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Correlates of Achievement Goal Orientations in Physical Activity: A Systematic Review of Research

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Abstract

There has been a plethora of studies in the past decade investigating task and ego achievement goal orientations in physical activity settings and how they might be associated with various cognitive, affective and behavioural variables. Although comprehensive narrative reviews of the field exist, no systematic review has been reported except one meta-analysis on only goals and affect. The present paper, therefore, reports a systematic review of 10 correlates of achievement goal orientations across 98 studies and 110 independent samples (total N=21,076). Studies are invariably cross-sectional, leading to an inability to conclude causal effects, and are biased towards young people. Frequencies and effect size calculations show associations of varying magnitude between a task orientation and a). beliefs that effort produces success (positive association: +), b). motives of skill development and team membership (+), c). beliefs that the purpose of sport/PE is for fostering mastery, fitness, and self-esteem (+), d). perceptions of competence (+), e). positive affect (+), f). negative affect (negative association: -), g). parental task orientation (+), and h). various measures or markers of behaviour (+). Associations of varying magnitude were found between an ego orientation and a). beliefs that possessing ability produces success (+), b). motives of status/recognition and competition (+), c). beliefs that the purpose of sport/PE is for social status (+), d). perceptions of competence (+), e). unsportspersonlike attitudes, endorsement of intentionally aggressive sport acts, and the display of aggressive behaviours in sport (+), and f). parental ego orientation (+).

Key words: achievement goal orientations, task, ego, motivation, systematic review.

Much of contemporary research on achievement motivation in physical activity settings during the past decade or so has been based on an achievement goal approach (Duda & Hall, 2001; Roberts, 2001b), with this, in turn, based on seminal work in educational and other settings (Dweck, 1999; Nicholls, 1989). It is argued that achievement goals represent an integrated and systematic approach to the study of human motivation in achievement settings because they encompass not just the reasons for engaging in an achievement task but also the standards or criteria for judging successful performance (Pintrich, 2000).

Achievement goals reflect how people define success. An assumption is that the goal of action is the demonstration of competence. Consequently, the perception of competence or ability becomes central. Although different labels have been used in achievement goals research, there is agreement that two major achievement goals operate. The first focuses on self-referenced mastery or learning how to do the task and is usually labelled “task-involvement” goal. The second emphasises normative comparison of ability or performance relative to others and is labelled “ego-involvement” goal (Pintrich, 2000). Furthermore, variations in these goal perspectives are thought to be linked to different cognitive, affective and behavioural outcomes. Specifically, a more motivationally positive pattern is predicted by task goals and a less positive pattern is associated with ego goals, with the latter depending on various factors such as perceived competence (Dweck, 1999; Nicholls, 1984, 1989).

According to Nicholls (1989), two conceptions of ability manifest themselves in the goals individuals pursue when engaging in achievement-related activity. Individuals tend to employ the undifferentiated conception of ability – where ability is not differentiated from effort - when they are engaged in tasks that are characterised by low social evaluation, low emphasis on competition, and learning processes that are highly valued. When this conception of ability is induced, individuals are in the state of task involvement. On the other

hand, the more differentiated conception of 'ability as capacity' is used when the situation is characterised by high evaluation or as a test, events that increase public self-awareness (e.g., presence of others), or interpersonal competition or comparison. When the differentiated conception of ability is activated, individuals are said to be ego-involved. The activation of task and/or ego involvement is dependent on the dispositional orientation of the individual and/or the perceived situational climate. Dispositional task and ego goal orientations are the individual tendencies, or preferences, for one or both of these states of involvement. Research has shown that task and ego orientations are largely orthogonal and therefore individuals can be low or high in both, or be low or high in one but not the other (Fox, Goudas, Biddle, Duda, & Armstrong, 1994; Roberts, Treasure, & Kavussanu, 1996).

Much of the literature examining goal orientations in physical activity settings has investigated the motivational, affective and behavioural concomitants of dispositional goal orientations. Reviews have been published and have provided valuable summaries of the field (e.g., Duda & Hall, 2001). However, with the exception of the focused meta-analysis by Ntoumanis and Biddle (1999) on achievement goals and affect, we are not aware of a published review on the correlates of achievement goal orientations using established systematic review procedures, as recognised in health and other research domains (see Egger, Davey Smith, & Altman, 1995). This is the purpose of this paper. Specifically, the aim is to systematically review[1] studies that have examined the correlates of dispositional goal orientations during the last decade. This is considered an important research task because of the growing number of studies in the field and the almost exclusive use of non-systematic narrative review procedures.

[1] A systematic review is recognised as a method of clear search, inclusion and exclusion strategies that yield a defined set of studies for review. This contrasts with traditional 'narrative' reviews where such strategies are not explicit and, as such, the reader is unsure as to the inclusive or biased nature of the literature being reviewed. A meta-analysis is a specific method of systematic review where effect sizes are calculated for relationships between variables or for differences between groups. Not all sets of literature are appropriate for a meta-analytic review due to the disparate nature of studies.

