Achievement Goal Orientations and Intrinsic Motivation in Physical Fitness Testing With Children

Marios Goudas, Stuart Biddle, and Kenneth Fox

This study examined the relationship between dispositional achievement goal orientations and intrinsic motivation following physical fitness testing. Students, aged 11–15 years, completed the Task and Ego Orientation in Sport Questionnaire, participated in the 20-m progressive shuttle run test, and then completed a modified Intrinsic Motivation Inventory (IMI). Using their goal orientations, students were placed into one of four groups: low in both task and ego, high ego/low task, high task/low ego, and high in both task and ego. A MANOVA indicated that for students in the “high” and “low” performance groups, differences in intrinsic motivation between goal orientation groups were found. Perceived success and goal orientations had independent effects on intrinsic motivation for the lower performance group but interacted to influence intrinsic motivation for the higher performance group. It is concluded that children have different motivational reactions to fitness testing, depending on their goal profile, performance, and perceived success.

The use of fitness testing has been widespread in schools and has become an integral part of health-related fitness and exercise education. At the same time, a considerable body of research has dealt with issues of validity and reliability of fitness tests, yet researchers have largely neglected the potential motivational effects of fitness testing (9). This is paradoxical since the proponents of fitness testing in schools have often argued that the prime aim is to motivate students to maintain or enhance their levels of fitness or physical activity.

One of the few studies that has dealt with fitness testing from a motivational perspective is that of Whitehead and Corbin (18). They showed that intrinsic motivation increased as a result of positive feedback after the test and decreased following negative feedback. These variations were also mediated by perceived competence. Nevertheless, this study did not take into account possible individual differences in the way that competence and success were construed by the children.

Nicholls (14) argued that individuals may have different goals when engaging in achievement tasks. For some, establishing superiority over the performance...
of others is the primary focus. For others, the focus is on self-improvement and on successful completion of the task. These two different kinds of motivational orientations have been named ego involvement and task involvement, respectively. Nicholls further argued that individuals are, to a certain degree, predisposed toward these two kinds of involvement, and these predispositions have been termed ego orientation and task orientation.

Task and ego orientations have been shown to be uncorrelated constructs (5, 6). Consequently, it is equally possible for an individual to be low in ego orientation and low in task orientation, to be high in ego orientation and low in task orientation, or any other combination. Following this line of argument, Fox et al. (10) studied adolescents’ goal orientation profiles. They found that the group of subjects who were high in both task and ego orientation were also the most motivated in sport. Similarly, research by Duda and her colleagues (4, 16) has shown the utility of investigating goals in combination rather than singly.

Goal orientations theory (14) postulates that a task orientation facilitates intrinsic motivation. When individuals focus on the task at hand and on personal improvement, they are much more likely to view the task as worthwhile for its own sake than when their aim is to secure favorable judgements of their ability or performance. Duda and colleagues have tested this assumption in the sport domain using the Task and Ego Orientation in Sport Questionnaire (TEOSQ). For example, Duda et al. (7) found that task orientation was positively correlated with enjoyment and interest in sport participation, as well as with self-reported exerted effort, whereas ego orientation was negatively related to enjoyment. Similar results with British children were found by Duda et al. (8).

A well-established proposition of cognitive evaluation theory is that intrinsic motivation is enhanced by events that convey positive information about one’s competence (3). However, McAuley and Tammen (13) showed that intrinsic motivation, after an experimental sporting task, covaried with subjects’ perceptions of success in the task rather than with objective measures of success (e.g., win/loss).

The present study, therefore, was a test of whether dispositional goal orientations would be associated with intrinsic motivation following fitness testing. Specifically, it was hypothesized that intrinsic motivation would be lower for students who perceive their success in the fitness test to be low and that this will particularly be the case for those high in ego but low in task orientation.

Method

The participants in this study were 255 students in years 7–10 (aged 12–15 years) of a secondary comprehensive school located in the southwest of England. The students were representative of children from a predominantly rural community.

