THE EFFECTS OF A GOAL-SETTING TRAINING PROGRAM ON FREE-THROW SELF-EFFICACY AND PERFORMANCE

by

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CHAPTER I

INTRODUCTION

The establishment of goals has long been considered an effective aid in performance improvement. Subjects performing organizational and laboratory tasks ranging from typing (Yukl & Latham, 1978) to logging (Latham & Locke, 1975) have demonstrated the efficacy of this goal-performance relationship. A review of these studies has shown that positive or partially positive goal-setting effects have been evidenced in 90% of the investigations (Locke, Shaw, Saari, & Latham, 1981). The assumption that goals are immediate regulators of human action, appears therefore to be justified.

Few attempts have been made, however, to replicate these consistent goal-setting effects in sport, and only circumstantial evidence attests to the effectiveness of goal setting within such an environment (Locke & Latham, 1985). The goal-performance relationship demonstrated in organizational and laboratory tasks has not been duplicated in the few reported sport-related studies (Barnett, 1977; Hollingsworth, 1975; Weinberg, Bruya, & Jackson, 1985).

It may be that the discrepencies between organizational and sport-related studies within the goal-setting literature stem, in part, from the disagreement over which mechanisms are involved in the goal-setting process. Behavioral approaches suggest goals automatically serve to direct attention, mobilize effort, and increase persistence

(Komaki, Barwick, & Scott, 1978). An alternative approach, from a cognitive perspective, claims the goal-performance relationship is mediated by expectancies, appraisals, and attributions (Latham & Baldes, 1975).

Locke (1968) addressed the weaknesses of a purely behavioral explanation for goal-setting effects when he argued that conscious ideas regulate actions. Given the necessary physical ability, conscious determination of what object or standard one wishes to achieve, supposedly sets in motion a series of behaviors which accomplish the desired end.

Bandura (1982) has proposed that self-efficacy, personal judgment of how well one can execute certain actions within a given situation, determines whether behavioral changes will occur following the setting of goals. This cognitive point of view, based in social learning theory (Bandura, 1977a), states that self-motivation is mediated by both goal setting and self-referent thought. In setting standards by which to evaluate personal performance, internal comparisons between desired and perceived level of mastery may be made. When internal standards are met, satisfaction, interest, and motivation for participating in that activity increase, as does one's percepts of efficacy in executing the goal behavior. A strong sense of self-efficacy results in greater intensity and perserverence when faced with challenging tasks (Bandura & Schunk, 1981). Conversely, low self-percepts of competence produce feelings of inadequacy which consequently

lead to stress, impaired performance, lack of interest, and ultimately a reduction in effort.

Initial support for Bandura's (1982) claims regarding this goal-efficacy-performance relationship has been provided by a study involving a brainstorming task (Locke, Frederick, Lee, & Bobko, 1984) which specifically tested the contribution made by self-percepts to performance. The investigators found that self-appraisals affected not only goal choice, level, and commitment, but even more strongly than past performance, influenced (future) performance.

Therefore, while mechanistic explanations identify only operant principles such as reinforcement schedules and past performances as determinant factors (Saari & Latham, 1982), inconsistent findings of goal-setting effects on sport performance suggest that more complex mechanisms, particularly self-efficacy, may be involved in the goal-setting process. Testing this hypothesis, Terborg (1976) designed a study which separated behavioral factors from cognitive components. Results indicated the goal-performance relationship was apparently dependent upon the mentalistic effects of goal setting.

Important to any goal-performance association are the several dimensions assigned to goals. Kirschenbaum (1985) reported that relatively specific, flexible goals were more effective than vague or stringent goals. Setting a number of subgoals on the way to reaching a desired distal goal has consistently produced better performances than a plan consisting of only one long-range achievement aspiration

(Locke, et al., 1981). Challenging, yet realistic goals have proved superior to either easy or impossible goal conditions (Campbell & Ilgen, 1976). Finally, the degree of goal acceptance or commitment (Erez & Zidon, 1984; Locke, 1968) has been shown to greatly influence the effectiveness of goals.

Additionally, knowledge of results is apparently a prerequisite for goal-setting effects (Locke, et al., 1981). This type of feedback does not serve as a reinforcer to condition one into producing a particular behavior, but as information, which when processed, may lead to heightened or lowered self-percepts of efficacy (Bandura, 1977b). In the absence of such knowledge, internal comparisons between desired and actual performance could not be made, thus inhibiting a key goal-setting mechanism.

Combining these various aspects of goal setting and then applying them, should result in performance enhancement. Evidence supporting such an approach was supplied by Burton (1983) in a field study of varsity swimmers. He found that competitors trained in setting effective goals improved their swimming performances significantly more than a similar control group during the course of a season.

Apparent discrepencies which appear in the goal-setting literature may have resulted from two primary features of past goal-setting research. First, studies of goal-setting have, typically been carried out within laboratory and organizational settings using novel tasks as the performance

measure. Assignment of strictly behavioral attributes for the consistent goal-setting effects went seemingly unquestioned, even when investigators suggested some cognitive contributions were significant to the results. Specifically, Locke and Bryan (1966) reported increased intensity and duration of output by subjects performing a motor task with established goals in mind. Behavioral conditioning might be ascribed for such effects, yet, that would only serve to deny the experimenters' cognitive-based conclusions.

Similarly, when positive goal-setting effects have been demonstrated in sport, operant interpretations of the results were frequently given. For example, Barnett and Stanicek (1979) reported more accurate archery performance for subjects given instruction in setting goals than for subjects receiving only instruction in how to perform the skill. Apparently accepting past explanations, the authors concluded behavioral and motivational mechanisms were responsible for producing the goal-setting effects. As indicated by disconfirming evidence within the literature (Locke, et al., 1984) a more sport-relevant position is needed.

