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Walling, Mary D.; Duda, Joan

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Goals and Their Associations With Beliefs About Success in and Perceptions of the Purposes of Physical Education

Mary D. Walling
University of Memphis

Joan L. Duda
Purdue University

This study examined the relationship of students' goal orientation to their beliefs about what leads to success in physical education and perceptions of the purposes of physical education. High school students ($N = 144$, 78 females and 66 males) completed a modified version of the Task and Ego Orientation in Sport Questionnaire and measures of beliefs and perceived purposes specific to physical education class. Results indicated that students high in task orientation were significantly more likely to believe that success is achieved through intrinsic interest/effort/cooperation than were those low in task orientation. High ego-oriented students believed that success is achieved when students possess high ability more so than low ego-oriented students. The high task/low ego students were most likely to reject the notion that success in physical education occurs when students know how to use deceptive tactics and were less likely to perceive that an important function of physical education is to provide an easy class.

Surveys of young people's physical activity and fitness levels indicate that many students are far from being optimally motivated to participate in regular physical exercise (Corbin & Pangrazi, 1992; Simons-Morton et al., 1990). Other investigations have shown that there is a reduced likelihood of young people adopting active lifestyles as adults if they fail to do so in their childhood and adolescent years (Blair, 1992).

A recognized function of physical education programs in many schools is to foster physical activity and teach the value of lifetime fitness. Thus, the importance of conducting research that sheds light on optimizing involvement in physical education among children and adolescents is evident.

Nicholls (1984, 1989) has formulated a goal perspective theory of achievement motivation that seeks to explain how motivation can be maximized among all students, regardless of ability levels. Nicholls's research has focused on the classroom setting, although Duda and others (Duda, 1992; Roberts, 1992) have

Mary D. Walling is with the Department of Human Movement Sciences and Education at the University of Memphis, Field House 312, Memphis, TN 38152. Joan L. Duda is with the Department of Health, Kinesiology, and Leisure Studies at Purdue University, Lambert 113, West Lafayette, IN 47907.

begun to test the tenets embedded in goal perspective theory in the sport and exercise domain. To date, little attention has been given to examining Nicholls's theoretical framework as it relates to the context of physical education (Papaioannou, in press).

According to Nicholls (1989), the examination of individual differences in how people construe their ability level and determine success (or their dispositional goal perspective) provides insight into their cognitive, affective, and behavioral responses. Nicholls proposes that there are two independent goal orientations in achievement situations, namely, a task orientation and an ego orientation. Task-oriented individuals tend to perceive success and judge their competence in terms of their own effort and improvement. Ego-oriented individuals, in contrast, use normative information to define success and decide how good they are at specific activities. For ego-oriented individuals, the display of superior ability is necessary for subjective success. Due to the observed orthogonality of these two goal orientations, it is important to note that individuals can be high and/or low in both task and ego orientation (Duda, 1992, 1993; Nicholls, 1989).

In sport, a task orientation has been linked to higher reported levels of effort, enjoyment, and anticipation for future competition and to a greater tendency to endorse sportspersonlike behaviors (Duda, Chi, Newton, Walling, & Catley, in press; Duda, Olson, & Templin, 1991; Walling, Duda, & Crawford, 1993). For young sport participants competing in an international competition, a task orientation was associated with more positive attitudes concerning participation in sports and exercise (Walling, Duda, & Crawford, 1992). In contrast, an ego orientation has been linked to greater levels of state and trait anxiety (Newton & Duda, 1993) and performance impairment (Chi & Duda, 1993).

In the context of college-level tennis skill classes, Solmon and Boone (1993) found that students higher in task orientation were more likely to report positive cognitions and choose more challenging tasks. The selection of challenging tennis skills and adaptive cognitive processes were in turn associated with greater skill development. Within the physical education setting specifically, Papaioannou and Duda (1993) reported a positive relationship between a task orientation and intrinsic motives for participation.

Goal Orientations and Beliefs About Success

Nicholls (1989) suggested that goal orientations reflect a person's view of the world and are conceptually related to beliefs people hold about the causes of success. Classroom work has been consistent with this supposition (Duda & Nicholls, 1992; Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990; Nicholls, Patashnick, & Nolen, 1985).