Method

The body of research concerning the correlates of goal orientations is extensive. Two steps were taken to limit the search for the purposes of coherence. First, only studies using either the Task and Ego Orientation in Sport Questionnaire (TEOSQ) (Duda & Whitehead, 1998) or the Perception of Success Questionnaire (POSQ) (Roberts, Treasure, & Balague, 1998) to measure dispositional goal orientations in sport and physical activity domains were included. All types of physical activity were included to enable greater generalisability of findings. Second, only published articles in the English language from 1990 to 2000 were included. Unpublished articles, conference papers, dissertations, qualitative studies, and studies in languages other than English were excluded, as were papers not reporting data on associations or group differences between goal orientations and cognitive, affective or behavioural variables. The latter papers would typically be narrative reviews. However, studies were not excluded on methodological criteria (e.g., cross-sectional designs) because we wished to assess the methodological trends as part of the systematic review.

Studies were identified by means of computer searches (ISI Web of Science, BIDS, First Search, Sport Discus, and PsychLit), manual searches of reference lists, as well as searches of extensive personal files of five researchers in the field. Key words used in the electronic search were: goal orientations, achievement goals, goal perspectives, task and ego goals, goals, motivation, beliefs, anxiety, enjoyment, intrinsic motivation, sport, exercise, physical activity, and physical education (PE). Using these selection and inclusion criteria, we analysed 98 studies (papers), involving 110 independent samples. A quantitative assessment of research trends was conducted through either the calculation of effect sizes or quantified trends of study characteristics, such as percentages or frequencies. Where effect size calculations were possible, we used information, if available, from each study on sample size, reliability (internal consistency), and correlation coefficients provided in the articles.

Correlation coefficients were corrected for sampling error and measurement error according to the procedures suggested by Hunter, Schmidt, and Jackson (1982). We provide only the true population effect sizes (i.e., reported correlations corrected for attenuation). When reporting effect sizes, we used Cohen's (1992) criteria of 0.10, 0.30, and 0.50 to represent 'small', 'medium' and 'large' effect sizes respectively. Due to the limited number of studies in some areas, tests for moderation were not conducted.

Ten main categories of correlates of achievement goal orientations were identified. These report associations between goal orientations and:

- beliefs about the causes of success
- beliefs about the purposes of sport and physical education
- the use of learning and competitive strategies
- perceptions of competence
- motives for participation
- positive affect
- negative affect
- attitudes towards intentional aggressive acts, rule violations, and cheating
- perceptions of significant others' goal orientations
- motivation-related behaviours.

Results

Of the 110 independent samples reviewed, ages ranged from 10 to 64.5 years, but the majority (74.2%) involved young people aged between 11 and 19 years. Most assessed goal orientations using the TEOSQ (80.6%). The total sample size reviewed was 21,076.

Results will be presented in categories. In each case, the predictions of goal perspectives theory will be stated and tested through the results of the systematic review. Summary

quantified findings are presented but, for the sake of brevity, summary tables listing each study are not (they are available from the first author).

Beliefs about the Causes of Success

Nicholls (1989) suggested that beliefs about the causes of success and goal orientations form a 'personal theory' with regard to how people operate in achievement settings. It is predicted that task orientation, due to its emphasis on effort, is positively associated with the belief that hard work and collaboration with peers lead to success. On the other hand, ego orientation, with its focus on demonstrating superiority, is positively related to the view that success is achieved through having high ability, or through external factors such as cheating or deception.

We located 28 studies with 27 independent samples across eight different countries (17 from USA, 4 from the UK, one study each from other countries) using a wide variety of participants, including high school students, disabled athletes, elite student athletes, summer camp participants, and adults (Biddle, Akande, Vlachopoulos, & Fox, 1996; Boyd & Callaghan, 1994; Carpenter & Morgan, 1999; Duda, Fox, Biddle, & Armstrong, 1992; J.L. Duda & Nicholls, 1992; Duda & White, 1992; Fry & Fry, 1999; Guivernau & Duda, 1994; Guivernau & Duda, 1998; Hom, Duda, & Miller, 1993; King & Williams, 1997; Lochbaum & Roberts, 1993; Newton & Duda, 1993; Newton & Duda, 1999; Newton & Fry, 1998; Roberts & Ommundsen, 1996; Roberts et al., 1996; Seifriz, Duda, & Chi, 1992; Solmon & Boone, 1993; Spray, Biddle, & Fox, 1999; Treasure & Roberts, 1994, 1998; Van-Yperen & Duda, 1999; Viira & Raudsepp, 2000; Walling & Duda, 1995; White & Duda, 1993; White & Zellner, 1996). The total number of participants was 4464 (range = 47-385, Mean n = 179). Seven studies involved students less than 14 years of age (26%) and six studies (22%) sampled university students aged 20 years and above. Only one study examined older adults

(Newton & Fry, 1998). The majority of these studies employed the TEOSQ (85.7%) as the measure of achievement goal orientations.