Besides the theoretical obstacles posed by solely behavioral attributions for goal-setting effects, investigators of goal setting in sport must confront a greater dilemma in their research: A lack of positive results for goal setting in sport-associated tasks (Barnett, 1977; Hollingsworth, 1975; Weinberg, et al., 1985). Sport-

related tasks may differ markedly from novel industrial and laboratory tasks, and consequently goal mechanisms and dimensions may fail to transfer across the two settings.

In a recent study of the effects of goal proximity and specificity on endurance performance, no significant differences in sit-up performance appeared between subjects under a "do your best" treatment and three goal conditions (Weinberg, et al., 1985). A check of the manipulation revealed that 83% of the participants in the so-called "nongoal" group had indeed set goals on their own. Thus, all groups were equal in that they were all directed toward a specific standard of performance. The availability and objectivity of feedback in sport contexts may confound such studies. In fact, nongoal groups may be but a myth in sport-related tasks in which participants are able to easily and accurately monitor their own performances. Also, kinesthetic and fatigue factors inherent in some sport tasks may render previous understanding of goal behavior meaningless. As concluded by the investigators (Weinberg, et al., 1985), "More research should be conducted in physical education and competitive settings before we can fully accept the results derived in other settings" (p.304).

In addition to skepticism over the transfer of goal-setting principles from organizational/laboratory settings to sport settings, consideration must be given to the measurements used for performance when assessing changes in self-efficacy. McAuley (1985a) found that subjective performance ratings, rather than objective scores, were

better predictors of attributions made by gymnasts following their performance. This suggests that self-percepts of success, not objective measures, play a more critical role in determining one's self-efficacy. Therefore, if self-efficacy is a key element in the goal-performance relationship, one must take into account both subjective and objective measures of performance success. Furthermore, given the continual monitoring of performance and internal comparison process involved in establishing self-efficacy (Bandura, 1982) and goals, perceptions of success may have an even greater role in determining the self-efficacy of individuals especially aware of the goals they wish to achieve.

While the application of goal setting to sport may be difficult, the potential benefit to athletic performance is sufficient reason to more closely examine this cognitive aid. Success rates of studies not dealing directly with sport suggest that once theoretical and procedural knowledge of the goal-setting process is achieved, the use of goals can produce consistent increments in performance. Allied literature suggests that increases in self-efficacy and perceived effectiveness in executing the skill may result from application of a goal-setting program (Bandura, 1982; Burton, 1983).

The present study sought to contribute further to the understanding of the goal-setting process as it relates to sport. More specifically, an assessment of the effects of a goal-setting program, particularly on self-efficacy and

performance, was the purpose of the present investigation.

Barnett and Stanicek's (1979) study of the effects of goal setting on archery performance provided the framework for the present study. Results from the previous investigation (Barnett & Stanicek, 1979) indicated significantly better performances over a 10-week period for archers who had been instructed in goal setting than for those instructed only in executing the skill. Explanations given for these goal-setting effects were primarily motivational in nature. As previously noted, interpretations of goal-setting effects which fail to recognize cognitive contributions in general, and more specifically the influence of self-efficacy, appear to be inadequate. Therefore, the focus of the present study centered on not only the effectiveness of goal-setting training in sport, but the role of self-efficacy in the goal-performance relationship.

Purposes

The purposes of the present investigation were threefold: a) to measure the effectiveness of a goal-setting training program versus a no-goal/skill instruction program on basketball free-throw performance; b) to assess the effects of a goal-setting training program on self-efficacy perceptions; and c) to examine the differences between subjective and objective outcomes and their respective associations with self-efficacy.

Hypotheses

It was hypothesized that: a) the goal setting group would demonstrate better performance, higher self-efficacy, and superior self-percepts of skill execution as a result of the goal-setting training program, than would the instruction-only group; b) performances would be more strongly associated with self-efficacy than with past performance, particularly for the goal-trained group; and c) perceptions of success would be more strongly related than objective performance measures to self-efficacy ratings for both groups. The group trained in goal-setting was expected to demonstrate a stronger relationship between perceived success and self-efficacy than the untrained group.

CHAPTER II

REVIEW OF THE LITERATURE

One of the major endeavors of applied sport psychology is to take findings of improved task performance from the laboratory and attempt to replicate them in field settings prior to, during, or after actual sport competition. Therefore, when it was claimed in a comprehensive review (Locke, et al., 1981) that "The beneficial effects of goal setting on task performance is one of the most robust and replicable findings in the psychological literature" (p. 145), a challenge was presented to those seeking to successfully apply goals to the sport setting. By definition, a goal is simply what an individual is trying to accomplish-- the object or aim of an action (Weinberg, et al., 1985). One must not confuse plans with goals. Plans are the series of actions designed by an individual to achieve a desired end, or goal (Kirschenbaum, 1985). In other words, a plan is the cognitive blueprint for attaining a goal(s).

Goal setting has been viewed as a motivational device, whereby goals serve as immediate regulators of human action. The goal setting process supposedly influences behavior by certain mechanisms that have been only speculated upon in two theoretical approaches (Locke, 1980), generated from academic and organizational sources.

Academic vs. Organizational Approaches

The academic approach centers around the cognitive factors involved in goal setting. Individual's aspirations, intentions, strategies, and percepts of self-efficacy are of major importance according to this goal-setting paradigm. The individual setting goals serves as an active agent, taking in and processing the elements of the task in which he or she is engaged, then comparing the demands of the task against the individual's self-perceived ability to perform under those conditions. From this estimation of self-efficacy, the level of achievement (goal) sought by the individual is ascertained. In other words, the cognitive-academic approach to goal setting is one which emphasizes the individual's nature and identity as determinants of what goals one will set.

