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Robert S. Weinberg

Goal setting and performance in sport and exercise settings: a synthesis and critique

ROBERT S. WEINBERG
Department of Physical Education, Health, and Sport Studies, Miami University, Oxford, OH 45056

ABSTRACT

WEINBERG, R. S. Goal setting and performance in sport and exercise settings: a synthesis and critique. Med. Sci. Sports Exerc. Vol. 26, No. 4, pp. 469–477, 1994. Although goal setting research in industrial and organizational settings has been proliferating rapidly over the past 20 yr, it is only recently that sport psychologists begun to systematically test its effects in sport and exercise settings. However, the recent empirical literature in sport and exercise examining the relationship between goals and performance has been equivocal. Thus, the purposes of the present review are fourfold: (a) briefly review the industrial/organizational literatures concerning the relationship between goals and task performance; (b) review the literature testing the relationship between goals and performance in sport and exercise settings; (c) discuss methodological and interpretive limitations including the impact of mediating variables; (d) offer future directions for research.

MOTIVATION, COMMITMENT, COMPETITION, FEEDBACK, GOAL DIFFICULTY, GOAL SPECIFICITY, GOAL PROXIMITY

We have all known individuals who seem to have the capacity to stay with a task and persist regardless of how long it takes to accomplish the task. This is often the case despite the fact that external rewards are often minimal or nonexistent. When external inducements are sparse, individuals are assumed to be self-motivated to sustain their actions and complete their tasks. One important source of self-motivation is based on goal setting. The purpose of the present paper is to summarize the findings investigating the relationship between goal setting and performance in sport and exercise settings. First, goal setting theory will be briefly reviewed followed by an overview of the findings from goal setting studies conducted in industrial and organizational settings. Second, goal setting studies conducted in sport and exercise settings will be discussed. Third, methodological and interpretive limitations in the goal setting literature will be addressed. Finally, future directions for research in goal setting within sport and exercise settings will be suggested.

LOCKE'S GOAL SETTING THEORY

Goal setting theory has evolved from the Wurzburg school on intention, task and set, the work of Lewin and his followers on level of aspiration, and the work of Ryan on intentions. The initial concepts of task and intentions helped lead to the application of goal setting in the form of management-by-objectives programs currently used by many industries. Using these early sources as building blocks, Locke and his colleagues (19,20,23) have developed a theory of goal setting that has served as the stimulus for literally hundreds of studies in industrial and organizational settings, and more recently in sport and exercise settings.

The basic assumption of goal setting theory is that task performance is regulated directly by the conscious goals that individuals are trying for on a task. In essence, goals are immediate regulators of human action. A goal is defined simply as what the individual is consciously trying to do. Goals operate largely through internal comparison processes and require internal standards against which to evaluate ongoing performance. According to the theory, hard goals result in a higher level of performance.
than do easy goals, and specific hard goals result in a higher level of performance than do no goals or generalized goal of "do your best." In addition, the theory states that a person's goals mediate how performance is affected by monetary incentives, time limits, knowledge of results (i.e., performance feedback), participation in decision making, degree of commitment, and competition. Although goals can influence behavior, no one-to-one correspondence can be assumed because people make errors, or lack the ability to attain their objectives, or subconsciously subvert their conscious goals (22). Furthermore, goals that are assigned to an individual have an effect on behavior only to the degree that they are consciously accepted by the person. The exact degree of association between goals and actions is an empirical question that has been dealt with extensively in the recent literature on goal setting.

**ALTERNATIVE GOAL SETTING THEORIES**

Before we review the literature testing various aspects of Locke's goal setting theory, it is important to understand that other alternative goal setting theories have been developed in recent years. For example, Garland (11) has developed a cognitive mediation theory of goal setting and performance in which he asserts that an individual's task goal, defined as "an image of a future level of performance that the individual wishes to achieve" (p. 347). Garland hypothesizes that the cognitive constructs of performance expectancy and performance valence (anticipated satisfaction) mediate the relationship between task goals and performance. Specifically, the theory asserts that an individual's task goal exerts a positive influence on performance expectancy and a negative influence on performance valence. A number of relationships among these variables are specified in the theory but are beyond the scope of the current review. A more detailed reporting of the relationships in cognitive mediation theory can be found in Garland's work (11,12).

