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The Application of Goal Setting to Sports

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Studies of goal setting both in organizations and the laboratory have found that (a) specific, difficult goals lead to better performance than vague or easy goals; (b) short-term goals can facilitate the achievement of long-term goals; (c) goals affect performance by affecting effort, persistence, and direction of attention, and by motivating strategy development; (d) feedback regarding progress is necessary for goal setting to work; and (e) goals must be accepted if they are to affect performance. The implications of these findings for athletics are discussed. Ten hypotheses, based on previous research, are offered regarding the effects of goal setting in sports. In addition, suggestions are made regarding the following: setting goals for both practice and game situations; setting goals for different elements of athletic skill as well as for strength and stamina; using goals to increase self-confidence; using short-term goals to help attain long-term performance goals; improving performance by increasing task difficulty independently of goal difficulty; and obtaining goal acceptance and commitment in sports.

Most coaches and athletes would agree that success in competitive sports depends largely upon two factors: skill (including strength and stamina) and motivation (e.g., mental attitude, confidence). This article describes a technique we believe can be used to increase both the skill and confidence of athletes in competitive sports. This technique is goal setting.

Almost all athletes and coaches have heard of goal setting and many successful ones already use it in some form. Dick Hannula, one of the most successful high school swimming coaches in the U.S., stated,

> Motivation depends in a very large part on goal setting. The coach must have goals. The team must have goals. Each individual swimmer must have goals—real, vivid, living goals....Goals keep everyone on target. Goals commit me to the work, time, pain and whatever else is part of the price of achieving success. Goals help to drive me....Goals must be high enough to excite you, yet no so high that you cannot vividly imagine them. Goals must be attainable, but just out of reach for now. (Larsen, 1983)

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Hubie Brown, the coach of the New York Knicks, once said, "Transforming potential into performance involves setting and attaining goals" (Danish, 1983).

Unfortunately, as the above quotes imply, most of the evidence for the effectiveness of goal setting in sports is anecdotal. We have found only one scientific study in the sports field, and that study was correlational in design. In a study of NCAA football coaches, Anderson and Schneier (n.d.) found that coaches with better won-lost records over a 5-year period were more likely to report using positive motivational techniques such as goal setting than those with poorer won-lost records.

Only a few studies of goal setting using psychomotor tasks have been reported. Locke and Bryan (1966) found that specific, difficult goals led to better performance than "do your best" goals on a complex coordination task. Barnett and Stanicek (1979) found similar results in an archery experiment. Barnett (1977) and Hollingsworth (1975) found no goal-setting effect with juggling, but there are indications that subjects who were not told to set goals nevertheless set them spontaneously, thus confounding the design.

In contrast to the dearth of studies in sports, much has been written about the effects of goal setting in organizations and on various laboratory tasks (Locke, Shaw, Saari, & Latham, 1981; Locke & Latham, 1984a). To date there have been well over 100 scientific studies on the effects of goal setting on task performance. The organizational tasks used in these studies include logging, clerical work, typing, computation, training, machine servicing, truck loading, ship loading, die casting, supervision, safety behavior, scientific and engineering work, keypunching, technical work, customer service, assembly, telephone service work, writing, and management. The laboratory tasks have ranged from assembling toys to brainstorming.

Tasks performed in organizational settings and in the laboratory have much in common with sports activities in that both involve mental and physical actions directed toward some end. Thus there is every reason to believe that goal setting will work equally well in the realm of sports. In fact, we believe that goal setting could work even better in sports than in organizations since the measurement of an individual's performance—a precondition for the positive effects of goal setting—is typically easier in sports than it is in organizational settings.

The research has yet to be done, however, and the purpose of this paper is to encourage it. This paper is divided into two sections. First, we summarize the research on goal setting in organizations and the laboratory, and second, we offer suggestions and hypotheses as to how goal setting can be applied to athletics. Examples from sports are given throughout both sections.

Findings From Goal-Setting Research

Detailed summaries of the research literature on goal setting can be found in Locke et al. (1981) and Locke and Latham (1984a). In brief, these reports included the following points:

1. Specific goals direct activity more effectively and reliably than vague or general goals (Locke, Mento, & Katcher, 1978). Telling someone to "do as well as you can" is an ambiguous statement in that it does not make clear exactly what the person is to do. Furthermore, without additional communication, that person will not even know when the goal has been attained. In contrast, telling a 2-mile runner to "run the first mile in 4 min 30 s and the second in 4 min 10 s" informs the person exactly what should be accomplished. Goals can be made specific by making them quantitative.