The organizational approach originates from a behavioral perspective. Its total denial of mentalistic processes suggests a radical departure from the cognitive-based academic model. This Skinnerian (1938) approach claims that behavior is regulated automatically by the environment and that the individual is only a passive participant, following whatever operant procedures applied. Thus, in terms of goal setting, any adjustments in goal-directed behavior may be attributed to the reinforcing quality of the feedback given the individual.

Both the academic and organizational explanations of goal-setting effects serve their respective proponents well.

Academia's complex cognitive interpretation lends itself to theory-building and research. Conversely, the organizational position favors an applied behavioral approach, utilizing goals as tools for increased employee productivity. However biased, both accounts of goal setting merit consideration, given that goal-setting effects may be situationally determined. If goals are to be useful in various environments, a stable, trans-situational mechanism must be revealed.

The Self-Efficacy Factor

A most plausible explanation for the effects of goal setting has been offered by Bandura (1982). His approach, relying on the cognitive operations of the individual, has at its core the concept of self-efficacy. In this theory, self-appraisals of how well one can execute certain courses of action in various situations are the most influentual determinants of not only a person's choice of activities and environmental settings, but also the thought patterns and emotional reactions that take place within the individual in anticipation of actual transactions with the environment.

Bandura's (1977b; 1982) explanation provided the needed mechanism for goal-setting effects to appear across situations. A review of previous explanations for the goal-performance relationship (Locke, et al., 1981) failed to identify a common underlying element at work in the goal-setting process. Therefore, to avoid the situational limitations imposed by operant theory, cognitive elements in

the goal-setting process, such as self-efficacy, must be considered when evaluating the literature.

Several sport-related studies have examined the influence of self-efficacy on tennis (Barling & Abel, 1983), diving (Feltz, 1982; Feltz & Mugno, 1983) and gymnastic performance (McAuley, 1985b) without considering the effect of goal setting. Both Feltz (1982) and McAuley (1985b) tested the relevance of Bandura's (1977b) theory, and reported guarded support for the model. While self-efficacy served as a strong predictor of diving performance on early trials, with more experience, past performance assumed a greater predictive role than self-efficacy for future performances (Feltz, 1982; Feltz & Mugno, 1983). On the other hand, self-efficacy, and not response-outcome expectancies, corresponded significantly to several dimensions of tennis performance (Barling & Abel, 1983). As noted by McAuley (1985b), the self-efficacy model (Bandura, 1977b) is an incomplete, yet useful, explanation of behavioral change. Bandura (1984) has recently clarified his original position (Bandura, 1977b), stating that self-efficacy is not the only mediator of behavior, but plays a significant role in conjunction with other mechanisms of behavioral change.

Dimensions of Goal-Setting

Dimensional qualities of goals significant to performance range, from the behavioral components of directing one's attention, regulating effort, and increasing

persistence (Komaki, Barwick, & Scott, 1978) to the cognitive factors of expectancies, appraisals, and attributions (Latham & Baldes, 1975). Areas of agreement and differences between these two approaches will be evident as significant dimensions of goal-setting are examined.

Knowledge of Results

Locke and Latham (1985) have pointed out the necessity of timely feedback in achieving goals. Whether knowledge of results serves to show progress toward the goal (behavioral) or to provide one with efficacy information (cognitive), both positions agree that feedback is a requirement for goal-directed behavior.

The problem that confronts those attempting to study the effects of KR on sport performance concerns the unique opportunity presented athletes during performance to accurately monitor their levels of performance, even in the absence of displayed or verbalized feedback. Barnett (1977) found evidence for this phenomenon in a study involving differing amounts of feedback after subjects had completed a three-ball juggling task. Goal groups provided with specific, numeric feedback performed no better than a control group which had completed the trials without KR. Apparently the task had provided essential performance cues, as do many types of physical activities in sport. In this way, athletes are able to acquire the necessary information for continuing their progression toward a desired goal even though no explicit verbal or visual KR was available.

In addition to having rather accurate information at their disposal during performance, no-goal subjects may use this knowledge regarding their performance to set goals of their own. This was demonstrated in a recent study (Weinberg et al., 1985) examining the effects of various goal conditions on sit-up performance. A large majority (83%) of the control ("do your best") subjects had set their own specific goals for future performances, with no prompting to do so. Apparently, sport tasks, and specifically those tasks requiring strenuous endurance performance, either have an immunity to goal-setting effects or make knowledge of results so accessible that differences between goal and no-goal groups disappear. Indications of physiologic limits being reached may supercede any goals set prior to a taxing task. Another possible reason for the absence of goal-setting effects in sport performance is the nature of feedback available to active participants. All subjects can monitor their progress by several sources of information, so even those performing without defined goals have accurate knowledge of results to compare against their own internal standards. Therefore, little difference in self-efficacy judgments between goal and no-goal groups would be expected (Bandura, 1982).

If, as suggested by results of the study by Weinberg and his associates (1985), manipulation of knowledge of results in sport-related tasks is often confounded by informational cues immediately available to the athletes who perform them, then other elements of goal setting may be

impacted upon differentially, depending on the type of task in question.