Fitness Test

The 20-m progressive shuttle run test was used. This is purported to be a test of aerobic fitness (1). Participants were required to run between two lines 20 m apart. The pace was dictated by a cassette tape emitting tones at prescribed intervals. The initial speed was set at 2.2 m·s⁻¹ for the first minute (very slow jog) and increased after each minute. When runners could no longer keep up by
reaching the line at the time of the tone, their participation was terminated and the number of laps completed was recorded (1).

**Instrumentation**

**Goal Orientations.** An established English version of the TEOSQ was used for assessing students’ dispositional goal orientations (8). The TEOSQ elicits scores on ego and task orientations by asking participants to respond to 13 items following the stem “I feel successful in sport when...” The stem referred to “sport” because we have found in research interviews with children that this is more easily understood than reference to exercise, physical activity, or physical education. Each item is answered on a 5-point scale, and prior research has demonstrated acceptable internal reliability and factorial structure with British children of similar age and background (8). In the present study, internal reliability (Cronbach’s alpha) for both task (α = 0.71) and ego (α = 0.80) scales was confirmed.

**Intrinsic Motivation.** The Intrinsic Motivation Inventory (IMI) was utilized to assess intrinsic motivation. The IMI was constructed by Ryan (15), and it assesses four underlying dimensions of intrinsic motivation: Enjoyment/Interest, Effort/Importance, Competence, and Pressure/Tension. McAuley et al. (12) have provided evidence for the construct validity of an 18-item version of the instrument in sport settings. This version was used in the current study with appropriate rewording to be more suitable for the specific context of the study. Internal reliability was confirmed, using Cronbach’s alpha, for the subscales of Enjoyment/Interest (α = 0.84) and Competence (α = 0.77). The Effort subscale initially showed a reliability of only 0.69, but this was increased to 0.76 with the deletion of the item “Running did not hold my attention.” This item was dropped from subsequent analyses. The Pressure/Tension subscale possessed quite low internal reliability (α = 0.63) but was retained for further analyses on an exploratory basis. Previous research has shown similar reliability coefficients for this subscale (12).

**Perceived Success.** Two different items were used to assess students’ perceptions of success: “I felt I ran well compared with others,” and “I felt I ran well for me.” These were written to reflect ego and task perspectives on perceived success respectively. Answers were given on 5-point scales with the following descriptors: YES!, yes, in between, no, and NO! The two items were found to be correlated (r = .55, p < .01) and internally consistent (Cronbach’s alpha = 0.72) and were therefore combined to give a single score of perceived success.

**Procedure**

Students participated in the shuttle run test in groups of 20–25 during normal physical education lessons. Testing was separate for boys and girls. All questionnaires were completed anonymously, and the students were assured that their responses would not be shown to their teachers or parents. Upon arrival in the gymnasium, students completed the TEOSQ and were then informed that they would be participating in the shuttle run. The specific purpose of the session was not explained, and there was no external feedback given to the students for
Table 1  Descriptive Statistics for Task and Ego Orientation Scores

<table>
<thead>
<tr>
<th>Sample</th>
<th>Task</th>
<th></th>
<th></th>
<th>Ego</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Low task/low ego</td>
<td>76</td>
<td>3.45</td>
<td>0.37</td>
<td>2.15</td>
<td>0.39</td>
</tr>
<tr>
<td>Low task/high ego</td>
<td>58</td>
<td>3.55</td>
<td>0.30</td>
<td>3.51</td>
<td>0.48</td>
</tr>
<tr>
<td>High task/low ego</td>
<td>63</td>
<td>4.27</td>
<td>0.28</td>
<td>2.14</td>
<td>0.42</td>
</tr>
<tr>
<td>High task/high ego</td>
<td>58</td>
<td>4.34</td>
<td>0.28</td>
<td>3.33</td>
<td>0.44</td>
</tr>
<tr>
<td>Total</td>
<td>255</td>
<td>3.88</td>
<td>0.51</td>
<td>2.73</td>
<td>0.77</td>
</tr>
</tbody>
</table>

their performance by the supervising teachers or researchers. Upon completion of the test, the students were asked to record their score on the shuttle run and were supervised in doing so. They then completed the two perceived success items and the IMI.