2. Difficult or challenging goals produce better performance than moderate or easy goals; the higher the goal, the higher the performance (Locke, 1968). This statement assumes that the individual has adequate ability. Goals should not be so difficult that the person will fail to take them seriously. However, goals that are easy to attain will lead to less than optimal performance. Effective goal setting involves the combination of points 1 and 2. That is, the goals should be both specific and challenging to attain maximum performance. It has repeatedly been found that specific, challenging goals lead to better performance than a goal of "do your best" (Latham & Yukl, 1975; Locke, 1968). Contrary to what many believe, people do *not* do their best when their goal is to do just that. This is because a mind set of doing one's best is not specific enough to produce maximum performance.

3. Short-term goals can be used as a means of attaining long-range goals (Bandura & Simon, 1977; Locke, Cartledge, & Knerr, 1970). For example, if a runner's goal is to run a 4 min-mile and his or her best time to date is 4 min 30 s, that runner could set a goal of improving this time by 1 second a week for 30 consecutive weeks (or whatever the coach considers realistic). Setting subgoals prevents viewing the end-goal as beyond one's capability to attain or to take seriously.

4. At least four mechanisms explain why goal setting improves performance. First, goal setting focuses and directs one's activities (Locke & Bryan, 1969). Rather than simply trying to shoot baskets, a basketball player might try for 15 foul shots in a row. Furthermore, he or she would work on foul shots as opposed to lay-ups. Second, goal setting regulates one's expenditure of effort (Locke, 1966). Assuming the goal is accepted, effort is exerted in proportion to its difficulty. The harder the goal, the greater the effort expended. Third, goal setting enhances persistence because effort is continued until the goal or subgoal is reached (Laporte & Nath, 1976; Latham & Locke, 1975). Finally, goal setting can promote the development of new strategies for improving performance (Latham & Baldes, 1975; Terborg, 1976). For example, if a certain type of serve in tennis is not effective, thus frustrating goal attainment, this will motivate the player to either modify his or her technique or develop a different type of serve altogether.

5. Goal setting only works if there is timely feedback showing performance or progress in relation to the goal (Locke et al., 1981). Before feedback can be given, performance must be measured. The act of measuring performance itself often leads to spontaneous goal setting when there is no formal goal setting program (Saari & Latham, 1982). It is a truism in business that what gets measured gets done. The same phenomenon occurs in sports. The very act of taking the trouble to measure some aspect of performance implies its importance to the athlete.

There are basically two types of performance feedback: that concerning progress and that concerning accuracy of the individual's movements. The former is crucial for goal setting to be effective. When feedback is given in relation to a standard, individuals evaluate their own performance and this motivates further action (Bandura, 1977). If the feedback shows performance to be at or above the level of the goal, the individual evaluates his or her performance positively and is motivated to maintain the level of effort. Further improvements in performance would require that the goal be raised, since a goal that has been achieved will no longer be challenging. When feedback shows performance to be below standard, the individual feels dissatisfied and is motivated to improve future performance (assuming the individual is dissatisfied with failure and believes he or she can improve) through greater effort, additional practice, or improved techniques (Bandura & Cervone, 1984).

One way to provide feedback about progress is by using a feedback chart which plots performance across time. When performance and the desired goal are logged on the chart, it will reveal three things: (a) how well the person is performing now, (b) how far away the goal is, and (c) whether the person is making progress toward that goal. Based on this information, future strategies can be determined. Feedback charts can provide further benefits if they are posted for other team members to see. Friendly competition may develop, leading to even further improvements in performance (Latham & Baldes, 1975). It should be noted that feedback in the absence of any standards, explicit or implicit, does not improve performance. Feedback only helps when combined with goal setting (Locke, Cartledge, & Koeppel, 1968).

Feedback regarding the correctness of the individual's technique is also necessary for attaining skill in sports (e.g., footwork and backswing in tennis, blocking stance in football, balance in ice skating). This type of feedback, provided by coaches or through videotapes, gives the competitor the basic knowledge needed to perform skilled acts. Goals, in conjunction with feedback charts, help ensure that this knowledge will lead to action.

6. Goals must be accepted in order to be effective (Erez & Zidon, 1984). It goes without saying that goals which are not accepted or to which there is no continuing commitment will not affect performance. Problems with commitment are especially likely to occur when the goals are difficult or challenging. This is not surprising, since difficult goals both require more effort and entail a greater risk of failure than easy goals. In organizational settings, six basic procedures have been used to gain goal acceptance and commitment: direct request, supportiveness, participation, training, selection, and rewards.

Initial acceptance is typically obtained by *asking* individuals to try for a certain goal and explaining to them why the goal is necessary or appropriate (Latham & Kinne, 1974). *Supportiveness* on the part of the boss also helps (Latham & Saari, 1979). Likert has described the principle as follows:

> The leadership and other processes of the organization must be such as to ensure a maximum probability that in all interactions...each member...will view the experience as...one which builds and maintains his sense of personal worth and importance. (Likert, 1961, p. 103).