Goal Difficulty

Locke et al. (1981) made the necessary distinction between task difficulty and goal difficulty. Most goal setting studies speak in terms of goals as "Attaining a certain level of proficiency on a task, within a specified period of time" (p. 126). Therefore, a task can be thought of as a goal, but is more accurately viewed as a subgoal of a more difficult, distant goal. In sport this relationship may be illustrated by a scenario in which a team is scheduled to play its next game against an inferior opponent (task difficulty), but has four superior teams within its own division blocking their way to a championship (goal difficulty). To take the example another step, the team in question may perform poorly against the weaker opponent and win, but play to its maximal ability against the stronger opponents and lose. The competitive outcomes are not the important features of this illustration. Of greater significance is how performance is raised to meet the difficult aspects of the goal.

In support of this assertion, Campbell and Ilgen (1976) conducted a study involving experienced chess players to empirically demonstrate better performances are achieved by giving individuals tasks which are difficult, even though they may fail, than easy tasks in which success is easily obtained. Latham and Locke (1975) provided evidence for the

goal difficulty-performance relationship in a field study of logging performance. Better performances were achieved by loggers working under stringent time constraints than by those performing under less difficult goal conditions.

While the majority of the literature confirms the findings of these two studies of goal difficulty and task performance, one must recognize that other factors may influence the goal-performance relationship. Mowen, Middlemist, and Luther (1981) pointed out the significant link that incentives may have to the goal difficulty-task performance relationship. The suggestion being that the more attractive the inducements for attainment of the goal, the more effort one would be willing to expend in seeing it was reached. This rationale failed to explain why they found no differences between moderate and easy goal groups performing under certain incentive structures. It may be that a particular threshold of goal difficulty must be reached before incentives have an influence on an individual's performance output.

Locke (1982) studied the upper limit of goal difficulty as opposed to the lower threshold. He arranged students into 14 different goal levels for a brainstorming task and found significant goal-setting effects on performance. Not only did higher goal groups offer more uses for common objects, but there was no drop in performance for subjects even when they were given impossible goals. However, it is hard to imagine a task equivalent to brainstorming within the scope of sport. Limits placed on performance by

restrictions of the human body suggest some type of ceiling for behavioral goals in contrast to mental functions, which have yet to be restricted by a definite level of potential.

The degree of acceptance of very difficult goals has also been identified as a major determinant of increments in performance. Erez and Zidon (1984) reported a positive linear relationship between acceptance of goals and performance and a negative linear relationship between the rejection of goals and performance. Locke's (1982) finding that setting impossible goals still resulted in better performances may be understood in terms of the degree of acceptance subjects had for the goal, regardless of its difficulty.

An additional aspect of the goal difficulty-performance relationship was identified by Latham and Saari (1979). In their study, subjects treated in a supportive manner set more difficult goals than did subjects not given supportive treatment by the experimenter. Though the effect of supportiveness on performance was non-significant, an indirect chaining effect was suggested by the findings. A sequence may be hypothesized in which supportive behavior leads to increased self-efficacy and a subsequent willingness to set more difficult goals that, in turn, results in a higher level of performance. The inclusion of self-efficacy into the goal-setting process offers support for Bandura's (1982) theory which has recently been corroborated by the work of Locke and his colleagues (1984).

Before leaving the topic of goal difficulty, a

methodological factor must be noted as relevant to the findings of improved performances for subjects with harder goals. In most studies, control groups are given instructions to "do your best" while treatment groups are given goals of various difficulty. This arrangement places an emphasis on individual personality differences, particularly in self-motivation, and the incentive structure of the situation. Also, the specific instructions given to treatment groups may have informational properties which have been denied the control group. This difference in goal specificity may be a confounding aspect in studies of goal difficulty, since the literature has identified the descriptive nature of an assigned goal a significant aspect of the goal-performance relationship (Latham & Saari, 1979).

Goal Specificity

Locke (1968) reported specific, challenging goals lead to higher output than do vague or easy goals. A review of subsequent studies of goal specificity (Locke, et al., 1981) provided substantial support for the original investigation of the subject (Locke, 1968). Obscure goals, such as "do your best" goals, have been found significantly less effective in producing better performances than well defined, quantitative goals (Locke & Latham, 1985), although exceptions have been reported (Barnett, 1977; Weinberg et al., 1985).

Locke and Bryan (1966) theorized that their results, showing specific goals more effective in improving motor

task performance than "do your best" goals, indicated the influence of specificity on the cognitive components of motivation and intention. This assertion may be correct, given that clearly specified intentions produce greater commitment than vaguely stated goals, and would therefore mobilize greater effort for the action. Verification of this assertion is limited (Hollingsworth, 1975), and previous goal-setting studies have found a high level of goal commitment for nearly all subjects, regardless of whether goals were assigned or set by participants (Locke, et al., 1981). Kirschenbaum (1985) pointed out the importance of plan specificity to the goal-performance relationship. If plans are too specific or restrict individual choice, they may debilitate self-regulatory processes required to attain goals. Though dependent on type of task and population, moderately specific and flexible planning was demonstrated to be the best method for attaining goals (Kirschenbaum, 1985). This finding contradicted previous evidence favoring highly specific goal planning (Locke & Bryan, 1966; Locke, 1968).

Combined Effects

A most useful approach in evaluating the interactive functions of knowledge of results, difficulty, and specificity has been presented by Locke and his associates (1981). Through a review of the goal-setting literature, they were able to combine the effects of these three factors on performance. By joining the difficulty-specificity

factors, they were able to conduct pairwise comparisons to assess the relative importance of these goal dimensions under varying KR conditions. The conclusions drawn from this analysis were: 1) neither KR alone or specific-difficult goals alone are sufficient to improve performance; 2) together, KR and specific-difficult goals are sufficient to improve performance, given the ability and absence of external constraints; and 3) KR is not a reinforcer in that it does not condition behavior and may be more appropriately viewed as informational.