Several contemporary motivation theorists such as Elliott and Dweck (8), Maehr and Braskamp (25), and Nicholls (29) have developed a different way of viewing goals. Specifically, goals are seen more like personality traits, implying predispositions for participation based on underlying motives rather than as a motivational state providing a specific standard that serves to motivate individuals to take direct actions. Motivation theorists term these dispositional goals, goal orientation. Basic to the notion of goal orientation is the premise that success and failure are more subjective than objective in nature. For example, a tennis player might lose a match 6-4, 6-4 but feel real good about their performance because they played extremely well and had never before taken more than two games from this particular opponent. In fact, success can be attained in any situation in which individuals are either able to infer personally desirable characteristics, qualities, or attributes about themselves or attain personally meaningful objectives.

Although existing goal setting approaches are different in the way in which they conceptualize the goal setting process, there is a certain degree of overlap. Along these lines, Burton (4) attempts to integrate existing goal setting theories depicting goals as discrete (17) or global processes (4). In essence, his model, Competitive Goal Setting, is not really a new theory, but rather a tool for understanding the goal setting process in sport and exercise. In this model, the motivational and stress management functions of goals are addressed. A detailed description of the model is provided in Burton's recent chapter (4) and provides a useful heuristic for understanding goal setting in sport and exercise. Although these relatively new approaches to goal setting have potential for enhancing our understanding of the goal setting process, most of the research to date has focused on Locke's original theory and this is the literature that will be reviewed.

**GOAL SETTING AND TASK PERFORMANCE IN ORGANIZATIONAL SETTINGS**

Research on goal setting as a motivational strategy has been proliferating so rapidly in the past 20 yr that reviews become quickly outdated. This has necessitated more updated reviews, which have often used the statistical technique of meta-analysis that enables the reviewer to aggregate research findings across studies by using both inferential and descriptive statistics (e.g., 5,18,23,24,28,33).

The most tested aspect of Locke's theory revolves around the relationship of goal difficulty/specificity and performance. Specifically, Locke (19,20) has argued that specific, difficult, challenging goals lead to higher levels of task performance than either "do your best" or no goals. Locke and Latham (23) reviewed 201 studies (over 40,000 subjects) examining this effect, with 183 studies, or 91%, supporting Locke's initial hypothesis. These results were found using approximately 90 different tasks in both laboratory and field settings, which again demonstrates the robustness and generalizability of these findings.

A second core aspect of Locke's goal setting theory is that there is a linear relationship between degree of goal difficulty and performance. The only exception is when subjects reach the limits of their ability at high goal difficulty levels; in such cases performance levels off. Four separate meta-analyses have reviewed the empirical studies testing the goal difficulty-performance relationship (5,28,33,40). Results from these meta-analyses have revealed effect sizes ranging from 0.52–0.82. In addition, of the 192 studies reviewed, 175 (91%) provided support for harder goals producing higher levels of task performance than easy goals. Thus, the goal specificity/difficulty
relationships found in organizational settings provided one of the most consistent and robust pattern of findings in the social science literatures.

GOAL SETTING IN SPORT AND EXERCISE

Despite these consistent findings from the organizational literature, there was a dearth of studies investigating the goal setting-performance relationship in sport and exercise prior to 1985. An important turning point to the beginning of a more systematic and concerted effort to study this relationship came with the publication of Locke and Latham’s (22) article on the application of goal setting to sports. Locke and Latham suggest that goal setting could work even better in sports than in organizations since the measurement of an individual’s performance is typically more objective in sports than in organizational settings. Based on the organizational literature, they suggest 10 specific hypotheses concerning how goals can work in sport settings. A review of the literature reveals that sport psychology researchers have predominantly focused on the hypotheses in the areas of goal specificity, goal difficulty, and goal proximity. Although several of the recent studies in sport and exercise settings have investigated these areas simultaneously, for simplicity each area is reviewed separately.

Goal Specificity

In one of the first tests of Locke and Latham’s goal specificity hypothesis in a physical activity setting, Weinberg et al. (35) had subjects (college students in conditioning classes) matched on baseline measures of the 3-min sit-up test and randomly assigned them to one of four goal setting conditions. In three of these conditions, subjects had a specific, difficult goal, whereas the fourth group was just told to “do your best.” Results revealed no differences in sit-up performance throughout the 5-wk experimental period between the three specific goal groups and the “do your best” group.