For elementary and high school students, a focus on demonstrating superiority over their peers (ego orientation) is associated with a system of beliefs that success stems from individuals' capacity to impress people and pretend to like teachers and from high ability. Students high in task orientation tended to endorse the view that success results from hard work, collaboration with peers, and a genuine interest in learning and understanding material, rather than from memorizing information for tests (Nicholls et al., 1985).

Sport studies have supported this logical correspondence between individuals' goals and their beliefs about what leads to success. Among high school

students, task orientation has been associated with the view that success in sport is achieved through effort, interest, and cooperation with teammates, whereas an ego orientation was related to the belief that athletic success is a result of superior ability (Duda & Nicholls, 1992). In a study by Newton and Duda (1993), goal orientations of elite youth tennis players were associated with similar patterns of beliefs concerning achievement in the competitive tennis world. In addition, high ego/low task athletes were found to have a greater tendency to believe that success was achieved through deceptive tactics such as cheating and manipulating the coach.

Comparable goal-belief dimensions have emerged in investigations of elite adult athletes (Duda & White, 1992) and disabled athletic participants (White & Duda, 1993). A study of British children resulted in cross-cultural evidence concerning the conceptually consistent interdependencies between goal orientations and beliefs about the determinants of success in physical activities (Duda, Fox, Biddle, & Armstrong, 1992).

At present, research has not examined the interrelationships between goal orientations and beliefs about what leads to success in physical education. One purpose of the present study was to investigate the associations between task and ego orientation and students' perceptions concerning the causes of achievement in physical education classes.

Goal Orientations and the Purposes of Sport

In addition to beliefs about the causes of success, Nicholls (1989) argued that goal orientations should relate in a conceptually coherent manner to the perceptions that people hold concerning the functions of involvement in achievement activities. In the educational domain, high ego orientation has been associated with the view that an important purpose of school is to provide students with the means to acquire financial wealth and social status. Positive relationships have been revealed between task orientation and the beliefs that school should produce students who are committed to their communities, who think critically and strive to understand the world, and who seek to continue learning and set high standards for their personal accomplishments.

In the athletic domain, Duda (1989) found a logical correspondence between goal orientations and perceived purposes of sport among high school students. Specifically, a task orientation was associated with adolescents' perceptions that sport should enhance self-esteem and encourage people to try their best, cooperate with others, and serve society. An ego orientation, on the other hand, was related to the perception that sport should make people feel important, enhance their self-esteem, and improve their social status. This pattern of relationships has been replicated among youth sport participants (Keller, White, & Duda, 1993).

The physical education literature is virtually void of research examining students' perceptions of the purpose of physical education classes, although several studies have probed students' personal reasons for participating in physical education (Avery & Lumpkin, 1987; Soudan & Everett, 1981; Weich, 1975). Although the information obtained from these studies is interesting, such work gives little insight into the complex relationships between students' cognitions, affective responses, and behaviors in physical education. In addition, the failure of these investigations to employ a theoretical framework minimizes their potential

contribution to answering the question of how physical educators can maximize motivation among all students to engage in physical activity.

Recently Nicholls has probed students' views about curriculum content. In *Education as an Adventure: Lessons From the Second Grade,* Nicholls and Hazzard (1993) described the ability of second graders to articulately contrast the boring and unchallenging worksheet assignments to creative, stimulating class discussions that focus on controversial issues. The latter curricular content forces children to acknowledge varying viewpoints, to stretch their minds, and consider new ideas. In this case, students may be more likely to view school as a place where they are encouraged to consider controversial knowledge, rather than a setting for acquiring indisputable facts (i.e., memorizing information).

This inclusion of students in curricular theorizing may be quite relevant in the physical education setting, particularly in terms of fostering positive attitudes about participation in regular physical activity. Therefore, drawing from goal perspective theory, a second purpose of this study was to examine the nature of high school students' perceptions of the purposes of physical education class and to relate these views to their goal orientation.

In sum, the purpose of the present research was to determine the relationship of individual differences in goal orientations (that is, whether students were high and/or low in task/ego orientation) to beliefs about the determinants of success in and views about the functions of physical education. Based on Nicholls's theory (1989) of achievement motivation and supporting research, it was hypothesized that a high task orientation would correspond to an endorsement of the beliefs that success in physical education is achieved when students are intrinsically motivated and work hard. The high ego-oriented students were expected to place greater emphasis on the role of ability and the use of deception in achieving success.