This summary of feedback, difficulty, and specificity demonstrates the input of both the cognitive and motivational agents involved in the goal-setting process. However, the assumption that KR is devoid of reinforcing qualities may be a faulty deduction, based on the available research. The processing of KR, it would seem, may have several different effects, including one of motivation (Campbell & Ilgen, 1976). That feedback has this motivational component has already been indicated by a study that reported goal groups receiving KR significantly increased their output near the end of trials, compared to a control (no-goal) group (Locke & Bryan, 1967). This suggests that even though the informational component of KR had been continually present, subjects failed to use it to increase effort until time constraints were imposed. Whether feedback is used for assessing the distance one is from the goal or for energizing the individual into action may depend on the cognitive evaluation of both the amount of

work required and time allotted to attain the goal.

Goal Proximity

The fourth major parameter of goal setting concerns the distance one must traverse in terms of both achievement and time before attaining the desired end.

Bandura and Schunk (1981) reported the use of subgoals necessary for improving self-efficacy. These investigators compared "do-best", proximal, and distal goal groups to assess the effects of goal proximity on both the mathematical self-efficacy and performance of children with learning deficits. The proximal goal group demonstrated the most intrinsic interest, performed best in the problem-solving task, and was the only group that developed a high degree self-efficacy during the course of the study.

Kirschenbaum (1985) suggested that Bandura and Schunk's (1981) findings were a result of differences in the feedback available to the three groups. He (Kirschenbaum, 1985) claimed that these proximal goal effects were simply a function of the degree to which subjects could monitor their performances. Short-term goals supposedly provide individuals with indicators of self-mastery and establish a basis for determining how well one is progressing toward a more distant goal. It has been hypothesized that proximal goals offer the individual essential task-performance feedback which serves to increase self-efficacy and, consequently, intrinsic interest for the activity that must be mastered in order to reach the long-term goal (Bandura,

1982; Locke & Latham, 1985). Once the activity has captured the individual's desire to participate in it, an increase in effort, persistence, and commitment for gaining not only the proximal goal, but the distal goal as well, will follow. Conversely, setting only far removed distal goals does not allow the individual to accurately monitor progress or ensure increments in self-efficacy, and as a result, those goals may fail to direct present actions or mobilize effort.

That goal proximity is of great significance to non-athletic endeavors has been confirmed by a review of organizational goal-setting studies (Locke et al. 1981). A recent sport-related experiment (Weinberg et al., 1985), however, failed to support the phenomenon. As previously suggested, it may well be that self-monitoring is easily accomplished through the kinesthetic and objective information provided athletes, even when feedback is withheld. A no-KR group in a sport-related task has at its disposal many more informational cues regarding performance than would, for example, a group of children providing written answers to math problems (Bandura & Schunk, 1981). This is not the only problem confronting those attempting to investigate the effects of goal setting on sport performance.

Additional Goal Features

A major stumbling block in the attempt to clarify the goal-setting picture is the numerous types of goal parameters. In addition to the proximal, distal,

specifictity, and informational dimensions of goals which have been previously discussed, there are several other goal parameters.

Assigned vs. Participative

Goals may be directly assigned to subjects in the study or they may be set in a manner that permits the participants to have some degree of choice regarding what goal they will try to achieve. Locke (1968) submitted that it was not a matter of whether a goal was assigned or participatively set, but whether the goal was accepted that determined its effectiveness in improving performance. A study of typists' performance (Latham & Yukl, 1976) seemed to support his assertion, as no differences in typing speed were found between assigned and participative goal groups. Results of this study (Latham & Yukl, 1976) may be suspect, given the control group performed equally as well as both goal groups and that both the assigned and participative goal groups felt an equal decline in satisfaction in their job. The finding of negative cognitions for those performing under participatively set goals is especially troublesome, in light of Bragg and Andrews' (1973) contradicting evidence and Locke's (1980) description of the potential motivational benefits of allowing individuals to prescribe their own goals.

Other Elements of Goals

Goals have been classified in various other manners. Gould (1984) distinguished between subjective and objective

goals as well as performance and outcome goals. Subjective goals refer to "try best" and "have fun" approaches to an activity, while objective goals may be either general ("make the team") or specific ("score 20 points a game") as long as they are directly observable events. Performance goals are those that one seeks to improve personal mastery of a task, independent of other's accomplishments, while outcome goals are based on wins and losses against competition.

Goals should be positive in nature. Statements that begin with "I will..." or "I would like to..." rather than "I can't..." or "I don't want to..." provide the individual with a positive approach to attaining a goal. Negative outlooks block improved behaviors by causing individuals to focus on failing.

Goals can also be broken down with respect to desired achievements of individuals and teams. Locke and Latham (1985) pointed out achievement of group goals requires cooperation and coordination among the group's members, while individual goals are attained by a single person completing a specific task, at some set standard of proficiency. Often times individual and team goals are not in harmony. For example, a player may aspire to run the football for 100 yards in a game, while the team's goal is to defeat their opponent. If the running back is a poor rusher whom the team depends on for blocking, a conflict may develop and result in not only the individual failing to gain his desired yardage, but in the team losing the game as a consequence of the back's ineffective blocking efforts. A

coach must be cognizant of the possible contentions between team and individual goals and attempt to not only make the players' individual roles explicit, but to provide each member a specific level of performance to strive for at those roles, within the framework of the team's goals.