This finding was contrary to the overwhelming literature in organizational psychology and several subsequent studies have also found no significant differences between specific goal groups and control or “do your best” groups. For example, Weinberg and his colleagues (13,40) also employed a sit-up task and found no differences in performance between subjects given specific, difficult goals versus “do your best” goals. No differences were also found using grip strength (34) and basketball shooting (39). In contrast to these findings, several studies conducted in sport and exercise settings have found significant differences between specific goal groups and “do your best” groups. That is, subjects with specific, hard goals performed significantly better than subjects with “do your best” goals. For example, a study using elementary aged children in physical education classes (38) found that all three specific goal groups performed significantly better (sit-ups) than the “do your best” group, especially toward the end of the 10-wk period. In one of the only other studies using children to study goal specificity effects on performance, Erbaugh and Barnett (9) found that children in the specific goal condition performed a jumping task better than children in a control condition. Hall and Byrne (14) found partial support for the goal specificity hypothesis using the 3-min sit-up task. Specifically, only the short-term plus long-term goal group displayed significantly better sit-up performance than the “do your best” group as the long-term goal group was not significantly different than the “do your best” group. More recently, Tennenbaum and his colleagues (32), using high school students found that specific goals produced higher levels of sit-up performance than do your best goals. Finally, in one of the few laboratory studies investigating goal specificity and performance using a grip strength endurance task (15) it was found that both specific, hard goal groups (improve by 40 s and 70 s) improved significantly on the posttest whereas the “do your best” group showed no improvement.

In summary, the effects of goal specificity on performance have been equivocal with only some of the studies supporting Locke and Latham’s hypothesis that specific hard goals would produce higher levels of performance than no goals or “do your best goals.” These inconsistent findings might be attributed to the different methodologies employed in goal setting studies or to specific methodological shortcomings. These methodological issues will be addressed later in the paper and potential solutions offered.

Goal Difficulty

In Locke and Latham’s (22) article it is suggested that performers be encouraged to strive for goals that are difficult but realistic. Although there seems to be no consensus as to what is the operational definition of a “difficult goal,” recently Locke (21) has suggested that to make sure that specific goals are difficult, they should be set at a level in which no more than 10% of the subjects can reach them. However, Locke also has argued that unrealistic goal should be avoided because if goals are so difficult that this results in continuing failure, motivation will drop and subsequent performance will deteriorate. This goal attainability assumption has clearly had an impact on sport psychology literature, in which researchers have strongly recommended to both physical educators and coaches, that performance goals be realistic.

The goal attainability assumption was tested by Weinberg et al. (37) in two separate studies in a physical activity setting. In both experiments, subjects were placed into groups differing in goal difficulty which was determined by previous testing using the 3-min sit-up. Across the two studies, goal difficulty varied from easy (improve by 15) to moderately difficult (improve by 30),
to very difficult (improve by 45) to virtually impossible (improve by 60). Results for both experiments indicated no significant performance differences between any of the groups. Similarly, Weinberg et al. (34) using sit-ups in one experiment and grip strength in another also found no differences among goal difficulty groups. Finally, Weinberg et al. (39) using a basketball shooting task with adults and sit-ups with children found no significant differences when varying goals from easy to unrealistically high. The findings of these studies are inconsistent with the industrial/organizational literature in that performance did not increase as goal difficulty increased. In addition, there was no support for the notion that performance would decrease if goals were set unrealistically high. A potential explanation for the lack of differences between goal difficulty conditions is the fact that many subjects in sport and exercise studies seem to spontaneously set goals on their own despite being provided specific goals by the experimenter. This notion will be discussed in more detail when considering methodological and design limitations in goal setting research conducted in sport and exercise settings.

Goal Proximity

Goal proximity (i.e., short and long-term goals) has also received recent attention in the sport and exercise psychology literature. Locke and Latham (22) have hypothesized that using short-term goals plus long-term goals will lead to better performance than using long-term goals alone. They feel that long-term goals are often too vague and future oriented to have significant motivational significance in the present. The notion that short-term goals are important in improving performance is also held by many coaches and sport psychologists.