In terms of the purposes of physical education, it was predicted that a high task orientation would relate to the view that the functions of physical education are to foster one's emphasis on personal mastery, motor skills, cooperation with peers, and self-esteem. In contrast, it was hypothesized that high ego orientation would relate to the views that physical education should provide an easy class and promote competitiveness among students.

Method

Subjects

High school students (N = 144, 78 females and 66 males) from a school located in a Midwestern city participated in the study by completing a questionnaire during their physical education class period. The mean age of the students was 15.2 ± 0.78 years. The majority of students (80%) were sophomores, with 13% first year students, 6% juniors, and 1% seniors. A breakdown of the sample by race revealed that 90% were white, 7% Hispanic, 2% black, and 1% Asian.

After detailed instructions were provided by the principal investigator, questionnaires were administered by the students' physical education teachers approximately 2 months into the fall semester on a day when the students were not participating in physical education due to a special assembly schedule. All

questionnaires were completed anonymously and subjects provided their informed consent to voluntarily participate in the present research.

Questionnaire

Descriptive information (including the student's sex, age, class level, race, and sport involvement) was obtained in the first section of the questionnaire. Following were measures of goal orientations, beliefs about the causes of success in physical education class, and perceptions of the purposes of physical education. All measures are available from the authors upon request. The order of presentation of the assessments of the beliefs about the causes of success and perceptions of the purpose of physical education were counterbalanced.

Goal Orientations

Goal orientations in physical education were assessed with a modified version of the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989; Duda & Nicholls, 1992). The 16-item measure employed 8 items to tap students' proneness for task involvement and 8 for involvement in the context of physical education. Students were asked to think of times when they felt most successful in physical education class and to respond to the items on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The stem for each item was, "I feel really successful in physical education class when. . . ." Exemplary items included the following: ". . . others mess up and I don't," "... I'm the only one who can do a skill" (ego orientation), and ". . . a skill I learn really feels right," ". . . I work really hard" (task orientation). The task and ego scales ranged in score from 8 to 40, and were tabulated by summing the circled values for the 8 items representing each scale.

Beliefs About the Causes of Success

A pilot study was conducted to examine high school students' beliefs about the specific causes of success in physical education. Students responded to the open-ended question, "What do you think is most likely to help people do well or succeed in physical education class?" A combination of sources—including the responses solicited in the pilot study, the Beliefs About the Causes of Success in Sport Questionnaire (Duda & Nicholls, 1992; Duda & White, 1992), and a review of the physical education literature (i.e., Hellison, 1985; Rink, 1985; Siedentop, 1983)—were then used to develop a 30-item measure of students' views about the determinants of success in physical education. The stem for each item was, "Students succeed if they. . ." and students responded on a 5-point Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (5).

Specifically, the items tapped five potential determinants of achievement in physical education class: intrinsic motivation/effort (10 items; e.g. , ". . . try hard" and ". . . always do their best"), ability (7 items; e.g., ". . . are better athletes than others" and ". . . are born natural athletes"), deception (4 items; e.g., ". . . pretend they like the teacher" and ". . . know how to cheat"), external factors (4 items; e.g., ". . . wear 'cool' clothes" and ". . . are lucky"), and having an encouraging/supportive teacher (5 items; e.g., ". . . have a good teacher that encourages them" and ". . . have a good role model to follow"). Subjects'

scores for the scales were calculated by adding their responses (1–5) for each item on the respective scales.

Purposes of Physical Education Questionnaire

In the pilot study, students were also asked to identify what they perceived to be the functions of physical education. A 60-item measure was subsequently developed from three sources: the open-ended responses provided in the pilot study, the items contained in the Purpose of Sport Questionnaire (Duda, 1989), and a review of the literature on students' attitudes toward physical education (i.e., Graham, Holt/Hale, & Parker; 1987; Hellison, 1985; Siedentop, 1983). The stem "An important thing physical education class should do is to . . ." preceded each item. The items tapped the following perceived functions of physical education:

1. To foster an emphasis on mastery/cooperation (6 items; e.g., ". . . teach us to be satisfied when we tried our best")
2. To help students adopt a physically active lifestyle (8 items; e.g., ". . . show us how we can be physically active all our lives")
3. To teach students to compete (7 items; e.g., ". . . teach us to compete with others")
4. To enhance students' self-esteem/sense of importance (8 items; e.g., ". . . help us feel good about ourselves")
5. To provide students with an easy class (4 items; ". . . give us a class where we don't have to try hard")
6. To teach health/fitness concepts (6 items; e.g., ". . . teach us how exercise lowers the risk of heart disease")
7. To teach motor skills (7 items; e.g., ". . . teach many basic skills used in sports [throwing, catching, running]")
8. To teach rules and strategies for games and sport (5 items; e.g., ". . . teach us the official rules to a variety of games")
9. To provide a fun/social element for students (4 items; e.g., ". . . give us a fun class")
10. To provide an avenue for relaxation (3 items; e.g., ". . . be a class where we can relax")

Students responded to the items using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scale scores were tabulated by summing the subjects' responses (1–5) for each item in a particular scale.

Results

Factor Analysis of the Modified TEOSQ

Principal component factor analyses using both varimax and oblique rotations were conducted on the modified version of the TEOSQ because the instrument had limited use in previous research with high school physical education students (Papaioannou & Duda, 1993). Results of the analysis revealed a two-factor structure representing a task and ego orientation (eigenvalues greater than 1.00; see Table 1). The two factors that emerged explained 61% of the variance

Table 1 Factor Analysis of the Modified Motivational Orientation Scales (Oblique Rotation)

I feel really successful in physical education when...	Task	Ego
I can keep practicing hard.	*.73*	−.03
I get the knack of doing a new skill.	*.72*	−.00
I do something I couldn't do before.	*.81*	−.06
I learn a new skill by trying hard.	*.87*	−.06
I work really hard.	*.87*	−.14
Something makes me want to practice more.	*.74*	−.01
A skill I learn really feels right.	*.68*	.12
I do my very best.	*.75*	−.12
I'm the only one who can do a play or skill.	.14	*.52*
I can do better than my friends.	−.10	*.87*
The other can't do as well as me.	−.16	*.89*
Others mess-up and I don't.	−.18	*.77*
I beat the others.	.01	*.83*
I have the highest score.	.34	*.60*
I'm the best.	.16	*.77*
I'm more skilled than other people.	.04	*.79*
Eigenvalue	6.40	3.36
Percentage of variance	40.00	21.03
Total percentage of variance		61.02

of students' responses. Because the factor loadings for the varimax and oblique rotations were similar, only the oblique rotation loadings are reported. The interfactor correlation between the two scales was .31. The observed range in scores on the task and ego scales was 10–40 and 11–40, respectively.

Reliability of the Measures

The Cronbach (1951) alpha coefficients for the scales assessing goal orientations, perceptions of what leads to success, and purposes of physical education are listed in Table 2. The coefficients, ranging from .69 to .90, reflected acceptable internal reliability. Two scales were excluded from further analysis because of their low alpha reliability coefficients (i.e., the external factors scale in the Beliefs About Success Questionnaire and the relaxation scale in the Perceived Purposes of Physical Education Questionnaire.

Descriptive Analysis and Gender Differences

For the purpose of subsequent analyses, a median split was used to divide the subjects into four goal orientation groups: high task/high ego, high task/low ego, low task/high ego, and low task/low ego. Subjects who scored greater than 34 on the task orientation scale were assigned to a high-task group, and those

Table 2 Cronbach Alpha Reliability Coefficients for the Scales of Goal Orientation, Beliefs About Success, and Preceived Purposes of Physical Education

Scale	Alpha coefficient
Goal Orientation	
Task	.90
Ego	.90
Beliefs about success	
Intrinsic interest/effort	.85
Ability	.79
Deception	.73
Encouraging teacher	.74
External factors	.56
Perceived purposes of physical education	
Mastery/cooperation	.85
Active lifestyles	.89
Competition	.74
Self-esteem/importance	.88
Easy class	.69
Health/fitness	.82
Motor skills	.83
Rules/strategies	.71
Fun	.79
Relaxation	.57

scoring less than 34 were assigned to a low-task group. Similarly, scores greater or less than 28 resulted in subjects being assigned to a high or low ego group, respectively. Thus, the grouping of "high" and "low" task/ego subjects is with respect to the present sample and does not indicate "low" and "high" in terms of the composite (8–40) rating scale.