Problems in Goal-Setting Research

The difficulties confronting those studying the effects of goals are clearly seen by the numerous distinctions made between the types of goals. How does one design a study with enough treatment cells to test them under the same environmental conditions? Furthermore, how does one go about comparing goal and non-goal groups since "do your best" groups are actually performing under a subjective goal treatment (Gould, 1984)? This becomes even more problematic in sport research, as Weinberg et al. (1985) discovered when their control subjects unexpectedly set quite definitive goals. Perhaps the key aspect is the level of intrinsic interest subjects have for the task. One may assume that if a task is of little interest to participants, then goals (subjective) are unlikely to be set.

One way of avoiding some of these problems is by imposing very few demand characteristics on subjects involved in the goal-setting process. As suggested by Kirschenbaum (1985), more open choices of goals must be left to subjects participating in goal-setting investigations. Artificial goals commonly used in goal-setting studies may not only restrict choice, but have very little intrinsic

value to the participants.

The lack of goal-setting research in sport psychology is probably not due entirely to the field's rather recent development. Instead, it is probably a consequence of four factors: 1) the emphasis on organizationally-based studies has only recently abated to a degree that other types of performance areas are being studied for goal-setting effects; 2) the theoretical differences between behavioral and cognitive approaches have only recently been bridged (Locke & Latham, 1985); 3) the lack of an appropriate experimental design to take into account the sport-specific type of feedback that permits KR and goal setting to take place under control conditions; and 4) the prevalence of single-goal-dimension studies (eg. difficulty), making problematical any attempt at achieving consistency in goal-setting research.

Alternative Approaches to Goal-Setting

The shift away from organizationally-based approaches has coincided with cognitive-based explanations of the goal-setting phenomenon being put forth by academics. Bandura's (1977a) social learning theory, and, more specifically, that area of his proposal which concerns self-efficacy as a regulator of human action (Bandura, 1982), appears to be a most detailed and cogent explanation of goal-setting effects. The inclusion of such important elements as an individual's internal standards, expectancies, appraisals, and attributions into the goal-setting process gives special

credibilty to the self-efficacy model (Bandura, 1977a; 82). Yet, several questions must be answered before accepting this solely cognitive theory in sport.

Most pressing is an explanation for studies that fail to find the effects predicted by a model based entirely on cognitions (Komaki et al., 1978; Saari & Latham, 1982; Weinberg et al., 1985). Could it be that humans are, to some degree, instinctive "goal-seekers", predisposed to behave purposefully, as Tolman (1951) suggested. If not, then why do subjects with specified goals increase their output significantly at the end of the trial (Locke & Bryan, 1967), in much the same manner as operantly-conditioned non-human subjects (Whaley & Malott, 1971)? One may ask what part self-efficacy played in Macfarlane's (1930) finding that rats were able to run, without hesitation to a goal box on their very first trial even though they had only swam through the maze on previous searches for the goal?

This is not to suggest a "cognitive map" approach to goal-directed behavior, but rather to stimulate ideas that may lead to solving the many dilemmas that confront those studying goal-setting in sport. Is it not possible that the kinesthetic cues, unique to physical activity performed by athletes, impact upon behavior in such a way that an entirely cognitive account fails to explain? Maybe an alternative approach, not so different from Tolman's (1951), that includes both the mechanistic element of purposive behavior, to direct one to a certain end, and the cognitive dimension, which allows for adjustments in behavior to meet

contingencies as they arise, would be better suited for goal setting in sport than an entirely cognitive approach. Perhaps a program of goal-setting training, which emphasizes both the mechanical properties of goal dimensions and the cognitive element of self-efficacy, would have the most relevance to sport.

Goal-Setting Training

Provided with information concerning goal dimensions and the success of previous goal-setting studies (Locke, et al., 1981), attempts have been made to instruct individuals on how to effectively use goals to improve performance (Barnett & Stanicek, 1979; Burton, 1983).

Barnett and Stanicek (1979) found that subjects exposed to weekly 10-minute teacher-led conferences on how to set goals, performed significantly better in archery than a similar group that received only skill instruction. The investigators speculated that motivational properties of goals were primarily responsible for the superior performance demonstrated by the group that had received the goal-setting instruction. Little attention was given to the possible cognitive benefits of the instruction, and changes or differences in self-efficacy were not analyzed. Group differences in self-efficacy may have been particularly significant in the study (Barnett & Stanicek, 1979), given the two types of informational feedback put forth by the teacher. Participants not receiving goal-setting instruction had performance flaws pointed out to them

repeatedly over the course of the investigation. Conversely, subjects instructed in setting goals were apparently given more positive reinforcement about their achievements. Therefore, group effects for performance may have been due to not only the benefits of goal-setting instruction, but also the differences in self-efficacy as a result of the treatments' differential feedback.

Burton (1983) instituted a season-long goal-training program for a group of varsity swimmers. The goal-trained athletes were instructed in using the proper dimensions in setting goals. Their swimming performances during the competitive season improved signficantly more than did the performances of a similar group of swimmers not trained in goal setting. In addition, swimmers who began the season with the lowest self-percepts of ability improved their levels of self-efficacy significantly more than those with high initial self-ratings of ability for the task. These results regarding increments in self-efficacy may indicate a positive outcome of goal setting or may only reveal a ceiling effect for the self-statements of highly skilled swimmers.

Summary

In summary, the organizational explanations for goal-setting effects have not adequately described why goals fail to consistently lead to superior sport performance. Academic approaches, focusing on the cognitive contributions of goal-setting, have identified factors that may be

essential to the effectiveness of goal setting in sport which have been previously ignored by organizational behavior literature. In particular, self-efficacy has been mentioned as an important mechanism for changes in performance.

Goal-setting research has revealed several dimensional qualities of goals which determine the effectiveness of goal-setting procedures. This information has been employed in goal-setting training programs and has resulted in enhanced sport performance for those receiving the goal-setting instruction.