The first study in sport psychology to test the effectiveness of long- versus short-term goals was conducted by Weinberg et al (35). Subjects were matched on their baseline 3-min sit-up test and randomly assigned to either a short-term, long-term or short term plus long-term goal condition over the course of a 5-wk program. Results indicated that although all groups did improve over the course of the 5-wk there was no significant differences between any of the goal setting groups. Weinberg et al. (38) replicated their study using elementary school children and a 2-min sit-up test. Results again indicated no differences between the three goal proximity groups although they all improved significantly more than the "do your best" group.

In studying goal proximity, Hall and Byrne (14) incorporated Kirschbaum’s (17) suggestions by varying the flexibility that subjects had in setting their short-term goals. Subjects were randomly assigned to one of the following conditions: (a) long-term goals, (b) long-term plus experimenter-set short-term goals, (c) long-term plus subject-set short-term goals, (d) do-your-best goals. Results indicated no significant performance differences between subjects holding either self-set subgoals, experimenter-set subgoals, or long-term goals although both experimenter-set and self-set groups were significantly better than the "do your best" control group. Thus, none of these three studies found any significant performance differences between long-term and short-term goal groups regardless of whether the goals were flexible or not.

However, a couple of recent studies did find some differences while investigating the relationship between goal proximity and performance. For example, Frieman et al. (10) using bowling performance over a 5-wk period found that the long-term goal group improved significantly more than the "do your best" group although no significant differences were found between the short-term goal group and the "do your best" group. In addition, in two experiments using high school students, (32) results indicated that short and long-term goals significantly improved sit-up performance over a 10-wk program compared with a "do your best" condition. The combined short-term plus long-term goal condition was also significantly better than the "do your best" condition but produced the greatest improvement in performance (29%) when compared to the short-term (20%) and long-term (10%) goal conditions.

Many of the inconsistencies in the results of the above studies can be traced back to differences in procedures, including methodological and design limitations along with potential mediating variables. These issues will be specifically addressed in the next section.

METHODOLOGICAL AND DESIGN CONSIDERATIONS

Goal setting research in exercise and sport environments is still in its infancy. Other than a few isolated studies in the late 1970s and early 1980s, it has only been in the last 7 yr that researchers have begun to systematically study this area. Most researchers have initially set out to test Locke’s (19,20) original propositions and more recently, Locke and Latham’s (22) hypotheses concerning the application of goal setting findings in organizational and industrial settings. However, conducting goal setting research in sport and exercise settings requires several methodological refinements from the industrial/organizational literature and thus several limitations have become evident.

Spontaneous Goal Setting in Control Groups

As noted by Locke (21) one of the recurring problems in sport psychology goal setting research is the spontaneous setting of goals by subjects in control “do your best” conditions. Locke (21) has argued that one of the reasons that this has been a greater problem in sport and exercise settings as opposed to industrial/organizational settings is that feedback is typically provided (either in-
ternally or externally) and this feedback is then used to set specific goals. For example, it is very difficult to withhold feedback from someone doing sit-ups as an individual can simply count how many sit-ups they performed. This makes it difficult to state any firm conclusions concerning the effectiveness of specific goal groups when compared with a control group. For example, in Weinberg et al.’s (35) study, manipulation checks indicated that in both experiments 83% of the subjects in the “do your best” condition set their own goals despite the fact that they were not given any specific goals by the experimenter.

This problem has occurred often in goal setting studies conducted in in sport and exercise environments. As a result Hall and Byrne (14) attempted to reduce the amount of competition between subjects figuring that this would reduce the spontaneous setting of goals. They argued that competition and social comparison leads subjects who are given “do your best” instructions to begin setting goals. Despite Hall and Byrne’s attempt to limit competition, 55% of subjects in the control group spontaneously set specific goals. In a partial replication of Hall and Byrne’s study, Weinberg et al. (36) still found that 34% of subjects in a “do your best” control group set goals on their own. Thus, despite efforts to reduce spontaneous goal setting, subjects not given specific goals have a propensity for setting specific goals on their own.