All studies were cross-sectional using questionnaires to examine the relationships between achievement goals and beliefs about the causes of success. The vast majority of the studies used the Beliefs About Causes of Success in Sport Questionnaire (BACSSQ) by Duda and Nicholls (1992). Almost all studies reported a positive relationship between task orientation and effort beliefs. Ego orientation was clearly related to ability beliefs and four out of eight studies found a positive relationship between ego orientation and deception/external factors. This relationship seems to be stronger among males than females.

From the 28 studies, 19 qualified for meta-analytic calculations because the relevant information was provided in the published articles. This yielded a total of 2,642 participants. The effect size for task orientation on effort was .47, a moderate-to-large effect (Cohen, 1992). The effect size for task orientation on ability beliefs was .08, and deception -.07. For ego orientation, the effect size for ability beliefs was .45, for effort .05, and deception .06.

Beliefs about the Purposes of Sport and Physical Education

Nicholls (1989) has argued that an individual's propensity towards task or ego involvement is related to the beliefs one holds concerning the wider purposes of the achievement activity. For example, task orientation has been found to link with the beliefs that the purpose of education is to gain knowledge and becoming a useful citizen in society, while ego orientation relates to the belief that the purpose of schooling is to enhance one's social status and gain wealth.

We located and reviewed 10 studies in physical activity with 2041 participants (range = 132-338; Mean n = 204) (Carpenter & Yates, 1997; Newton & Fry, 1998; Ommundsen & Roberts, 1996; Papaioannou & Macdonald, 1993; Roberts & Ommundsen, 1996; Roberts, Hall, Jackson, Kimiecik, & Tonymon, 1995; Treasure, Carpenter, & Power, 2000; Roberts,

Treasure, & Hall, 1994; Walling & Duda, 1995; White, Duda, & Keller, 1998). There were four studies from the USA, three from the UK, two from Norway and one from Greece. Four studies looked at school-aged children or athletes, four examined adult elite athletes, and two involved university students. Eight of the ten studies reported data on males and females.

In line with classroom investigations, research in physical activity has consistently demonstrated that a task orientation is associated with the belief that the purpose of sport is to promote mastery and the values of effort exertion, enhance social responsibility, as well as encourage lifetime participation. We found that 75% of our studies supported this. Ego orientation has been linked to the belief that sport is a means of enhancing one's status and recognition and all studies supported this. Two studies investigating the purposes of school PE were also consistent with those from the competitive sport domain.

It was difficult to quantify the results across the 10 studies due to the diversity of methods and analyses used, as well as studies not reporting some correlations. Thus, the meta-analysis only involved 3 independent samples (n=578). Results should therefore be viewed with caution. Results showed that task orientation had a positive relationship with mastery/cooperation (.56), fitness/health (.37), self-esteem (.48), and being a good citizen (.32) as purposes of sport and/or PE. The effect of task orientation on social status was .05. On the other hand, ego orientation had a large association with social status (.53) and a moderate association with self-esteem (.29). The effect sizes of ego orientation on mastery/co-operation (-.08) and fitness/health (.06) were very small.

Use of Learning and Competitive Strategies

Nicholls (1989) has proposed, and subsequent empirical work has demonstrated, that personal theories of achievement, built on goal orientations, comprise beliefs about the causes of success. It has been suggested that these beliefs may be reflected in the achievement strategies athletes adopt during practice and competition, and hence may be associated with

dispositional achievement goals (Roberts & Ommundsen, 1996). Individuals who believe that effort leads to success value practice and competition as a means to gain improvement. Conversely, individuals who view high ability as the main cause of success in sport are more likely to devalue the role of practice and focus on competition as a means to demonstrate their ability. Thus, task orientation is predicted to be related to the use of more effective learning and competitive strategies, such as mastery and problem-solving, whereas ego orientation is expected to be associated with maladaptive learning and performance strategies, such as avoiding practice and focusing on outcome.

We located four studies using four independent samples (Lochbaum & Roberts, 1993; Roberts & Ommundsen, 1996; Roberts et al., 1995; Solmon & Boone, 1993). Overall, 872 participants were included (range = 90 - 338; Mean n = 218). Samples were reported from the USA (k = 3) and Norway (k=1). Two studies (50%) reported data on both males and females, while the remaining two did not specify participants' sex. Age of participants, when reported, reflected adolescents and young adults. All studies were cross-sectional.

Task orientation was linked to adaptive achievement strategies (e.g., practice mastery, persistence in practice, or exerting effort in competition) in three studies (75%), and inversely associated with practice avoidance in one study. The role of ego orientation is less clear as it has been linked to both adaptive and maladaptive achievement strategies, such as practice avoidance and seeking practice in one study. No appreciable relationship between ego orientation and achievement strategies was identified. Correlations and canonical loadings were moderate in size.

