice, effort, persistence, future self-efficacy, or self-efficacy for selected sports skills or physical activities. The lack of differences may reflect that this study incorporated suggestions by Lirgg (1991) when devising the procedure. Gender differences in confidence have typically been found when the task involves a competitive situation, participants view it as masculine, and they receive ambiguous feedback. None of these conditions existed in this study. Choice of high and low efficacy skills by the children was especially important, as children most likely chose skills they believed were "gender-appropriate." However, in examining the types of physical education and sport skills the boys and girls chose in this study, no distinguishable activity categories were selected by only boys or girls.

As expected, age-related differences did occur with children's self-efficacy beliefs. As children increased in age, the strength of their efficacy beliefs decreased. This finding is typical in the educational psychology literature and academic domain. Some researchers have suggested that children become more accurate in their beliefs as they become older, which influences their perception of competence to be lower (Multon et al., 1991). Although not tested in this study, perhaps the increase in accuracy about one's capabilities is due to the developmental progress children make as they age in understanding that effort and ability are different and that each will have a different effect on the outcome. Nicholl's work (1978, 1984) was the first to propose that developmental differences occur in children's capacity to differentiate between effort and ability, with children below the age of 12 years not being able to differentiate between the two attributions. Recent work by Fry and Duda (1997) has since supported Nicholl's theory in the physical domain. If these types of developmental differences occur in children, then it seems logical that their perception of whether they are capable of successfully completing a task would differ by age. Future research should move beyond chronological age and examine how developmental differences affect self-efficacy beliefs and other outcomes. This knowledge would allow educators to make more informed decisions about potential interventions to increase self-efficacy in children and adolescents.

As to investigating the relationship between motivation and self-efficacy, a scenario was used in this study to create performance dissatisfaction instead of an actual performance measure. The question asking children to indicate whether they were happy or unhappy with the results of the scenario provided some security that performance dissatisfaction was present. The benefits of using a scenario were that children selected their own high and low efficacy skills. The wide range of sport skills and activities the children selected reinforced this need. A critical piece of self-efficacy theory often overlooked by researchers is the needed presence of proper incentives. Selecting one's own skill would help ensure incentive; however, self-efficacy measures must include a check for strength of importance of successfully completing the task. In studying motivation and perceptions of self-efficacy, research must include children as opposed to continually generalizing results from adults to children. Because self-efficacy theory does not address age-related differences, much more research with children is needed to better predict and explain thoughts and behavior. The goal of this study was to test some aspects of self-efficacy theory with children in physical education and sport situations and provide the impetus for future research in this area.

References


**Author’s Note**

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