There are two methodological refinements sport psychology researchers can do to help alleviate this problem. First would be to reduce or eliminate the feedback that is given to control subjects. This would have to be accompanied by a specific goal treatment group that also received no feedback concerning their performance to avoid the confound of feedback effects. However, even this approach might fail since subjects could count how many sit-ups they were doing and set goals based on that number. Therefore, the second refinement to cope with this counting problem would be to give feedback based on periods of varying lengths but whose lengths are not revealed to the subjects so that they cannot calculate their average rate (19). In the specific case of the 3-min sit-up task, subjects could be told that each trial would be between 2 min 30 s, and 3 min 30 s long, although in reality, each trial would be exactly 3 min long. In this way, a given number of sit-ups could not be considered a standard upon which to set a goal because the subject would not know how long the previous trial was or how long the next trial would be. These methods will probably not totally eliminate spontaneous goal setting, but certainly it will make it much more difficult for subjects in control conditions to set specific goals on their own. In addition, although this might be a good strategy for experimental purposes, it has little utility from a practical perspective since physical education instructors and coaches need to be honest with their students/athletes in providing contingent feedback based on performance outcomes.

**Measure Personal Goals**

Although people tend to work toward goals that are assigned to them, this is by no means always the case (23). Therefore, to know how a person will perform, it is imperative to know what personal goal each individual sets in response to the goal that was assigned. As goal theory asserts, assigned goals affect performance through their effects on personal goals. Even knowing that a person is not committed to an assigned goal is not very helpful unless one knows what goal is substituted for the assigned one.

Most of the studies in exercise and sport settings have neglected to measure personal goals. One notable exception (37) found that goal level correlated with performance 0.84 in their first study and 0.92 in their second study. In many of the goal difficulty studies reviewed earlier, personal goal levels were not measured and no goal-difficulty performance effects were found. Thus, personal goals should be always measured in addition to assigned goals. Weinberg and his colleagues (37) present a good example of how to measure personal goals in a physical activity setting.

**Task Characteristics**

A variable that appears to mediate the effectiveness of goal setting in sport and exercise environments is the nature of the task. As previously noted, many studies testing the effects of goal setting on performance used the 3-min sit-up task. The nature of this specific task may have attenuated any potential effects due to goal setting interventions. Specifically, the 3-min sit-up task provides salient, physiological feedback concerning an individual’s level of performance, effort, and fatigue. This is in contrast to most tasks in the academic and organizational literature, which require effort and provide feedback in terms of productivity (e.g., truck loading, logging, sales ship loading, key punching) but do not elicit fatigue or pain cues to the extent a 3-min sit-up test does. In essence, the salient pain cues inform the subjects that they are trying extremely hard and are approaching their maximum performance. Perhaps learning to cope with pain and fatigue while doing “just a few more” sit-ups might override any thoughts about what goal they are striving for. Thus, a specific goal may not result in more motivation to work hard because subjects feel they are already exerting maximum effort.

**Motivation and Commitment**

Motivation and commitment are two important mediating psychological variables in studying goal setting in sport and exercise settings. For example, Locke et al. (24)
note that goal setting operates primarily as a motivational mechanism to influence one's degree of effort and persistence in striving toward a goal. As a result, subjects high on initial motivation would tend to lessen the impact of setting specific goals. This might have been a problem in several studies because subjects were taken from conditioning classes (37). These classes were elective and perhaps students were already motivated to improve their physical fitness, of which sit-ups is one component. Following this line of thinking, the addition of a specific goal would thus not necessarily cause these subjects to try harder and persist longer in their sit-ups contributing to the findings of no differences between specific goal groups and “do your best” control groups. Future studies need to control for selecting subjects with high levels of motivation initially if the motivational effects of goal setting are to be determined.

Goal commitment has typically been measured, when it has been measured at all, with a one-item scale of goal acceptance. More sophisticated measures are now available, such as the multi-item scale developed by Hollenbeck et al. (16). In addition, Locke and Latham (23) argue that designs should encourage a wide range of goal commitment, such as those with a choice of various possible goals, with commitment to each goal being measured after goal choice is made. It should be noted, however, that commitment measures are not a substitute for personal goal measures. Commitment reveals if the subject has accepted the assigned goal whereas a personal goal reveals what new goal has been set. These guidelines should be followed in future goal setting studies in sport and exercise to more accurately measure individual’s commitment and motivation to perform.