Perceived Competence

The interplay between individuals' achievement goal orientations and perceptions of competence in determining motivational patterns represents a critical component of goal perspective theory (Duda & Hall, 2001; Nicholls, 1989). Duda, Chi, Newton, Walling and

Catley (1995) have argued that individuals are likely to be more or less task- and/or ego-oriented regardless of how able they think they are at an activity. On the other hand, theoretical tenets suggest that task-oriented individuals employ a less differentiated conception of ability and focus on self-referenced criteria such as task mastery and self-improvement. Therefore, task orientation should develop or maintain levels of perceived competence. Ego-oriented individuals, in contrast, are more concerned with the adequacy of their ability in comparison with others, which should increase the likelihood of feeling incompetent on occasions. Associations between task and ego goal orientations and perceived competence, however, are often not the central focus of research studies and therefore not regularly reported.

We located 29 published papers and 30 independent samples that have examined relationships between goal orientations and perceived competence (Biddle, Soos, & Chatzisarantis, 1999; Boyd & Callaghan, 1994; Boyd & Yin, 1996; Dorobantu & Biddle, 1997; Duda et al., 1995; Duda & Nicholls, 1992; Dunn, 2000; Ebbeck & Becker, 1994; Ferrer-Caja & Weiss, 2000; Fox et al., 1994; Goudas, Biddle, & Fox, 1994b; Goudas, Biddle, Fox, & Underwood, 1995; Guivernau & Duda, 1998; Hatzigeorgiadis & Biddle, 1999; Hodge & Petlichkoff, 2000; Hom et al., 1993; Kimiecik, Horn, & Shurin, 1996; Lintunen, Valkonen, Leskinen, & Biddle, 1999; Liukkonen, Telama, & Biddle, 1998; Ommundsen & Pedersen, 1999; Papaioannou & Theodorakis, 1996; Seifriz et al., 1992; Spray, 2000; Stephens, 1998; Vlachopoulos, Biddle, & Fox, 1996, 1997; Williams, 1994; Williams & Gill, 1995; Xiang & Lee, 1998). Overall, 6,410 participants were studied (range = 24-723, Mean n = 213.7). Samples were reported from 8 countries, with the majority from the USA (k = 16) and the UK (k = 7). Over 80% of studies reported data on both males and females. Twenty-five studies (83.3%) examined participants under 20 years of age, with 12 of these samples reporting a mean age of under 14 years. The remaining samples looked at participants in their

twenties; no studies were identified which reported relationships between goal orientations and perceived competence in older adults.

The measurement of perceived competence was varied, including single items, adaptations of educationally-based measures to specific athletic activities, and use of adapted perceived competence subscales from the Intrinsic Motivation Inventory (IMI) (McAuley, Duncan, & Tammen, 1989) and the Physical Self-Perception Profile (PSPP) (Fox & Corbin, 1989). Most studies (93.3%) utilised the TEOSQ.

The vast majority of studies reported relationships between goals and perceived competence (simple correlations, canonical correlations, path coefficients), with one reporting mean differences according to goal profiles (Fox et al., 1994). Just under half of the samples (48%) revealed a positive relationship between both task and ego goals and perceptions of competence, and a further 31% showed a positive relationship between either goal orientation and perceived competence (5 studies reported a significant positive relationship for task orientation only, and 4 studies reported a significant positive relationship for ego orientation only). Nearly all positive relationships were small with correlations rarely exceeding 0.3. No significant association between either goal orientation and perceived competence was found in 21% of the studies. Meta-analysis (K = 26) revealed small-to-moderate effect sizes for goal orientations on perceived competence (task orientation-perceived competence .25, ego orientation-perceived competence .24).

Motives for Participation

It is claimed that achievement goals are predictive of individuals' motives for participation in sport (Duda, 1993). Primary motives include the development of skill, fitness enhancement, affiliation, the desire to be part of a group or team, competition, and fun (Gould & Petlichkoff, 1988). It has been argued that the way one predominantly defines success and construes competence is logically related to an individual's priorities in

achievement settings (Duda, 1993, 2001; Roberts, 1992, 2001a). Thus, the ego-oriented person who is primarily concerned with demonstrating superior ability over others would be expected to participate in sport in order to demonstrate normative competence and receive recognition for this. Ego orientation, therefore, is likely to be coupled with more extrinsic motives for participation, such as social recognition and gaining status. In contrast, the task-oriented person, who is primarily concerned with skill mastery and learning, would be expected to participate in sport for skill development, enjoyment, and other intrinsic facets of the experience that are conceptually consistent with this achievement goal. Task orientation, therefore, should be related to more intrinsic motives for involvement, such as developing skills and being part of the team.

We located two studies using two independent samples that have examined achievement goals in relation to motives for participation in sport (White & Duda, 1994; Zahariadis & Biddle, 2000). A total of 647 (range = 235 – 412; mean = 323) participants were studied. The first study was conducted in the USA, the second in the UK, and they included both males and females ranging in age from 11 to 26 years old. Both studies used the TEOSQ and the Participation Motivation Questionnaire (Gill, Gross, & Huddleston, 1983) and both were cross-sectional.