Means and standard deviations for the Goal Orientations, Beliefs About Success, and the Perceived Purposes of Physical Education scales are reported in Tables 3 and 4. Table 3 provides the values for the four goal orientation groups, and Table 4 includes the means for all subjects, as well as for females and males separately.

In terms of the total sample, students were higher in task than ego orientation. Further, students held the strongest convictions that success in physical education is achieved when students are intrinsically motivated/exert effort and have an encouraging teacher. Students perceived that the most important purposes of physical education included providing a fun class, promoting mastery/cooperation, and encouraging the adoption of an active lifestyle (see Table 3).

Separate MANOVAS were conducted to test for goal orientation group and gender differences in Goal Orientations, Beliefs About Success in Physical

Table 3 Means and Standard Deviations of the Scales Among the Four Goal Orientation Groups

Scales	High task/ high ego (n = 40)		High task/ low ego (n = 30)		Low task/ high ego (n = 21)		Low task/ low ego (n = 36)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Goal orientation								
Task	4.72[a]	0.23	4.68[a]	0.27	3.78[b]	0.24	3.43[c]	0.72***
Ego	4.30[a]	0.45	2.72[b]	0.54	3.91[a]	0.26	2.66[b]	0.56***
Beliefs about success								
Intrinsic interest/ effort	4.31[a]	0.43	4.17[a]	0.69	3.86[b]	0.39	3.42[c]	0.62***
Ability	3.64[a]	0.80	2.66[b]	0.81	3.40[a]	0.68	2.92[b]	0.56***
Deception	2.97[a]	1.07	2.20[b]	0.84	2.88[a]	0.97	2.86[a]	0.70*
Effective teacher	4.25[a]	0.54	4.23[a]	0.58	3.96[a]	0.51	3.33[b]	0.67***
Perceived purposes of physical education								
Mastery/cooperation	4.23[a]	0.72	4.28[a]	0.64	3.81[b]	0.40	3.35[c]	0.75***
Active lifestyles	4.15[a]	0.75	4.20[a]	0.69	3.95[a]	0.51	3.36[b]	0.71***
Competition	3.80[a]	0.67	3.46[a]	0.55	3.67[a]	0.51	3.04[b]	0.69**
Self-esteem/ importance	4.08[a]	0.77	4.09[a]	0.71	3.84[a]	0.44	3.28[b]	0.61***
Easy class	3.53[a]	0.77	2.73[b]	0.88	3.15[a]	0.63	3.18[a]	0.70**
Health/fitness	4.22[a]	0.62	4.10[a]	0.50	3.93[a]	0.53	3.27[b]	0.71***
Motor skills	4.18[a]	0.59	3.97[a]	0.52	3.79[a]	0.50	3.25[b]	0.69***
Rules/strategies	3.83[a]	0.68	3.76[a]	0.49	3.65[a]	0.56	3.23[b]	0.72*
Fun	4.18[a]	0.71	4.24[a]	0.52	3.92[a]	0.50	3.41[b]	0.81***

Note. Means in each row not sharing a common superscript differ at the $p < .05$ level. Significance refers to univariate analyses.
*$p < .05$. **$p < .01$. ***$p < .001$.

Education, and the Perceived Purposes of Physical Education, respectively. A 2 × 4 (Gender × Goal Orientation Group) MANOVA revealed significant group, Wilks's lambda = .14, $F(6, 230) = 63.07$, $p < .001$, and gender, Wilks's lambda = .94, $F(2, 115) = 3.43$, $p < .05$, main effects for the Goal Orientation scales. Univariate analysis indicated that males were significantly higher in ego orientation than were females, $F(1, 123) = 5.95$, $p < .05$. In addition, the high-task groups (high task/high ego and high task/low ego) scored higher on the Task scale than did the low-task groups (low task/high ego and low task/low ego), $F(3, 123) = 58.82$, $p < .001$. Similarly, the high-ego groups (high task/high ego and low task/high ego) reported higher scores on the Ego scale than did the low-ego groups (high task/low ego and low task/low ego), $F(3, 123) = 78.68$, $p < .001$ (see Table 3).