**Competition**

Researchers in sport psychology have begun to realize that competition among subjects is a form of goal setting and therefore it needs to be controlled. In essence, the performance of others is used to help set ones own goals. Hall and Byrne (14) conducted the first sport psychology goal setting study that was specifically designed to control for competition effects in a field setting by minimizing both between-group and within-group interactions. To reduce this possibility, Hall and Byrne randomly assigned classes, rather than subjects, to one of four goal setting conditions. Thus, subjects in the “do your best” condition were all in the same class and not exposed to other subjects who were assigned to specific goal groups in other classes. Results indicated only partial support for the effectiveness of goal setting as not all specific goal groups improved significantly more than the “do your best” group. However, questionnaire findings indicated that over half of the control group were setting goals on their own and 56% of all subjects stated that they had engaged in competition at some point during the experimental period. A more recent study by Weinberg et al. (36) replicated Hall and Byrne and were able to reduce competition among subjects further but still approximately 30% of all control subjects engaged in competition as well as set their own goals. It is evident that more research is necessary investigating the effects of competition on the goal setting-performance relationship in both sport and exercise settings.

**FUTURE DIRECTIONS FOR RESEARCH**

In the previous section, several methodological problems that have plagued goal setting research in sport and exercise have been discussed. Based on some of these shortcomings, as well as the many variables impacting on the effectiveness of goal setting, there are a number of directions that sport psychology researchers could take to help clarify and extend the existing literature. Directions for future research will be discussed in the hope that a firm foundation can be established concerning the effectiveness of goal setting in sport and exercise environments.

**Goal Setting and Athletic Performance**

One of the major practical applications for the use of goal setting techniques is with individual and team athletes over the course of a season. Unfortunately, there is a dearth of studies which have tested the effectiveness of a goal setting training program over the course of an athletic season. To date, only studies by Burton (3) using collegiate swimmers and Stitcher et al. (31) using collegiate lacrosse players have investigated the effects of goal setting on athletic performance over the course of a season lasting at least several months.

Although both of these studies had some limitations due to the nature of field investigations, their strengths lie in their high external validity. Sport psychologists (27,30) have recently argued for the use of idiographic techniques and qualitative assessments in addition to the more traditional nomothetic techniques. Unfortunately, outcome studies testing the effectiveness of psychological interventions over time are inherently difficult to carry out. Despite these difficulties, studies of this nature need to be conducted in the area of goal setting and athletic performance before we can attest to the effectiveness of goal setting for enhancing the performance of athletes.

**Goal Orientation**

An important variable mediating the potential effects of goal setting in sport and exercise settings is the goal orientation of the individual. Based upon a theoretical orientation relevant to sport and exercise (26) sport researchers began to investigate goal orientations in sport. These goal orientations differ to the extent to which individuals perceive success and failure in sport settings.
The two goal orientations found to be most relevant to sport and exercise are ego involvement and task involvement (6). Individuals with an ability (ego) orientation define success and failure in terms of winning and losing. Their goal is to maximize the subjective probability of attributing high ability to oneself. Individuals with a task orientation define success and failure in terms of personal mastery and self-improvement.

Based on the work of Maehr and Nicholls (26), a number of studies have recently been conducted investigating the relationship between goal perspective and behavior in sport and exercise settings. For example, studies have shown that multiple goals exist in sport and exercise settings and that variations in goal perspective may be related to person factors such as age, gender, and culture. In addition, it also appears that the specific goals of task and ego involvement are related to certain behaviors such as intensity of participation, persistence of participation, and adherence to exercise programs (6).

These findings point out the importance of assessing goal orientation when conducting goal setting research in sport and exercise settings. For example, a study by Giannini et al. (13) examined the relationship between goal orientation and specific goal setting instructions on performance of a basketball shooting task and one-on-one offensive basketball task. Subjects were matched based on pretest performance and placed into one of five conditions: competitive goal, cooperative goal, mastery goal, “do your best” with feedback, and “do your best” without feedback. Results indicated that subjects’ goal orientations were not related to performance in the competitive and cooperative goal conditions; but, as predicted, mastery oriented subjects did perform best under mastery goal instructions. The question that future researchers should consider is not if goal setting is effective or not; rather, what are the most appropriate goals for people with different personality and motivational styles.

In addition to setting the most appropriate goals for different individuals, it would seem important to create the proper motivational climate that would facilitate effective learning and performance. Along these lines, Ames (1) has demonstrated that school children react differently in terms of motivational processes, based on their perceptions of the salient mastery and performance goals in their classroom. Results indicated that students who perceived an emphasis on mastery (task) goals in the classroom reported using more effective strategies, preferred challenging tasks, had a more positive attitude toward the class, and had stronger a stronger belief that success follows from one’s effort. Thus, these results suggest that classroom goal orientation may facilitate the maintenance of adaptive motivation patterns when mastery (task) goals are salient and adopted by students. However, these findings need to be tested in sport and exercise environments to help us determine the optimal motivational climate for our participants.