Task orientation was positively related to skill development and team membership in both studies, positively related to competition, fitness and affiliation in one study, and inversely associated with status/recognition in one study. Ego orientation, on the other hand, was positively linked to status/recognition in both studies, and competition in one study, and inversely associated with energy release and team atmosphere in one study. Associations were generally moderate in magnitude.

Positive Affect

One of the most widely studied correlates of goal orientations is positive affect. Usually this has been operationally defined as enjoyment, intrinsic interest and satisfaction. According to motivational research, task orientation enhances intrinsic motivation because the focus is on task mastery, promoting challenges and supporting autonomy (Deci & Ryan, 1985; Dweck & Leggett, 1988). In contrast, ego orientation produces external pressures to perform well thereby leads to an increase in anxiety and possible diminishing of intrinsic motivation. Theoretically, therefore, task orientation should be positively related to positive affect because the achievement activity is experienced as an end in itself and is more likely to be regulated by self-determined rather than controlling reasons for involvement. Ego orientation should be either unrelated or negatively related to positive affect because involvement in the activity is experienced as a means to an end, in this case to demonstrate superior ability over others, hence is more likely to involve controlling forms of behavioural regulation (Deci & Ryan, 1985).

Ntoumanis and Biddle (1999) conducted a meta-analysis of achievement goals and positive and negative affect in physical activity settings. A total of 37 published articles and conference abstracts, including 41 independent samples (N = 7950), were examined. Results showed that for task orientation and positive affect the effect size was small-to-moderate (r = .36), but higher when measurement and sampling error were accounted for (r = .55). In contrast, the effect size for ego orientation on positive affect was positive but very small (r = .07). The authors reported that all studies were correlational and thus no causal relationships could be inferred. This indicates that there is a need for experimental studies to examine the effects of goals on affective outcomes.

We located 48 published papers, including 47 independent samples (Balaguer, Duda, & Crespo, 1999; Biddle et al., 1996; Boyd & Callaghan, 1994; Boyd & Yin, 1996; Brunel,

1999; Carpenter & Morgan, 1999; Cury et al., 1996; Digelidis & Papaioannou, 1999; Dorobantu & Biddle, 1997; Duda et al., 1995; Duda et al., 1992; Duda & Nicholls, 1992; Ferrer-Caja & Weiss, 2000; Fox et al., 1994; Fry & Fry, 1999; Goudas, Biddle, & Fox, 1994a; Goudas et al., 1994b; Goudas et al., 1995; M. Guivernau & Duda, 1998; Hom et al., 1993; Kavussanu & Roberts, 1996; Kim & Gill, 1997; Lintunen et al., 1999; Liukkonen et al., 1998; Newton & Duda, 1993; Newton & Duda, 1999; Newton & Fry, 1998; Ntoumanis, Biddle, & Haddock, 1999; Ommundsen, Roberts, & Kavussanu, 1998; Papaioannou & Kouli, 1999; Papaioannou & Theodorakis, 1996; Roberts & Ommundsen, 1996; Roberts et al., 1995; Roberts et al., 1996; Seifriz et al., 1992; Spray, 2000; Spray et al., 1999; Stephens, 1998; Treasure & Roberts, 1998; Viira & Raudsepp, 2000; Vlachopoulos & Biddle, 1996; Vlachopoulos et al., 1996, 1997; Vlachopoulos & Biddle, 1997; Williams & Gill, 1995; Xiang, Lee, & Solmon, 1997; Yoo, 1999). Overall, 12,275 participants were studied (range = 24-1070; Mean n= 261.2). Samples were reported from 12 countries, with the majority from the USA (k=19), the UK (k=13) and the rest of Europe (excluding the UK) (k=12). Most studies reported data on both males and females (85.1%). Samples tended to be young with 51.1% including those less than 14 years of age. Just under one quarter (23.4%) sampled those aged 20 years or above but only one study investigated older adults (Newton & Fry, 1998).

The measurement of positive affect included an assessment of enjoyment (76.6%), satisfaction (10.6%), ‘positive affect’ (6.4%; either from the PANAS or a study-specific measure of generalised positive affect), as well as other scales (8.5%; e.g., flow). Of the 36 studies assessing enjoyment, most used the enjoyment or satisfaction/interest subscales from either the IMI (McAuley et al., 1989) (55.6%) or Duda and Nicholls’ (1992) scale (30.6%).