Table 4 Means and Standard Deviations of the Scale

Scales	All subjects		Females		Males	
	M	*SD*	*M*	*SD*	*M*	*SD*
Goal orientation						
Task	4.17	0.68	4.06	0.73	4.30	0.59
Ego	3.44	0.86	3.16	0.80	3.79	0.82***
Beliefs about success						
Intrinsic interest/ effort	3.94	0.62	3.90	0.65	4.00	0.58
Ability	3.18	0.79	3.01	0.76	3.40	0.79
Deception	2.76	0.95	2.62	0.89	2.92	1.00
Encouraging teacher	3.93	0.68	3.84	0.72	4.03	0.63
Perceived purposes of physical education						
Mastery/cooperation	3.89	0.75	3.88	0.74	3.90	0.76
Active lifestyles	3.90	0.73	3.83	0.73	3.99	0.71
Competition	3.51	0.67	3.31	0.66	3.78	0.57***
Self-esteem/ importance	3.79	0.71	3.69	0.75	3.94	0.63
Easy class	3.18	0.80	3.00	0.78	3.41	0.76
Health/fitness	3.87	0.69	3.80	0.74	3.98	0.61
Motor skills	3.76	0.69	3.70	0.69	3.85	0.72
Rules/strategies	3.61	0.66	3.52	0.64	3.73	0.67
Fun	3.91	0.73	3.86	0.75	3.97	0.72

Note. Significance refers to univariate analyses of differences between males and females.
*$p < .05$. **$p < .01$. ***$p < .001$.

A 2 × 4 (Gender × Goal Orientation Group) MANOVA indicated a significant group effect, Wilks's lambda = .58, $F(12, 270) = 5.06$, $p < .001$, but no significant gender main effect for the Perceptions About Success Questionnaire. Subsequent univariate analyses and Student-Neuman-Keuls follow-up tests showed that members of the low task/low ego group scored significantly lower than the other groups on the scales relating to the perception that success is due to students' intrinsic motivation/effort, $F(3, 112) = 12.63$, $p < .001$, and having a teacher who offers encouragement, $F(3, 112) = 11.17$, $p < .001$. In addition, the high ego groups scored significantly higher than the low ego groups on the scale representing students' perceptions that success is achieved when individuals possess high ability, $F(3, 112) = 7.39$, $p < .001$. Finally, members of the high task/low ego group scored significantly lower than the other three groups in terms of their perceptions that success is achieved when students know how to deceive the teacher, $F(3, 112) = 2.81$, $p < .05$.

A third 2 × 4 (Gender × Goal Orientation Group) MANOVA was run to test for differences in students' perceptions concerning important purposes of physical education. Significant multivariate main effects for gender, Wilks's lambda = .76, $F(9, 86) = 2.93$, $p < .001$, and group, Wilks's lambda = .47, $F(27, 257) = 2.74$, $p < .001$, were observed. Univariate F and Student-Neuman-Keuls follow-up tests revealed that males were more likely than females to perceive that an important purpose of physical education is to provide opportunities for and promote competition among students, $F(7, 94) = 236.06$, $p < .001$ (see Table 3).

ANOVA and post hoc tests indicated that the low task/low ego group differed from the other groups on eight of the nine scales. Specifically, the other groups felt more strongly that important purposes of physical education class include promoting mastery/cooperation, $F(3, 101) = 7.90$, $p < .001$; active lifestyles, $F(3, 101) = 5.99$, $p < .001$; competitiveness $F(3, 101) = 4.19$, $p < .01$; enhancing self-esteem/self-importance, $F(3, 101) = 7.20$, $p < .001$; teaching health/fitness concepts, $F(3, 101) = 11.42$, $p < .001$; developing motor skills, $F(3, 101) = 9.77$, $p < .001$; learning rules/strategies, $F(3, 101) = 3.57$, $p < .05$; and providing a fun class for students, $F(3, 101) = 7.05$, $p < .001$ than did members of the low task/low ego group. The high task/low ego group reported significantly lower scores relating to the perception that physical education should provide an easy class for students, $F(3, 101) = 4.42$, $p < .01$, when compared to the other three groups.

Discussion

Psychometric analyses from the present study provide additional support for the validity and reliability of the TEOSQ when modified for use within the physical education context. The results, in combination with Papaioannou and Duda's (1993) work with Greek students, suggest that the measure will be useful in subsequent research designed to examine individual differences in goal perspectives in physical education. Although the interfactor correlation between the Task and Ego scales was low in this study, the factors were not orthogonal, as has been consistently observed in the sport/academic classroom research. Further use of the measure will be necessary to determine whether the lack of orthogonality was a function of the present sample.