Participation in setting the goals may sometimes help to gain commitment, although in most industrial studies goals assigned by the boss have worked just as well as goals set jointly by the supervisor and subordinate (Locke & Schweiger, 1979). Organizational studies do show that the latter method can result in higher goals being set than when the goal is assigned (Latham, Mitchell, & Dossett, 1978). However, trainees who are initially acquiring a skill prefer an assigned goal (Hillery & Wexley, 1974). *Training* may help ensure goal commitment by giving employees confidence in their ability to reach their goals. *Selection* is relevant to goal commitment in that people can be selected who are already highly motivated to improve and perform well; such people will be very receptive to goal setting programs that challenge them. *Rewards* and incentives are a key to ensuring continuing commitment. In organizational settings, money and recognition are two of the most powerful motivators (Latham et al., 1978; Locke, Feren, McCaleb, Shaw, & Denny, 1980). However, goals associated with money rewards must be reachable (Mowen, Middlemist, & Luther, 1981). Turning to recognition, AT&T solved an absenteeism problem in one plant by posting everyone's name on the bulletin board and placing a gold star next to the name of each person with a good attendance record. High performance companies

shower their employees with bonuses, pins, buttons, medals, and badges (Peters & Waterman, 1982). In sports this could take the form of decals on football helmets for superior performance or a chart with stars posted in the locker room.

7. Goal attainment is facilitated by a plan of action or strategy (Carroll & Tosi, 1973). In organizations it is common to develop plans for achieving goals, and one can assume that this would be equally beneficial in sports. In athletics, a plan may take the form of a training schedule with specific objectives for each practice session. These objectives may involve performance directly or they may involve the preconditions for effective performance such as the development of an athlete's strength and stamina. The plan might also involve developing competence at each subcomponent of the whole task. For example, task components for a wide receiver in football would include running pass routes, catching the ball, and running with the ball. These tasks can be broken down even further. Catching the ball could be subdivided into catching low balls, high balls, balls thrown into the body or behind or in front, balls thrown over the head, balls thrown to the left and to the right, and so forth. Proper techniques could be practiced and goals could be set for mastering each component. Similarly, swimming could be subdivided into starts, strokes, turns, and so forth.

8. Competition, a key element in sports, can be viewed as a form of goal setting. The two distinctive features of this type of goal setting are that (a) the goal is the performance of another person or persons rather than the impersonal standard that is more common in work settings (although sports can involve both), and (b) the goal is dynamic rather than static since it changes (typically by going up) due to the performance of other people. The result is extraordinarily high levels of performance which are constantly increasing over time (e.g., track and swimming records). There has been relatively little research in work settings on competition. However, one study showed that competition affected performance by raising goal levels rather than by increasing goal commitment (Mueller, 1983). Both mechanisms, however, could be operative in sports.

Applications of Goal Setting to Sports

Our general hypothesis is that goal setting will work as well in sports as in business and laboratory tasks. Ten specific hypotheses based on previous research are listed below:

1. Specific goals will regulate action more precisely than general goals.
2. For quantitative (specific) goals, the higher the goal the better the performance, assuming sufficient ability and commitment (see hypothesis 7).
3. Specific, difficult goals will lead to better performance than goals of "do your best" or no goals.
4. Using short-term goals plus long-term goals will lead to better performance than using long-term goals alone.
5. Goals will affect performance by directing activity, mobilizing effort, increasing persistence, and motivating the search for appropriate task strategies.
6. Goal setting will be most effective, if not *only* effective, when there is feedback showing degree of progress in relation to the goal.
7. With goals that are difficult, the higher the degree of commitment the better the performance.

8. Commitment can be affected by asking the individual to accept the goal, showing support, allowing participation in the setting of the goal, training, selection, and incentives and rewards.
9. Goal attainment will be facilitated by a suitable plan of action or strategy, especially when the task is complex or long-term.
10. Competition will improve performance to the degree that it leads to the setting of higher goals and/or increases in goal commitment.

We will now suggest specific ways in which goal setting can be applied to sports, in the hope that these ideas will stimulate experimental research on sports in both laboratory and field settings. Some of our suggestions may involve practices that are already in use, especially among professional sport teams, but our purpose here is to show how goals could be used in all types of sports at all levels of skill and professionalism. The proper application of goal setting in any specific instance will depend on the particular sport, team, and circumstances involved. In this discussion we consider both individual and team sports, and the setting of goals for practice as well as for formal competition.