Results

The orthogonality of task and ego orientations was confirmed by a nonsignificant correlation \((r = .05)\) corresponding with results from prior research with similar groups (8, 10). Therefore, four groups were created using a mean split in each of the task and ego subscales (see Table 1). A mean split was used because no published population-specific norms exist for the TEOSQ. Group 1 consisted of students low in both task and ego orientation, Group 2 members were low task/high ego, Group 3 members were high task/low ego, and Group 4 members were high task/high ego. Although group membership was forced in this way, the relatively even distribution of participants across the four cells supports the independence of the ego and task constructs (see Table 1).

To test whether students differing in goal orientations and perceived success rated their intrinsic motivation differentially after the fitness test, a 4 \(\times\) 2 (Goal Groups \(\times\) High/Low Perceived Success) MANOVA was computed with the four IMI subscales as dependent variables. This was done separately for those scoring above the group mean on the run and those scoring below since it is often the case that physical educators are interested in the reactions of groups differing by performance. Pillais’s criterion was used for unbalanced designs, as suggested by Tabachnick and Fidell (17). Perceived success scores were split either side of the group mean. (See Table 2 for descriptive statistics.)

For those scoring above the group mean for the run test, there was a significant multivariate interaction between perceived success and goal groups (Pillais = 0.25, \(p = .01\)). Post hoc univariate ANOVAs showed that there were significant interactions on the IMI subscales of Competence and Enjoyment/Interest. Figures 1 and 2 show that children in the high task/low ego group had lower Competence and Enjoyment/Interest scores if they perceived their run to be unsuccessful.
### Table 2  Means for Intrinsic Motivation Classified by Goal Orientation

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Competence</th>
<th>Enjoyment</th>
<th>Effort</th>
<th>Tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low score group (n = 119)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low task/low ego</td>
<td>40</td>
<td>2.81</td>
<td>2.31</td>
<td>3.54</td>
<td>2.66</td>
</tr>
<tr>
<td>Low task/high ego</td>
<td>25</td>
<td>2.79</td>
<td>1.89</td>
<td>3.02</td>
<td>3.06</td>
</tr>
<tr>
<td>High task/low ego</td>
<td>34</td>
<td>3.07</td>
<td>2.88</td>
<td>3.84</td>
<td>2.65</td>
</tr>
<tr>
<td>High task/high ego</td>
<td>20</td>
<td>2.80</td>
<td>2.30</td>
<td>3.39</td>
<td>2.93</td>
</tr>
<tr>
<td>High score group (n = 109)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low task/low ego</td>
<td>27</td>
<td>3.60</td>
<td>2.68</td>
<td>3.93</td>
<td>2.72</td>
</tr>
<tr>
<td>Low task/high ego</td>
<td>24</td>
<td>3.63</td>
<td>2.44</td>
<td>4.03</td>
<td>2.73</td>
</tr>
<tr>
<td>High task/low ego</td>
<td>22</td>
<td>3.76</td>
<td>2.96</td>
<td>4.25</td>
<td>2.63</td>
</tr>
<tr>
<td>High task/high ego</td>
<td>36</td>
<td>3.82</td>
<td>3.06</td>
<td>3.95</td>
<td>2.96</td>
</tr>
</tbody>
</table>

![Figure 1](image)

**Figure 1** — Interactions between goal groups and perceived success on the Competence subscale.
Predictably, for the high achievers with a low perception of success, the high task/low ego group was small ($n = 5$). In addition, the MANOVA showed a main effect for perceived success but no effect for goal groups. As expected, those rating their performance as successful reported higher levels of Competence, Enjoyment/Interest, and Effort/Importance compared with those perceiving their performance as unsuccessful.