**Developmental Considerations**

As with many other areas of research, most goal setting studies have concentrated on high school and college-aged subjects, because this population is typically more readily available. However, there is a need to extend this to other age groups; particularly, young children and older adults if we are to broaden our base of knowledge in this area. For example, only three studies have investigated the relationship between goals and performance in young children (2,9,38). Although the above studies indicate that goal setting can be beneficial for young children, obviously, more empirical research is necessary to determine the situational and personal variables mediating the goal setting-performance relationship in sport for this age group. One important variable might be self-esteem with high self-esteem children setting more challenging goals than their low self-esteem counterparts. In addition, some research suggests that goal perspective may be related to developmental stage with 9- to 11-yr-olds being more task oriented (i.e., focus on improvement) whereas 12- to 14-yr-olds tend to be more ego oriented (winning).

In addition to young children, older adults also need to be studied more extensively in terms of their goal setting behavior. A logical starting point would be to assess what goals are important for older adults in terms of their participation in exercise programs. Here again, goal perspective would appear important as one would want to tailor the exercise program to meet the goals of the elderly population. Some initial research has been undertaken investigating goal orientation and exercise in elderly populations (7) but more research is necessary to pinpoint the situational and personal variables impacting on this relationship. For example, for older persons, physical activity goals revolving around affiliation and health appear more important than in younger populations. In addition, the actual process of how older adults set goals along with the relationship between goal setting and behavioral measures such as intensity, persistence, and adherence to exercise needs further investigation so that participation of older adults in exercise programs is maximized.

**Athletes’ and Coaches’ Use of Goal Setting in Competitive Sport**

As noted in the review, the empirical research testing the effectiveness of goal setting in sport and exercise settings has been equivocal. This has left practitioners with a void in terms of understanding the goal setting process. In essence, we jumped right into attempting to conduct empirical, mostly laboratory-based studies without first trying to get a better understanding of how, when, and why athletes and coaches set goals as well as what kind of goals are important to them. Recent research in sport psychology has shown that athletes (especially
elite athletes) can be a rich source of data, thus helping both researchers and practitioners gain a better understanding of the meaning of the sport experience. Along these lines, Weinberg et al. (39) have recently conducted a study which approximately 700 NCAA Division I college athletes concerning their perceptions of the frequency, effectiveness, and importance of different goals to enhance performance. Some of the major findings included the following: (a) When asked to rank the goals that were most important to them, athletes ranked the following as their most important goal, improving overall performance (36%) winning (24%), and fun/enjoyment (19%); (b) athletes preferred moderately difficult goals (60%), difficult goals (20%), and moderate goals (14%); (c) females set goals more frequently and found their goals more effective than males. The one exception was outcome goals (i.e., winning), which males set more frequently than females. (d) Team sport athletes set more goals concerned with winning than individual sport athletes, and (e) athletes perceive the main purpose of setting goals is to provide direction and help keep focused. More studies using qualitative methodologies that explore the ways coaches and athletes use goals will add to our understanding of the goal setting process.

SUMMARY

The purpose of this paper was to provide an overview of research in the area of goal setting and performance in sport and exercise settings. Much of the early research in goal setting has been conducted in industrial/organizational settings as it has only been in the last 7 yr that researchers have begun to focus on goal setting in sport and exercise settings. This has often produced equivocal findings, in part due to methodological shortcomings and in part due to the fact the sport and exercise environments appear to differ from industrial/organizational settings. These differences were noted and variables such as task characteristics, motivation and commitment, type of setting, goal difficulty, personal goals, spontaneous goal setting, and competition were discussed as potential mediators of the goal setting performance relationship. Future directions for research were offered including the need for more longitudinal studies following athletes over the course of a season, the incorporation of developmental and sociocultural differences in goal setting styles and preferences, and the inclusion of individual difference variables as well as situational variables. If we can begin to gain a better understanding of how goal setting operates in sport and exercise environments, then we can begin to develop programs and interventions that will not only maximize performance, but also enhance personal growth of individuals participating in sport and exercise.

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