



GOAL SETTING IN SPORT AND EXERCISE: RESULTS, METHODOLOGICAL ISSUES AND FUTURE DIRECTIONS FOR RESEARCH¹

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RESUMEN: El propósito de este artículo es proporcionar una visión general respecto a la investigación en el campo del establecimiento de objetivos y el rendimiento en situaciones deportivas y de ejercicio físico.

La mayor parte de las primeras investigaciones en este campo pertenecían al área de la organización y la industria, y únicamente en los últimos diez años los investigadores se han centrado en las situaciones deportivas y en el ejercicio físico. Se han dado a menudo hallazgos controvertidos, debidos en parte al empleo de métodos demasiado directos y en parte a que los dos marcos (organización/industria y deporte) difieren bastante. Estas diferencias se dan respecto a las características de la tarea, el tipo de situación, las dificultades del objetivo, los objetivos personales y la aparición de fijaciones espontáneas de objetivos. Estas variables se consideran como mediadores potenciales de la relación entre las distintas fijaciones de objetivos.

Recientemente, Weinberg y cols. han entrevistado atletas universitarios respecto a sus prácticas de establecimiento de objetivos, y han observado que una investigación de tipo más cualitativo nos permitiría

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saber más acerca de cómo trabajan los objetivos en las situaciones deportivas y en el ejercicio físico.

Otras direcciones futuras de investigación incluyen la necesidad de obtener datos longitudinales en el seguimiento de atletas a lo largo de la temporada; incorporar y desarrollar las diferencias socioculturales respecto a los estilos de establecimiento de objetivos y sus preferencias; y la inclusión de las diferencias individuales, tales como las variables situacionales. Si conseguimos empezar a entender mejor de que manera la fijación de objetivos opera en las situaciones deportivas y de ejercicio físico, podremos comenzar a desarrollar programas de intervención que no únicamente irán encaminados a obtener el máximo rendimiento, sino que también mejorarán el crecimiento personal de las personas que toman parte en las actividades deportivas.

ABSTRACT: 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 seven to ten years 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, type of setting, goal difficulty, personal goals, spontaneous goal setting, and competition were discussed as potential mediators of the goal setting performance relationship. Recently, Weinberg and his colleagues have assessed and interviewed collegiate athletes concerning their goal setting practices and more qualitative research would allow us to learn more about how goals operate in sport and exercise settings. Other future directions for research include 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.

Locke's Goal Setting Theory

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 (Locke, 1966; Locke and Latham, 1990). 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.» 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.

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 years that reviews become quickly outdated. This has necessitated more updated reviews which have often used the statistical technique of meta-analysis which enables the reviewer to aggregate research findings across studies by using both inferential and descriptive statistics (e.g., Hollenbeck, Williams,

and Klein, 1989; Mento, Steel, and Karren, 1987; Tubbs, 1991).

The most tested aspect of Locke's theory revolves around the relationship of goal difficulty/specificity and performance. Specifically, Locke (1966) 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 (1990) 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. Results from these meta-analyses have revealed effect sizes ranging from .52 to .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. 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, Bruya and Jackson (1985) had subjects (college students in conditioning classes) matched on baseline measures of the 3-minute 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-week 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. 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. For

example, a study using elementary aged children in physical education classes (Weinberg, Bruya, Longino, and Jackson, 1988) 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-week period. 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».

Goal Difficulty

Locke has argued that unrealistic goals should be avoided because if goals are so difficult that this results in continuing failure, motivation will drop and subsequent performance will deteriorate. The goal attainability assumption was tested by Weinberg, Bruya, Jackson, and Garland (1987) 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-minute 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. 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.

Goal Proximity

Goal proximity (i.e., short and long-term goals) has also received recent attention in the sport and exercise psychology literature. The first study in sport psychology to test the effectiveness of long versus short-term goals was conducted by Weinberg et al (1985). Subjects were matched on their baseline 3-minute 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-week program. Results indicated that although all groups did improve over the course of the 5-weeks there was no significant differences between any of the goal setting groups. However, a couple of recent studies did find some differences while investigating the relationship between goal proximity and performance. For example, Frierman, Weinberg and Jackson (1990) using bowling performance over a 5-week 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 goals group and the «do your best» group. In addition, in two experiments using high school students, (Tennenbaum et al., 1991) results indicated that short and long-term goals significantly improved sit-up performance over a 10-week program compared to a «do your best» condition.