Results reported either correlations between goals and measures of positive affect or mean differences in positive affect between goal profile groups. The results were highly

consistent with 42 of 47 studies (89.4%) reporting a positive association between task orientation and positive affect. For ego orientation, two of 44 studies (4.5%) showed a negative association with positive affect, 31 (70.5%) showed no association, and 11 (25%) showed a positive association. Of these 11 studies, four (36.4%) reported higher positive affect scores for those with high task and high ego, while seven (63.6%) studies showed an effect for ego orientation alone. We were able to calculate effect sizes for 39 studies (N=10272) and found a moderate-to-strong effect for task orientation on positive affect (ES = .43), but no association between ego orientation and positive affect (ES = .05), confirming the findings of Ntoumanis and Biddle (1999).

It has often been suggested that a high task orientation, either alone or in combination with a high ego orientation, is motivationally adaptive and likely to lead to positive affect (Biddle, 2001). In analysing the 11 studies showing higher positive affect scores for those with a high ego orientation, most involved sport participants, with three studies involving schoolchildren in unspecified settings. Research has shown that those adopting a high task and high ego profile are more likely to be those enthusiastic about, or attracted to, playing sport (Fox et al., 1994; Wang & Biddle, 2001) and this seems to be consistent with our findings. In the only sample showing ego but not task orientation to be associated with positive affect (Ommundsen et al., 1998; Roberts & Ommundsen, 1996) the strength of effect was quite weak.

No potential moderators of the relationship between goal orientations and positive affect appeared significant. No discernible trends were detected for gender, age, measurement of goals or affect, or physical activity setting although it should be noted that little variation existed in age, most studies investigated males and females together, and some categories had few studies, such as physical activity not classified as physical education or sport. Further tests of moderation are needed.

Negative Affect

Negative affect has been operationally defined in terms of constructs such as anxiety, boredom and generalised negative affect measures. With a focus on promoting challenge and self-improvement, one might predict that a task orientation will be inversely related to negative affect. In contrast, ego orientation produces external pressures to perform well, thus predicting increases in anxiety and negative affect.

Ntoumanis and Biddle's (1999) meta-analysis of achievement goals and negative affect in physical activity settings showed a small and negative effect size for task orientation (r = -.18 when corrected for sampling and measurement error) and an effect size close to zero for ego orientation (.04). The authors reported that all studies were correlational and thus no causal relationships could be inferred.

We located 38 published studies with 7780 participants (range = 24-1070; Mean n= 205) (Biddle et al., 1996; Boyd & Yin, 1996; Carpenter & Morgan, 1999; Duda et al., 1995; Duda et al., 1992; Duda & Nicholls, 1992; Fox et al., 1994; Goudas et al., 1994a; Goudas et al., 1995; Grieve, Whelan, Kottke, & Meyers, 1994; Guivernau & Duda, 1998; Hall & Kerr, 1997; Hall, Kerr, & Matthews, 1998; Hatzigeorgiadis & Biddle, 1999; Hom et al., 1993; Newton & Duda, 1993; Newton & Duda, 1995; Newton & Duda, 1999; Newton & Fry, 1998; Ntoumanis & Biddle, 1998; Ntoumanis et al., 1999; Ommundsen & Pedersen, 1999; Pensgaard & Roberts, 2000; Roberts et al., 1996; Seifriz et al., 1992; Spray et al., 1999; Viira & Raudsepp, 2000; Vlachopoulos & Biddle, 1996; Vlachopoulos et al., 1996, 1997; Vlachopoulos & Biddle, 1997; Voight, Callaghan, & Ryska, 2000; White, 1998; White & Zellner, 1996; Xiang et al., 1997; Yin & Boyd, 1994; Yoo, 1999). Samples were reported from 8 countries, with the majority from the USA (k=16) and the UK (k=14). All studies were cross-sectional and most reported data on both males and females (81.6%). Samples tended to be young with 44.7% including those less than 14 years of age. Just over one third

(36.8%) sampled those aged 20 years or above. The measurement of negative affect included the assessment of anxiety-related constructs (52.6%; e.g., distress, negative thoughts, and anxiety, the latter assessed, for example, using the well-known STAI[2] or CSAI-2[3] scales), boredom (28.9%, usually assessed using the scale reported by Duda & Nicholls, 1992), and generalised negative affect (13.2%, assessed either using the PANAS[4] or a scale derived from a factor analysis of affect adjectives). Most studies used the TEOSQ (86.8%) to assess goal orientations.

Results reported either correlations between goals and measures of negative affect or mean differences in negative affect between goal profile groups. The results showed that negative affective reactions were positively associated with ego orientation in 34% of the studies, and inversely associated with task orientations in 34%. Over half of the studies showed no relationship between negative affect and ego (52.6%) or task (60.5%) orientations. We were able to calculate effect sizes for 35 studies and found small effects for task orientation (ES = -.15) and ego orientation (ES = .07). These confirm the findings of Ntoumanis and Biddle (1999).