In addition to the psychometric work on the employed measure of goal orientations, this study marks the first attempt to explore students' beliefs about the causes of success in and their perceptions of the purposes of physical education. The results revealed variation in students' views with respect to what has been reported in past classroom and sport research.

For example, Duda and Nicholls (1992), in their survey of high school students, found that students believed that success in school and sport was achieved in four fundamental ways: through hard work/having a desire to learn, by possessing high ability, by being skilled at the use of deception, and via external factors (e.g., in academe, "taking the subjects they are already good at"; in sport, "having the right clothes and equipment"). The present findings failed to find a significant "external" scale, revealing instead that physical education students believed that having an encouraging and devoted teacher was relevant to success in physical education.

In terms of the perceptions of important purposes of physical education, students' responses focused on the content of curriculum (i.e., teaching health/fitness concepts, motor skills, and rules/strategies). In contrast, the emphasis in the classroom and sport work has been more on the social consequences of participation, such as becoming a good citizen or increasing one's social and career status.

Goals, Beliefs, and Purposes

Results from the present study are consistent with previous research on goal orientations in the sport and academic domain (Duda et al., 1992; Duda & Nicholls, 1992). Specifically, students were higher in task orientation than in ego orientation, suggesting that in general they have internalized a mastery perspective. Researchers have expressed concern over the apparent competitive atmosphere of many American classrooms (Ames, 1992; Johnson & Johnson, 1985; Nicholls, 1989). The present findings suggest that students in general, however, are still able to maintain a self-referenced approach to subjective success and competence in spite of this environment. It is interesting to speculate on the potential detrimental motivational consequences for task-oriented students who are inundated with normative feedback concerning their performance over time.

Students' beliefs about the causes of success in and perceptions about the purposes of physical education were also in line with previous sport and education research (Covington & Omelich, 1979; Duda et al., 1992; Duda & Nicholls, 1992; Newton & Duda, 1993). Students believed most strongly that success in physical education is achieved when students have an intrinsic interest in the class, particularly in terms of exerting effort, enjoying their participation, and cooperating with peers. In other words, a "work ethic" is viewed as relevant in the context of physical education.

In addition, students tended to attribute their success to having an "encouraging teacher" to whom they listened and whose directions they followed. Indeed, students believed that having a teacher who encourages them and who is devoted to helping them learn is more important to their subsequent success than having high ability. This finding reinforces the significance of the pedagogy literature focusing on the development of quality teacher training programs, effective teaching behaviors, and positive student–teacher interactions in physical education (Barrett, 1988; Siedentop & Eldar, 1989; Taggart, 1988).

In terms of its important functions, students perceived that physical education should first and foremost provide an enjoyable experience. In light of the stereotype, which is sometimes prevalent among secondary school students, that physical education class is a thing to be endured or avoided, this finding is appealing. Students also indicated that important purposes of physical education include promoting active lifestyles, advocating mastery/cooperation with peers, and teaching health/fitness concepts. These purposes are consistent with several recognized researchers' versions of what physical education should encompass and reinforce (Corbin & Lindsey, 1983; Hellison, 1985; McGinnis, Kanner, & DeGraw, 1991).

Gender differences in the students' reported goal orientations, beliefs about success, and views concerning the functions of physical education were minimal. In the present study, males (a) were significantly higher in ego orientation than

females and (b) perceived that providing opportunities for competition is an important purpose of physical education class more than females did. In previous sport research, males were more likely than females to affirm the perceptions that sport should enhance their social status and provide high status career opportunities (Duda, 1989). In addition, female sport participants are typically significantly higher in task orientation than male sport participants, while males usually score higher on ego orientation (Duda et al., in press).