Thus, a review of the goal-setting literature suggested that an effective approach to better understand goal-setting in sport was by examining both the behavioral and cognitive changes resulting from the application of a goal-setting training program.

CHAPTER III

METHOD

Subjects

Kansas State University undergraduates (N=18) enrolled in a beginning basketball class served as subjects in the study. This sample consisted of 16 males and 2 females. After completing an informed consent (Appendix A), participants were matched by free throw shooting accuracy, then randomly assigned to either a goal-training (GT) or a no-goal-training (NT) treatment. Subjects were free to withdraw or not participate in the study, without penalty to their class standing.

Conditions

The experiment was conducted at the site and time of regularly scheduled 50-minute class periods. Sessions were held each week over a period of 5 weeks. The experimental setting was a gymnasium with four baskets on two parallel basketball courts.

Dependent Measures

Free Throw Performance. The performance measure was based on subjects' free throw accuracy. Each subject took 20 shots every week, for a total of 100 shots over the course of the investigation.

Self-Efficacy Measure (Appendix B). A 4-item inventory was administered before the first and last free throw

shooting session to determine changes in free-throw shooting self-efficacy over the course of the study. Based on Bandura's (1977b) theoretical framework, this approach has been found to be reliable in assessing performers' expectancies about their upcoming performances in various sport settings (Feltz, 1982; McAuley, 1985b).

Perceived Success Measures (Appendices C and D). A post performance questionnaire was constructed for both groups. The GT subjects were given an inventory specifically designed to enable them to monitor their levels of score and skill attainment. Both instruments employed a 7-point Likert scale to measure subjects' perceptions of their own success. McAuley (1985a) has reported self-percepts of success more closely related to subjects' attributions for performance than actual outcome measures. Actual scores were also recorded by subjects on these inventories.

Post-Test Inventory (Appendix E). Following the study, subjects assessed the effectiveness of the instruction they received and the degree to which the teacher-led conferences added to their free-throw shooting skill.

Procedures

Prior to the investigation, all subjects completed the informed consent (see Appendix A) and were given instruction and practice in shooting free throws. Task competence was determined sufficient to ensure inconsequential learning effects during the course of the study. This demonstration

of adequate ability also allowed the investigator to match subjects by performance. Each session during the 5-week period included 10-minute teacher-led conferences for each group. The GT group was instructed in the various dimensions (eg. difficulty, proximity, etc..) of goals and on how to most effectively establish aims for performance (for an outline description of the goal-setting training program, see Appendix F). The GT subjects were provided data sheets (see Appendix G) on which to set numeric outcome and physical performance goals for their upcoming performances. These data sheets, which were designed to enhance the goal-group's ability to monitor and adjust their goals, were collected by the experimenter at the conclusion of each conference. Before ending the session, GT subjects were given brief instructions on how to correctly perform the free-throw shot. The NT group received more extensive free-throw skill instruction during its 10-minute conference. Though the NT group was provided with more task-execution information, the investigator considered both groups to be adequately versed in performing the skill and believed the total time spent with the two groups should be balanced.

Prior to the first and fifth trials, both groups were given the self-efficacy measure before being assigned to opposite ends of the two courts. Five subjects were grouped at each basket, with those not shooting serving as rebounders for the member of the group shooting at that time. Subjects rotated positions around the free-throw lane

until all participants completed 2 rounds of 10 attempts. Each shooter completed the perceived success measure upon finishing the task (20 free-throw attempts) then returned to the group to rebound. Subjects in the GT group were also provided a space on the success questionnaire to comment on their own goal-performance relationships.

One week following the completion of the study, subjects were given a post-test inventory to rate the effectiveness of their respective instructions and the degree to which the instruction improved their free-throw shooting performance. For an overview of the procedures, see Appendix H.

CHAPTER IV

RESULTS

The data were analyzed in two statistical phases. Analyses of variance and covariance were employed to assess the differential effects of the GT and NT treatments on basketball free-throw performance, free-throw self-efficacy, perceptions of success, and perceptions of skill execution. Pearson product moment correlations were calculated to determine the relationships among basketball free-throw performance, self-efficacy, and perceptions of success and skill.

A 2 x 5 (Groups x Trials) ANOVA with repeated measures on the second factor assessed the effects of the two treatments on free-throw accuracy. While the GT group outperformed the NT group in 4 of 5 trials (see Table 1 and Figure 1), the overall difference between groups was nonsignificant, $F(1,16) = .98$, $p < .34$.

Though the lack of group differences in free-throw performance failed to confirm the treatment-performance hypothesis, subjects trained in setting goals did rate their execution of the skill significantly higher than did untrained participants, $F(1,16) = 7.38$, $p < .05$. As with the performance measure, perceived success was analyzed by a 2 x 5 ANOVA with repeated measures. Unlike performance, a group effect did emerge, with GT subjects' perceiving their performances as being more successful than subjects in the

NT group, $F(1,16) = 4.38$, $p < .05$. Differences in the participants' self-percepts of skill execution and success confirmed the hypothesized beneficial cognitive effects of the goal-setting training program, despite the failure of the GT group to significantly outperform the NT group.

Table 1

Means and Standard Deviations for Free Throw Performance

Week	Goal-Trained		Untrained	
	M	SD	M	SD
1	13.1	1.9	12.2	1.9
2	14.1	2.1	13.7	3.6
3	14.6	3.2	13.2	3.0
4	13.9	3.3	14.1	2.8
5	14.1	2.1	12.0	2.7

In order to assess the effects of the goal-setting and instruction treatments on self-efficacy, a one-way analysis of covariance was conducted between the treatment groups, with initial self-efficacy differences as the covariate. This method allows the researcher to determine group effects while controlling for potential group differences prior to treatment. Results indicated the GT group had significantly higher self-efficacy at the end of the treatment period, $F(1,15) = 5.82$, $p < .05$ (see Table 2).