Attitudes towards Intentional Aggressive Acts, Rule Violations, and Cheating

Researchers have also examined the role of goal orientations on moral issues in sport. Specifically, achievement goals have been investigated in relation to 'sportspersonship', judgements regarding intentionally injurious sports acts, self-reported likelihood to aggress against an opponent, and aggressive behaviour. Nicholls (1989) has argued that the focus of an ego-oriented person on demonstrating superiority over others may result in a lack of concern about justice and fairness and the welfare of opponents in a competitive setting. In contrast, individuals high in task orientation, because their major concern is to fulfil their own

[2] State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970)
[3] Competitive State Anxiety Inventory, version 2 (Martens, Vealey, & Burton, 1990)
[4] Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988)

potential, want to play by the rules and experience a fair competition and are therefore less likely to endorse or display aggressive behaviours.

Five studies using five independent samples were located (Duda, Olson, & Templin, 1991; Dunn & Dunn, 1999; Rascle, Coulomb, & Pfister, 1998; Stephens, 2000; Stephens & Bredemeier, 1996). Overall, 905 participants were studied (range = 120 - 307; mean n = 201). Samples were reported from three countries with the majority from the USA (k = 3), with one each from Canada and France. Two studies reported data on both males and females, two studies reported data on males only, while one study used only a female sample. All samples were under 17 years with 40% aged 15 years or older and the remaining 60% aged between 9 and 14 years. Most studies (80%) used the TEOSQ to assess goal orientations whereas various measures were used to assess dimensions of moral behaviour, including the Multidimensional Sportspersonship Orientations Scale (MOSS) (Vallerand, Briere, Blanchard, & Provencher, 1997) or adapted scenarios from the Continuum of Injurious Acts (Bredemeier, 1985). All studies were cross-sectional.

Results reported correlations, canonical correlations, regressions, or goal profile group analyses. Ego orientation was positively related to the perceived legitimacy of intentionally injurious acts in two studies (40%), to unsportspersonlike attitudes in one study, and to instrumental and hostile aggression in one study. Correlations and canonical loadings were moderate to high. Task orientation was moderately linked to sportspersonlike attitudes in one study and strongly associated with sportspersonship orientations, such as respect for social conventions, and personal commitment to sport participation in another study. In a study employing goal profile analysis[5], the high task oriented groups had significantly higher sportspersonship orientation levels than the low task oriented groups regardless of the level of ego orientation. However, in two studies involving young athletes, goal orientation did not

predict the likelihood of aggressing against an opponent. Meta-analytic calculations were not undertaken because studies used different measures for aggressive acts or cheating behaviour.

The findings clearly show that achievement goals, and ego orientation in particular, play an important role in athletes' morally relevant attitudes and behaviours. Consistent with theoretical predictions, athletes high in ego orientation tend to report unsportspersonlike attitudes, to endorse intentionally aggressive sport acts, and to display aggressive behaviours in the sport context.

Perceptions of Significant Other's Goal Orientations

As a result of childhood socialisation experiences, individuals' goal orientations are expected to be consistent with the perceived goal orientations held by significant others, such as parents or coaches. Six published papers, with 741 participants (range = 71-212, Mean n = 123.5) were located that have examined relationships between participants' goal orientations and the perceived goals of significant others (Dempsey, Kimiecik, & Horn, 1993; Duda & Hom, 1993; Ebbeck & Becker, 1994; Escarti, Roberts, Cervello, & Guzman, 1999; Kimiecik et al., 1996; Stephens & Bredemeier, 1996). Samples were reported from two countries, with the majority from the USA (k = 5) and one from Spain. Over 80% of studies reported data on both males and females. All studies examined participants under 20 years of age, with two-thirds reporting a mean age of under 14 years.

All six studies suggest a socialisation influence on young people's goal orientations. Positive relationships between individuals' goal orientations and the corresponding perceived goals of significant others were found for both task and ego orientation in five studies, with one reporting a relationship for task orientation only (Dempsey et al., 1993). Correlations were typically small-to-moderate in magnitude, although a meta-analysis of three of the

[5] Goal profile analysis is when data are analysed by groups classified in terms of their combined task and ego goal orientations, such as high task/high ego or high task/low ego.

studies (N = 360) revealed an effect size for task orientation on parent's task orientation of .54, and for ego orientation on parent's ego orientation of .44.

The limited work in this area implies correspondence between young people's goals and the goals deemed to be endorsed by people important in their lives. Clearly, further studies are required before more comprehensive conclusions can be posited.

Motivated-Related Behaviours

Positive motivated behaviours are reflected in task choice, exerted effort, and persistence which should also be related to performance. Task-oriented people, and those ego-oriented with high perceived ability, should, theoretically, be linked to more motivationally positive patterns such as choosing moderately challenging tasks, exerting high effort, and showing persistence.