Goals for Practice

As implied earlier, in practice sessions specific, difficult goals may be set for the development of strength, stamina, and skill. Strength goals are typically achieved by working with weights. For example, if Nautilus equipment is used, specific goals could be set for the amount of weight lifted with each muscle group and/or the number of repetitions, based on each individual's size, weight, and capacity. The amount of weight and number of repetitions must be decided based upon physiological research. Stamina goals may be set in terms of various types of repetitive activities that increase cardiovascular capacity such as jogging, stroking, kicking, sprinting, and rowing. These goals will involve maintaining a specific pace (e.g., 7 min/mile) and/or exerting a specific amount of force (as in rowing) for a specific amount of time (5 min, 1 hour, etc.). Goals may also involve attaining a specific pulse rate (at rest, during exercise, etc.). Goals for speed can also be set but these will usually be achieved by attaining strength and stamina goals. Skill goals will typically involve a specific number of correct repetitions of a specific task component. Examples for various sports are shown in Table 1.

In reading this table it is important to realize that these are only *examples* of possible goals. A particular example may be inappropriate for a given individual or situation. This decision must be made by the coach and the athlete. Second, the goals shown only include certain positions or certain subtasks of the whole task. Obviously, one would want to set goals for each position and each subtask. Third, the goals shown are static; they pertain to only one point in time. To motivate improvement, goals must become progressively more difficult as the individual attains increased skill. As we noted earlier, most successes do not bring lasting satisfaction. Having attained a given goal or subgoal, ambitious athletes will make further positive self-evaluation contingent upon attaining a higher goal.

In all cases, the goals must be based on the capabilities and long-term aspirations of the particular individual involved at each point in time (Locke & Latham, 1984a). In basketball foul shooting, for example, a novice's initial goal might be two foul shots in a row, then three, then four. Only gradually would the player work up to, say, 20, as shown in Table 1. If the player had no professional or college varsity aspirations, he or

Table 1

Examples of Goals for Subcomponents of Skilled Tasks

Tennis

10 backhands in a row down the line
10 volleys in a row alternating left and right corners
5 first serves in a row in left third of service court; 5 in middle third; 5 in right third
5 returns of serve in a row deep to the add court

Football

Wide receiver:
5 over-the-head catches in a row of a 40-yard pass
5 one-handed catches in a row of a 15-yard pass
Defensive back:
5 interceptions in a row with receiver using preannounced route
2 or fewer completions allowed out of 5 tries with receiver running unknown route
Kicker: 10 field goals in a row from 40-yard line

Baseball

Infielder: 10 hard grounders in a row fielded without error, 5 to left and 5 to right
Outfielder: 20 fly balls caught on the run without error (5 to left, 5 to right, 5 in back, 5 in front)
Hitter: 5 curve balls in a row hit out of infield

Wrestling

6 takedowns using at least two different techniques against an inferior but motivated opponent in (?) minutes
6 escapes using at least 3 different techniques in (?) minutes against same opponent

Basketball

20 foul shots in a row
30 uncontested lay-ups in a row
10 jump shots in a row from 10 feet
5 out of 10 jump shots from 40 feet
Dribbling 2 min. man-on-man against best defensive player without losing ball

Soccer

10 shots into left corner of goal from 30 feet with goalie not moving from center of goal
5 goals out of 10 shots from 20 feet with goalie free to move

Hockey

Goalie:
stops 10 of 15 shots from 20 feet
stops 5 of 10 one-on-one situations
Forward: passes successfully 8 out of 10 times to open man in front of net with one defender in between

Lacrosse

Similar to soccer and hockey

Golf

6 drives in a row over 200 yards and landing on fairway
15 puts in a row of 12 feet
10 9-irons in a row onto green from 75 yards

she might be satisfied with being able to hit only five in a row. Similarly, a novice tennis player would be happy with one good cross-court backhand, while a professional might want to hit 30 in a row consistently.

Team Versus Individual Sports

The principles of goal setting for individual and team sports are basically the same in the sense that in team sports each individual has a specific job to do that requires particular skills. Each skill can be broken down into subtasks just as is true of individual sports. For example, in baseball each fielder has to field skillfully and each hitter has to hit skillfully in order for the team to win consistently.

A key difference between individual and team sports, however, is that team sports also require cooperation and coordination. For example, the offensive linemen on a football team must do more than block effectively: For the running back to make yards, the linemen must block in the correct direction at the correct time. This, too, can be measured on an individual basis; however, to motivate cooperation we would hypothesize that group goals should be set in addition to individual goals.

Thus far there has been limited research on the effects of group goals, as opposed to individual goals, although preliminary indications are that the same results hold for both (Locke & Latham, 1984b). Sports offers an excellent place to study individual and group goal setting, both alone and in combination. Team goals may be set for both practice and competition. During practice, for example, a basketball team might try to complete 25 consecutive passes without losing the ball against the defense. A baseball team could try for 10 straight double plays without an error. A lacrosse team could try to prevent a shot on goal for 3 consecutive minutes.