Methodological and Design Considerations

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 and limitations will now be specifically addressed.

Spontaneous Goal Setting in Control Groups

As noted by Locke (1991) 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 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 internally 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 to a control group.

Measure Personal Goals

Although people tend to work toward goals that are assigned to them, this is by no means always the case. 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.

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-minute sit-up task. The 3-minute 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-minute sit-up test does. 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.

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 (1988) conducted the first sport psychology goal setting study which was specifically designed to control for competition effects in a field setting by minimizing both between-group and within-group interactions. 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. (Weinberg, Bruya, and Jackson, 1990) replicated Hall and Byrne (1988) 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.

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, Burton, Yukelson, and Weigand (1993) have recently conducted a study which approximately 700 NCAA Division 1 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.

Along these lines, Weinberg, Yukelson, Burton, and Weigand (1993) recently conducted a qualitative interview study to more closely examine athletes' perceptions of goal use, effectiveness, and importance. Twenty-three NCAA collegiate athletes from 13 different sports were interviewed. The one hour interview used a semi-structured open-ended format asking some specific questions while provide

opportunities for individualized athlete experiences. The guided questions included athletes' use and effectiveness of goals in practice and competition, goal setting styles, goal attributes, and goal implementation issues. Data were analyzed using a content analysis which organized the quotes from the transcripts (approximately 20 pages per athlete) into themes/categories representing their goal setting practices. Through an inductive analysis, quotes were clustered around higher order themes. Results indicated the following emergent themes:

- * Athletes reported that improving performance, winning and having fun were not only the three most important sport goals, but that these goals were highly interrelated as opposed to independent of each other (e.g., improving performance leads to winning which is fun).

- * Intercollegiate athletes have a strong desire to excel and are extremely goal-oriented with the desire to be the best driving them to reach their goals.

- * Athletes perceive the main purpose of goal setting is to provide direction and keep focused. This is consistent with Locke's (1966) goal setting theory which argues that goals work primarily by providing individuals focusing individuals' attention to the task at hand.

- * Although most athletes are very much aware of their goals and adjust them based on their current level of performance, most do not write down their goals or have a systematic means for evaluation. Coaches should be aware of this problem and make sure athletes write their goals down on paper, and have a chance to reevaluate and adjust their goals.

- * Long-term goals seem to be set prior to the season and are outcome oriented, whereas short-term goals seem to be related to specific things the athlete needs to do in practice to achieve better performance in competition. It is important for athletes to set short-term goals since they provide feedback on their progress, whereas long-term goals provide direction for where they want to be in the future.

- * Although they seek input from the coach, athletes prefer to be the ones setting their goals. Coaches should provide feedback and input, but athletes should «own» their goals to increase their commitment to them.

- * Lack of time, school/academic pressures, lack of confidence, social relationships, and injury are barriers which cause student-athletes to sometimes lose sight of their goals as well as achieving them. Coaches should help structure athletes' environment to minimize these barriers to goal attainment.

- * Outcome goals (i.e., winning) supersede mastery goals for «big events» (e.g., important games, tournament finals) or when the coach emphasizes winning a particular event. Although mastery goals are important, winning becomes the most important thing when competitions really count.

- * Team goals supersede individual goals, but team goals are not often set, or if set, rarely have a strategy mapped out for reaching them. Coaches should clearly set team goals at the beginning of the season and devise specific measurable strategies to meet these goals.

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 (1989) using collegiate swimmers and Weinberg, Stichter, and Richardson (1994) 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 (Martens, 1987; Smith, 1988) 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 (Nicholls, 1984) 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. 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 (1980) 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.

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, Weinberg, and Jackson (1988) 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 (1984:1992) 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, few studies have investigated the relationship between goals and performance in young children. (e.g., Boyce, 1990; Erbaugh and Barnett, 1986; Weinberg, Bruya, Longino, and Jackson, 1988). 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 year olds being more task oriented (i.e focus on improvement) whereas 12 to 14 year

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 (Duda and Tappe, 1989) 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.

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