We located 25 studies (N = 5480, range 24-723, mean n= 219) (Berlant & Weiss, 1997; Biddle & Goudas, 1996; Biddle et al., 1999; Boyd & Yin, 1996; Dempsey et al., 1993; Ferrer-Caja & Weiss, 2000; Fox et al., 1994; Goudas et al., 1994b; Goudas et al., 1995; Kimiecik et al., 1996; King & Williams, 1997; Lintunen et al., 1999; Martinek & Williams, 1997; Ntoumanis et al., 1999; Papaioannou, 1998; Papaioannou & Theodorakis, 1996; G.C. Roberts et al., 1994; Ryska & Yin, 1999; Solmon & Boone, 1993; Spray, 2000; Spray & Biddle, 1997; Van-Yperen & Duda, 1999; Viira & Raudsepp, 2000; White & Duda, 1994; Yoo, 1999). These can be classified into three types of correlates: a) measures of behavioural characteristics (e.g., seeking challenging tasks), b) intentions (e.g., for future participation), and c) participation and performance[6]. All but one study (Spray, 2000) were cross-sectional. Most studies came from the USA (40%) and the UK (32%) and only 20% investigated participants 20 years of age and older. Most studies (88%) used the TEOSQ to assess goal

[6] Notwithstanding their differences, these were combined as a measure of 'true' behaviour, whereas challenge and intentions are merely reflective of behaviour.

orientations. The majority of studies reported on participation and performance (52%), with fewer investigating behavioural characteristics (32%) and intentions (24%).

In 32% of the studies, no association was found between behavioural measures and task orientation and no association was detected in 76% of studies investigating ego orientation. Positive associations with behavioural variables were found frequently for task (64%) but not for ego (16%). Effect size computations confirmed a small effect for task (ES = .28) but no effect for ego (ES = .07).

Summary and Conclusions

The study of goal orientations has proved popular in the contemporary literature in sport and exercise psychology. Narrative reviews have largely concluded that a high task orientation is 'positive' or adaptive, either singly or in combination with a high ego orientation (Biddle, 2001; Duda & Hall, 2001), although the field has not been unchallenged in terms of conceptual and measurement issues (Harwood, Hardy, & Swain, 2000) and methodology (Biddle, Duda, Papaioannou, & Harwood, 2001). Comprehensive reviews do exist (e.g., Duda & Hall, 2001; Duda & Whitehead, 1998), but with the exception of Ntoumanis and Biddle's (1999) meta-analysis of goals and affect, there has been no systematic review attempted, to our knowledge, on goal orientations in sport and exercise. In the biomedical sciences, systematic reviews are an essential component of evidence-based practice. Indeed, the criteria specified for many systematic reviews in the medical literature, whereby only clinical trials are included, would lead to almost no goal orientations studies meeting typical inclusion criteria (Juni, Altman, & Egger, 2001). Nearly all the studies covered in our systematic review are cross-sectional surveys of the associations between goals and other, usually self-reported, outcome variables. At best, we might conclude that this constitutes 'Category C' evidence ("evidence is from outcomes of uncontrolled or nonrandomized trials or from observational studies"; Bouchard & Blair, 1999, p. S499) if we

adopt criteria in obesity and other health research domains (Bouchard & Blair, 1999; Institute, 1998). This will probably reduce our influence with policy makers. Better and more diverse research designs, such as randomized trials or longitudinal qualitative investigations, are now required in this field – a recommendation that is also applicable to researchers investigating other themes in sport and exercise psychology.

Accepting these limitations, we are able to provide clear and comprehensive findings across 10 sets of correlates of goal orientations in physical activity research. In summary, we can conclude that:

1. A task orientation has a moderate-to-large association with the belief that effort causes success. Conversely, an ego orientation has a moderate-to-large association with the belief that ability causes success.
2. A task orientation is associated with beliefs that the purposes of sport and physical education concern mastery/co-operation, fitness/health, and development of self-esteem. Ego orientation is associated with beliefs concerning the gaining of social status.
3. A task orientation is linked to adaptive achievement strategies (e.g., practice mastery, persistence in practice) and the size of this association appears to be moderate. The role of ego orientation is not clear.
4. Both task and ego orientation have small-to-moderate and positive associations with perceptions of competence.
5. Few studies have been conducted on goal orientations and motives for participation. Tentative results indicate that a task orientation is positively related to motives of skill development and team membership. Ego orientation is positively linked to motives of status/recognition and competition. Most associations are moderate in size.

6. Self-reported positive affect has a moderate-to-large positive association with a task orientation but no relationship with an ego orientation.
7. Self-reported negative affect has a small negative association with a task orientation but no relationship with an ego orientation.
8. Ego orientation appears to play an important role in athletes' morally relevant attitudes and behaviours. Athletes high in ego orientation tend to report unsportspersonlike attitudes, to endorse intentionally aggressive sport acts, and to display aggressive behaviours in the sport context.
9. From limited evidence, there is some correspondence between young people's goals and the goals deemed to be endorsed by people important in their lives (e.g., parents).
10. Motivation-related behaviours are weakly but positively associated with task orientation but are unrelated to ego orientation.
11. Nearly all studies are cross-sectional, leading us to conclude that the evidence is, at best, 'Category C' (evidence from uncontrolled or nonrandomized trials or from observational studies).

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