Goals During Competition

Since the alleged goal of every competitor is to win, it might seem meaningless to set additional goals during competition itself. However, such goals are useful in that they provide one means by which winning will be achieved. For example, a tennis player could set a goal to get 65% of first serves in—an achievement that would greatly increase the chances of winning the match as compared to getting 45% of first serves in. Similarly, a basketball team could set goals for a game such as holding the opponent's best player to 15 points, out-rebounding the other team, or limiting turnovers to no more than 10.

The athlete should not be burdened by goal overload. People can only remember so much at once, and this capacity is reduced under conditions of stress. Thus, competitive goals should be limited to one or two important elements (more research is needed on this issue). The reason is that in addition to keeping goals in mind, the competitor must also bear in mind the strategy that will be used to beat the opponent (e.g., hit to the person's backhand, run the football to the left, use a zone defense in basketball).

Another way of setting goals during performance, and one which has the additional benefit of allowing detailed performance measurement, is to use a *point system*. The point system involves crediting the individual with a specified number of points for each accomplishment during the game. Goals then can be set in terms of the number of points the individual is to try to attain within a specified time. We have outlined a detailed example in Table 2 for the position of defensive linemen in football. This is used for illustrative purpoes only, since the particular point values and accomplishments shown are not necessarily appropriate to a given team or situation. What the table illustrates is the

Table 2

Sample Point System for Defensive Lineman in Football

Point value	Action
20	Touchdown
10	Interception or fumble recovery
5	Cause fumble
5	Sack
3	Block pass
3	Pressure passer (e.g., within 3 ft. of passer when ball released)
5	Tackle runner for 5 yd. loss or more
4	Tackle runner for 1 to 4 yd. loss
3	Tackle runner after gain of 0 to 3 yds.
2	Tackle runner after gain of 4 to 5 yds.
3	Tackle after *lineman* runs more than 10 yds.
1	Any other tackle
—	Assist on any of above: 1/2 no. of points indicated
—	Bonus points (0 to 20): Any key 4th-quarter play in a winning effort; judgment of coaches
Possible comparison standards for setting goals	
1)	Own performance (no. of points in previous game and/or against same opponent last time played)
2)	Own best previous performance (same season)
3)	Performance of other team's best lineman in previous week
4)	Average of all defensive linemen on same team in previous week

idea of a point system. For football, a different system would be developed for each position, and the point values would of course be comparable only within positions. Thus, defensive linemen could be compared with other defensive linemen but not with running backs or offensive linemen.

The value of the point system is that, once the individual understands it, the game can be approached with only a *single* goal (other than winning, to which attaining the point goal is a means) in mind: to get a certain number of points. The point total can also be converted into a points-per-play or per-minute ratio.

Note also that Table 2 contains no negative point values, such as penalties for missing a tackle. This omission is deliberate. Psychological research indicates that a generally positive approach to motivation is better than a negative one (Anderson & Schneier, n.d). Rewarding good performance is more important than punishing poor performance. Using a positive-only system reduces fear of mistakes, which can be paralyzing to an athlete who is under stress. Further, the positive-only system is consistent with the fact that, in football for example, one does not gain yardage by *not* fumbling the ball but instead by holding onto it while running. As most football coaches know, if you tell a running back *not* to fumble, his mind will focus on fumbling. It is important to focus attention on desirable rather than undesirable behavior.

Table 3

Sample Point System for Basketball Players

Point value	Action
2	Field goal
1	Assist
1	Foul shot
1	Rebound
1	Steal
1	Blocked shot
no. of points held below avg.	Hold opposing player to less than season avg. (one-on-one defense)
Possible comparison standards for setting goals	
1)	Own season average
2)	Own performance against same opponent that year
3)	Own performance in last 3 games

Table 3 shows a sample scoring system for basketball. Again the scoring system should only be interpreted as an illustration. As in the football example, the point total is useful not only as a motivational device but also as an index of the individual's value to the team. In basketball, the point totals of all players are directly comparable and can also be converted to a points-per-minute ratio.

Point totals for each contest could be posted on feedback charts to reveal not only the relative standing of the various team members but also each player's long-term progress. By examining point totals, and more specifically the components of the totals, information could be gleaned as to what subskills each individual needs to practice most. This information could also be used to identify each player's major strengths so that team strategy can take advantage of them.