Goals and Beliefs About Success

As hypothesized, goal orientations were related to students' beliefs about what leads to success in physical education. The high-ego groups were significantly more likely than the low-ego groups to express the belief that success is achieved when students possess high ability. In contrast, the students who were high in task orientation had a greater tendency to endorse the belief that intrinsic interest and high effort are precursors to achievement than did groups low in task orientation. From a motivational viewpoint, students have much to gain from believing that success is achieved by working hard and having a desire to learn, factors that are within their control. When students hold the view that success is achieved when individuals are gifted with superior ability, the implications are clear for those individuals who have low perceptions of competence: They are likely to feel that success is beyond their reach. The extreme condition of such a view is known as "learned helplessness" and describes individuals who perceive that personal failure is inevitable due to a lack of control to cause positive change (Dweck, 1986; Seligman, 1975).

Of interest were the results for the high task/low ego group. Not only did they have the lowest mean score reflecting the belief that success in physical education is achieved when students have high ability, but this group scored significantly lower than the other three groups on the deception scale. That is, the high task/low ego students were the least likely to believe that success in physical education results when students learn to skillfully deceive the teacher (e.g., pretend to like the teacher, work to impress the teacher).

Certainly, educators would like students' sense of accomplishment in physical education class to be related to their hard work and acquisition of knowledge and physical skills rather than to their adept way of cheating or their desire to impress the teacher. Based on the present results, a low task orientation coupled with a strong ego orientation appears to direct students' attention toward less desirable behaviors and motivationally questionable cognitions in physical education.

It is important to note that the low task/low ego students had the lowest mean scores on each of the belief scales. The individual philosophies of these students regarding the determinants of achievement in physical education remains unclear.

Perceptions of the Purposes of Physical Education

The general findings from students' responses to the perceived important purposes of physical education measure were consistent with Nicholls's theory of achievement motivation, although somewhat weaker than had been hypothesized. The high task groups, significantly more than the low task groups, perceived

that an important function of physical education class involves learning the value of mastering skills and cooperating with peers. In terms of fostering a lifetime appreciation and commitment to physical activity, this mastery/cooperation perspective on physical education would seem particularly relevant for physical educators to convey and reinforce with their students.

In addition to an emphasis on the learning of the value of hard work and collaboration, teachers would also probably prefer to have students perceive their physical education class as a challenging course rather than as a class requiring little effort/energy. The high task/low ego students were significantly more likely than the other three groups to downplay the notion that physical education should provide them with an easy class in their school day.

Interestingly, the high task/low ego students evidently did not associate the ease of the class with the enjoyment that they can experience in that context. That is, the high task/low ego students strongly rated having fun as an important purpose of physical education when compared to the other students. This finding is in line with the work of Csikszentmilhalyi (1993), who has found that heightened enjoyment occurs when students face optimal challenges. Minimal challenges (e.g., easy classes) are likely to produce bored students.

The most consistent finding involved the low task/low ego students. They were significantly different from the other three groups on eight of the nine purpose scales. Specifically, the low task/low ego students were less likely to perceive that physical education should encourage mastery/cooperation among peers, promote active lifestyles, teach health/fitness concepts, inform about rules, and instruct in motor skill development. It would appear that this group of students is somewhat alienated from the mainstream of students in physical education. They fail to recognize any particularly salient functions of physical education, and probably find limited meaning in their class participation.

Actually, little is known about this low task/low ego group, and physical educators might benefit from better understanding the thoughts and impressions of these low task/low ego students concerning their involvement in physical education. An awareness of these students' views and beliefs might aid teachers in fostering more positive attitudes toward their participation in physical activity. Future work employing qualitative methods might offer a richer insight into the cognitive patterns of low task/low ego students.

Conclusion

Our results provide further support for advocating a task-involving environment in physical education (Papaioannou, in press). Ames (1984, 1992) has presented a solid foundation to indicate that students have much to gain from acquiring a task orientation in the academic domain. Her recent work has shown that interventions geared at aiding teachers in promoting task-involving climates in their classrooms are both feasible and effective.

Teachers' awareness of their students' personal goals in physical education class can aid the teachers in addressing the individual needs of students. Further, an assessment of students' personal views of what they believe is the underlying criteria for achieving success in physical education could serve as an instructional evaluation for teachers. For example, a teacher whose students believe that ability

is the primary cause for success in physical education class may want to explore strategies to reinforce students' effort and personal improvement.

Little research on goal perspectives has been conducted in physical education settings, but the results of this study suggests that a task orientation may be a more adaptive perspective on achievement in the context of physical education. Further inquiry stemming from goal perspective theory may be important to our understanding of how students' motivational levels may be optimized in this domain.

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