For those scoring below the group mean for the run test, there was no multivariate interaction between goal groups and perceived success, but there was a significant main effect for both independent variables (perceived success: Pillais $= 0.39, p < .0001$; goal groups: Pillais $= 0.27, p < .001$). Post hoc univariate tests showed that differences between the two perceived success groups on Competence, Enjoyment/Interest, and Effort/Importance (all $p < .0001$), as well as Pressure/Tension ($p = .05$), were in the expected direction. Follow-up univariate ANOVAs on the goal groups showed that only Enjoyment/Interest and Effort/Importance were significant. Post hoc Scheffe tests showed that for Enjoyment scores, children in the high task/low ego group had significantly higher scores than for those in Groups 1 (low task/low ego) and 2 (low task/high ego). As far as Effort scores were concerned, the only difference was between Groups 2 (low task/high ego) and 3 (high task/low ego), with the latter having higher scores.
Discussion

This study has shown that achievement goal orientations are important factors to consider when investigating the motivational effects of fitness testing with children. Specifically, it was found that for those in the higher performance group, both goals and perceived success in combination were important as far as posttest intrinsic motivation was concerned. However, it appeared that only the high task/low ego group was affected by their perception of success such that the small group of children perceiving their performance to be unsuccessful reported lower feelings of competence and enjoyment than those thinking that their run was successful. One might predict that such children would be motivated to improve on their performance in subsequent fitness tests, and to that extent, their reactions might be motivationally adaptive.

For those in the lower performance group, goal orientations and perceived success were both important factors but were independently related to intrinsic motivation. The effects of perceived success were as predicted. Perhaps more importantly, the effects for goals showed that those in the high task/low ego group had the highest enjoyment and effort scores, and this was significantly higher in comparison with the low task/high ego group in both cases. It is an important finding that children in a lower ability group are able to maintain intrinsic motivation if they adopt a high task/low ego goal orientation. It is these children who are likely to need the most help in improving their exercise behaviors and fitness performance.

These results show that students’ dispositional goal orientations can affect the way they react to physical fitness tests and that the combination of high task and low ego appeared most beneficial.

Research has also shown that students’ goal orientations can be situationally induced (2, 11). For example, Butler (2) found that students who were given normative-referenced feedback reported lower levels of intrinsic motivation regarding an academic task than students who were given positive self-referenced feedback. Similarly, Lloyd and Fox (11) studied two school physical education (aerobics) classes. One class was encouraged to be externally referenced and emphasized peer and normative comparisons of performance. The other class was more self-referenced, discouraged comparison, and focused more on self-improvement. It was shown that low ego-oriented children in the externally referenced group had significantly raised ego goal scores after the 6-week program. From a practical standpoint, therefore, the motivational effects of fitness testing observed in the present study maybe influenced through manipulations in teaching that alter children’s goal orientations. This lends weight to the argument that fitness testing is not motivational in itself. It is the way the child views the test situation that appears to be critical, particularly with reference to their goals, and this can be influenced by the teacher.

The results shown in Table 2 are consistent with goal perspectives theory (14) in which motivational deficits are predicted for high ego-oriented individuals who demonstrate inferior performance. Effort and enjoyment were sustained for the lower scorers on the fitness test only if they were high in task and low in ego orientation. This is an important finding for both confirmation of goal perspectives theory and for motivational implications of fitness testing for children.
In conclusion, the present study shows that individual differences in achievement goal orientation are clearly associated with motivational reactions to fitness testing. Because the feedback from test scores also affects subsequent motivation (18), we conclude that the effects of fitness testing are complex and that motivational enhancement cannot be taken for granted. These findings, however, substantiate previous guidelines on fitness test administration in calling for a reduced emphasis on normative scores. For example, Fox and Biddle (9) regard fitness test scores as stimuli for and, at the same time, checks of self-improvement. These results support such an approach, particularly for those children performing less well on the test itself.

References


**Notes**

1A comprehensive school in England is equivalent to the American public high school.

2Although it is common practice to provide a number of fitness tests for children to take in one session, we have argued elsewhere (9) that this is educationally less defensible than integrating a test of one aspect of health-related fitness within a teaching unit that specifically focuses on that component of fitness.

3This was felt to be justified on the grounds of controlling for extraneous variables, although it is recognized that normal practice would usually include an explanation why the run was being performed and would allow for external feedback.

**Acknowledgments**

We would like to thank the students and staff of Wadebridge School, Cornwall, for their cooperation, and in particular Dave Allen. In addition, we thank the two anonymous reviewers who supplied comprehensive and helpful comments on an earlier draft of the paper. This study was supported by a research grant awarded to Dr. Biddle by the University of Exeter School of Education. This support is gratefully acknowledged.