As already noted, a positive approach to point totals and point goals is recommended in order to emphasize achievement rather than punishment, although sports research is needed to fully validate this point. Punishment not only fixates attention on the undesirable responses (Lewis, 1963), it can also result in hostility between the person being criticized and the person doing the criticizing (Meyer, 1977). Consequently, the coach loses influence over the athlete's behavior because in order for the athlete to maintain self-esteem, he or she is likely to discredit the source of the criticism. However, a record of errors could be kept *independently* of the point totals and used as a basis for designing useful practice sessions.

As we stated previously, winning is always the ultimate goal in competition. There are few exceptions to this statement. One exception could occur when the other team is overwhelmingly better than one's own, which might become obvious in the first 5 minutes of play. The inferior team may be tempted to just give up. To prevent this apathy, performance goals other than winning could be set. A miler might set a goal of beating her previous best time of 4 min 25 s and forget about the person who she knows will do 4:05. A football team might try to score at least three touchdowns even though the

other team has six. Here the focus is on one's own goals and capacities, not on those of the opposition.

Thus far we have discussed competitive goals in terms of goals for individuals. As with practice, however, there can be team goals other than the obvious goal of winning. For example, the offensive line may set a goal of getting a minimum number of rushing yards or limiting the defense to a certain number of quarterback sacks. The defensive line may have goals for rushing defense and sacks as well. A basketball team may set goals for turnovers. A point system can also be used to set goals for the team as a whole or units of the team. The defensive line as a group could be given a certain number of points to aim for in football. The defense in lacrosse could aim to hold the opposition to fewer than 10 goals.

There are many unanswered questions about the use of points to set goals. For example, how do you determine a proper point goal for each player? One possibility is to use the player's or group's last performance as the target. Thus, goals would automatically move up or down in line with performance. There are obviously other possibilities as well, such as trying to beat one's best previous performance. Research is clearly needed here.

Using Goals to Increase Self-Confidence

Self-confidence is largely a result of having achieved a high level of competence. Thus, for example, a tennis player who knows she can get 80% of her first serves in during practice will feel much more confident of her serve than one who gets in only 40% of her first serves during practice.

The conviction that one can carry out a certain course of action is called "self-efficacy" (Bandura, 1982). Self-efficacy can be measured by asking the individual to indicate how many times out of 10 or how many times in succession he or she can attain a specific subtask. Examples of self-efficacy scales for several tennis shots are shown in Table 4. Having competitors complete such scales periodically will reveal the degree to which each believes he or she has mastered the basic subskills of the sport. Low scores indicate the need for further practice, and perhaps coaching, on those particular subskills.

While self-efficacy will reflect the degree of skill achieved during practice (or during competition), it has also been found to affect subsequent performance (Bandura, 1982; Locke, Frederick, Lee, & Bobko, 1984). Several studies have shown that the same holds true in sports (Feltz, 1982; McAuley & Gill, 1983). Weinberg, Gould, and Jackson (1979), Weinberg, Yukelson, and Jackson (1980), and Weinberg, Gould, Yukelson, and Jackson (1981) have shown that self-efficacy affects performance on a muscular endurance task. This effect is *independent* of past performance. That is, given two people with equal skills, the one with higher self-efficacy will generally perform better than the one with lower self-efficacy. So although self-efficacy is related to past performance, there is no one-to-one correspondence between the two.

One issue yet to be researched is, what accounts for individual differences in convictions of self-efficacy over and above differences in past performance? A possible answer is differences in the conviction that one can maintain self-control under pressure. Many athletes describe this as involving the ability to concentrate or focus attention during a game, especially during crucial plays (Mahoney, 1979).

This ability could conceivably be facilitated by goal setting in at least two ways. First, setting goals in practice develops one's powers of concentration. Under goal setting, practice is never casual but is always sharply focused. Second, trying to achieve a goal in practice entails tension. Consider, for example, a tennis player who is trying

Table 4

Sample of Self-Efficacy Scales for Tennis Player (selected shots)

1st serves in*	Yes/no	Confidence (10 pt. scale)
2 out of 10	_____	_____
4 out of 10	_____	_____
6 out of 10	_____	_____
8 out of 10	_____	_____
10 out of 10	_____	_____
Forehands down the line*	Yes/no	Confidence
2 in a row	_____	_____
5 in a row	_____	_____
10 in a row	_____	_____
15 in a row	_____	_____
20 in a row	_____	_____
30 in a row	_____	_____
40 in a row	_____	_____
Forehand volleys into deuce court*	Yes/no	Confidence
2 in a row	_____	_____
5 in a row	_____	_____
10 in a row	_____	_____
15 in a row	_____	_____
20 in a row	_____	_____
30 in a row	_____	_____
40 in a row	_____	_____

*Allowable location for shots not specified here but ordinarily would be (e.g., forehand volleys must be in deeper half of backcourt). Speed could also be specified, but not very precisely in the absence of sophisticated equipment.

to hit five serves in succession to a particular spot. If he misses one, he must start over. After hitting three or four in a row he becomes tense because he does not want to miss. After experiencing this tension repeatedly, he learns to deal with it effectively and to counteract it such as by deliberately trying to relax or by thinking of key motions in the serve. The same is true of a wide receiver trying to catch 10 passes in a row or a basketball player trying to hit 20 foul shots in a row. In approaching the goal, this person experiences tension similar to that of a competitive situation. If the competitor carries this discipline into a game, confidence increases further. The capacity to deal with tension can be increased even more by various techniques described in the next section.

Task Difficulty Versus Goal Difficulty

Thus far we have talked about the benefits of goal difficulty, that is, having the individual achieve a certain number of repetitions of a subskill. Another way to prepare athletes for competition is to make certain aspects of the task more difficult in practice

than they will be in actual competition (e.g., Smith, 1980). For example, put weights in the shoes or on the legs of a runner; make the putting hole for a golfer smaller than the standard; make a tennis player lose the point unless the ball is hit into a specified part of the court; have a basketball team practice against a zone defense with five people on six or five on seven.

In large-audience sports such as basketball or football, a coach can get the team accustomed to crowd noise and/or heckling by playing tapes of such distractions at a loud volume during practice. Teammates can be asked to yell at a place kicker "miss, miss" during practice seasons. Another method is to have players in practice give the opponent an advantage such as free points so the team gets used to coming from behind. This will prevent them from panicking when they encounter unexpected setbacks in competition. Although little research has been conducted in this area, one study showed that practicing a more difficult task made subsequent performance better on the regular (easier) task (Campbell & Ilgen, 1976).

Achieving Long-Term Goals Through Short-Term Goals

It is difficult for most people to make long-term goals seem real. Such goals are often too abstract and too far in the future to have motivational power in the present. However, this problem can be resolved by setting short-term subgoals which will lead to the attainment of the long-term goal. An excellent example of this is described by Olympic gold medalist John Naber (quoted in Danish, 1982).

> In 1972 Mark Spitz won seven gold medals, breaking seven world records. I was at home watching him on my living room floor. And I said to myself at that time, "wouldn't it be nice to be able to win a gold medal, to be able to be a world champion in Olympic competition." So right then I had this dream of being an Olympic champion. But right about then it became a goal. That dream to goal transition is the biggest thing I learned prior to Olympic competition—how important it is to set a goal. Certainly, motivation is important. A lot of kids have motivation. "Gee, I'd love to be great."...
>
> My personal best in the 100 back was 59.5. Roland Matthes, winning the same event for the second consecutive Olympics (1972), went 56.3. I extrapolated his, you know, three Olympic performances and I figured in 1976, 55.5 would have been the order of the day. That's what I figured I would have to do. So I'm four seconds off the shortest backstroke event on the Olympic program. It's the equivalent of dropping four seconds in the 440 yard dash.
>
> It's a substantial chunk. But because it's a goal, now I can decisively figure out how I can attack that. I have four years to do it in. I'm watching TV in 1972. I've got four years to train. So it's only one second a year. That's still a substantial chunk. Swimmers train ten or eleven months a year so it's about a tenth of a second a month, giving time off for missed workouts. And you figure we train six days a week so it's only about 1/300th of a second a day. We train from six to eight in the morning and four to six at night so it's really only about 1/1200th of a second every hour. Do you know how short a 1200th of a second is? Look at my hand and blink when I snap, would you please? OK, from the time when your eyelids started to close to the time they touched, five 1200th of a second elapsed. For me to stand on a pool deck and say, "During the next 60 minutes I'm going to improve that much," that's a believable dream. I can believe in myself. I can't believe that I'm going to drop four seconds by the next Olympics. But I can believe I can get that much faster. Couldn't you? Sure. So all of a sudden I'm moving.

Gaining Goal Commitment

The same methods that achieve goal commitment in business should be effective in sports. (a) Explain to the athlete the reasons for each goal (strength, stamina, skill), for example, this is what is needed to win in this league; that is what will help you to improve.

(b) Be supportive. In athletics the personal relationship between the coach and the players is crucial. As noted earlier, coaches who use positive methods are usually the most successful (talent and other things being equal). In applying the principle of supportive relationships, it is important to note that the interaction between the coach and the athlete must be viewed in light of the athlete's background, values, and expectations. It is the athlete's perception of the relationship, rather than the coach's, that determines whether the relationship is a supportive one. The actual extent to which a coach's behavior is perceived as supportive can be measured by asking athletes the following questions:

- How much confidence and trust do you feel the coach has in you?
- To what extent does the coach convey a feeling of confidence that you can perform successfully?
- To what extent is the coach interested in helping you to achieve high performance?
- To what extent does the coach try to understand your problems and do something about them?
- How much is your coach interested in helping you (within reason) with your personal problems?
- To what extent is the coach approachable?
- To what extent is the coach generous in giving recognition?

(c) Participation in the setting of goals may not be crucial, but participation in developing plans may be useful (e.g., having the athlete critique his or her own filmed performance and suggest methods for improvement). (d) Training is obviously something that all athletic coaches already do. (e) Selection in an athletic context becomes recruitment; every coach knows the importance of this. Selection can be done not only on the basis of speed, strength, size, and skill but also determination and motivation to improve. (f) Concerning rewards, recognition is clearly the most common (other than the rewards of improving and winning) for the college athlete.

Recognition may take many forms and can be divided into two categories: informal and formal. Informal recognition would involve a pat on the back or a statement such as, "Good shot, Pat," during a workout or a game. Formal recognition might involve awards for most improved player, best conditioned player, strongest player, best performance in a game, most gutsy player, best "big play," and so forth. Such awards can be made regularly for each position and for each game. Names and pictures of winners can be posted in the locker or trophy room. Many football teams recognize outstanding game performance by giving players decals or stickers to put on their helmets, which can be seen not only by the other players but also by the fans.

If the results from the business world can be used as a guideline, the more recognition players get, the better. But it is essential that recognition and praise be given for something specific. They must be earned for *doing* something. Praise that is general (e.g., "you did well today," "keep up the good work") may be misinterpreted by an athlete as supporting some behavior that the coach in fact would like to see changed.

Another reason for making praise specific is that it increases the probability that the desired actions will be repeated. This is because the athlete now knows precisely what constitutes effective performance. A third reason for specificity is that it ensures the athlete will accept the sincerity of the praise. After all, the athlete knows that the praised behavior was in fact exhibited; the only possible surprise is that a busy coach noticed it and took the time to comment on it. Fourth, recognition that is specific can encourage the athlete's teammates to engage in similar behavior after seeing its positive consequences.

Emphasizing recognition does not mean that a coach should never criticize a player. UCLA basketball coach John Wooden made frequent use of scolds ("No, no, pass the ball this way, not that way"). However, his scolds, like his recognition, were typically instructive (Tharp & Gallimore, 1976). He demanded high standards (high goals) and would not settle for anything less. More specifically, he would not allow players to develop bad habits or use incorrect techniques.

Conclusion

The 1984 *Annual Review of Psychology* includes a chapter on sport psychology, in which Browne and Mahoney (1984) stress the importance of mental training for athletes. Goal setting, in addition to its direct effects on performance, gives an athlete a sense of control and positive self-direction. Self-regulation requires goals against which a person can evaluate his or her performance. A goal provides anticipated satisfaction for desired accomplishment as well as the basis for a negative appraisal. Thus, a goal provides an athlete with the incentive for action. The extent to which a goal creates the incentive for action is determined in part by its specificity. Because a specific goal designates the type and amount of effort required, it facilitates self-satisfaction by furnishing clear signs of the athlete's accomplishment.

The amount of effort that accrues from a goal depends upon the level at which it is set. When self-satisfaction is made contingent upon attaining a difficult goal, more effort is expended than if an easy one is accepted. Thus, for activities that are within the person's ability to achieve, higher goals result in higher performance than do easy goals. But if the goal is unrealistically high, a person's efforts are likely to result in failure, which can weaken feelings of self-efficacy and reduce an individual's motivation to perform the activity (Bandura, 1977). Thus, a goal should be difficult but ultimately attainable (Locke & Latham, 1984a).

Short-term goals are important because they mobilize effort and direct what one does in the present (Bandura & Simon, 1977). Long-term goals may be too distant in time to have much effect on action, especially when there are many competing influences at hand. Self-motivation is fostered by specific subgoals that are instrumental in achieving future goals.

Goal setting in the absence of informative feedback becomes meaningless. Information is necessary to track progress and to tell an athlete the types of errors being made and how they might be corrected. But informative feedback only takes on significance in relation to an athlete's goals. Thus, performance feedback on tasks that are not valued by the athlete will have little effect on motivation. In contrast, feedback in relation to what the person values can sustain effort by creating self-satisfaction with subgoal attainment, which in turn leads to the setting of higher goals for subsequent performance.

Goal setting can also be useful for understanding and managing the social psychology of a team. To the extent that a team agrees on the goals it needs to attain, the

ways to pursue those goals, and a timetable for doing so, a team by definition is formed.

Finally, goal setting can contribute to one's self-concept and the enhancement of self-efficacy. Self-efficacy gained from goal setting in sports may transfer to other aspects of the athlete's life.

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