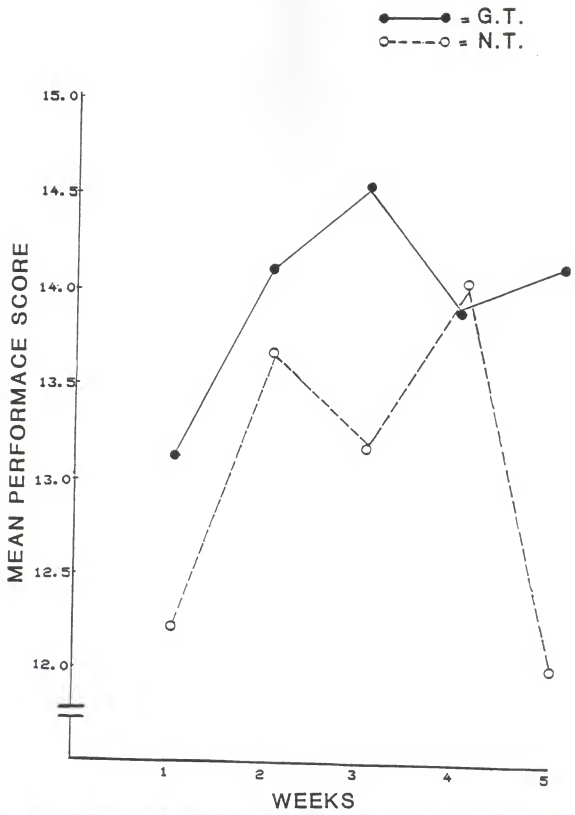

Figure 1. Mean number of free throws made by goal-trained (G.T.) and untrained groups (N.T.) for each of 5 weekly trials

Table 2

Means and Standard Deviations of Pre-test and Final Trial Self-Efficacy

	Goal-Trained		Untrained	
Time	M	SD	M	SD
Pre-test	75.56	16.55	72.38	19.74
Final Trial	90.78	9.11	77.78	18.12

When combined, results of the ANCOVA for self-efficacy and ANOVA's for performance and perceived success offer indirect support for the hypothesized effects of goal-setting training on self-efficacy, subjective outcome, and objective outcome measures. While it appears that goal setting does impact significantly on the dependent variables of success, skill, and efficacy perceptions, these data do not offer support for the hypothesized effects of goal-setting training on actual basketball free-throw performance.

Group differences in the self-efficacy-performance and self-efficacy-perceived success relationships were not expected to emerge until the cognitive benefits of the goal-setting training program had time to be established. Therefore, only the relationship between final trial self-efficacy and performance was examined in the following analyses. Pearson product moment correlations of final trial self-efficacy and fourth trial performance scores with

final trial performance scores were conducted to examine the hypothesized stronger relationship between self-efficacy and performance than past performance and performance. Neither relationship proved significant across or between groups, though the efficacy-performance relationship was higher than the trial 4-trial 5 performance correlation for both groups (see Table 3). These results differ from previous reports of a stronger trial-by-trial (with exception of the initial trial) relationship between performances than for self-efficacy and performance (Feltz, 1982; Feltz & Mugno, 1983). As hypothesized, the GT group had a superior self-efficacy-performance correlation, more than doubling the same relationship of the NT group.

Table 3

Correlations of Fifth Trial Self-Efficacy and Fourth Trial Performance with Fifth Trial Performance

	Goal-Trained	Untrained
Efficacy 5-Performance 5	.417	.202
Performance 4-Performance 5	.136	.165

The GT group also differed from the NT group in the strength of relationship between self-efficacy and perceived success. As hypothesized, the GT group's fifth trial self-efficacy-perceived success correlation (.309) was much greater than the NT group's (.047). However, contrary to expectations, the self-efficacy-performance relationship was

higher than the self-efficacy-perceived success relationship on the fifth trial for both groups.

Neither self-efficacy and perceived success (r = .304) or self-efficacy and performance (r = .368) correlations approached significance, suggesting either a weak relationship between both subjective and objective outcomes and self-efficacy or an insufficient sample size for detecting an underlying association between the variables. The extremely low correlation of NT participants' self-efficacy and perceived success suggested a weaker association between pre-trial and post-trial cognitions for those subjects. While the self-efficacy-perceived success relationship was not strong for the GT group, it appeared that the goal-setting training did increase the link between GT subjects' pre and post-trial cognitions.

Subjects' post-test evaluations of the effectiveness of the instruction they received ($F(1,16) = 1.57$, $p < .23$) and the degree to which their performance was improved by their treatments ($F(1,16) = 2.04$, $p < .17$), indicated no significant group differences. These program evaluation results were surprising, given the significant improvement in GT participants' cognitive reports over those in the NT group.

CHAPTER V

DISCUSSION

The purpose of this investigation was to examine the effects of goal-setting training on the behaviors and cognitions of individuals engaged in a skilled sport activity. The results of this study indicate that goal-setting benefits to sport performers may be primarily cognitive in nature. Specifically, the present investigation found that goal-trained subjects had significantly greater self-percepts of: free-throw efficacy; skill execution; and success, than subjects who had not received goal-setting instruction. Though not significantly different, free-throw performance scores were also consistently higher for the GT group than the NT group.

An evaluation of previous organizational studies (Locke, et al., 1981) indicated the definition of goal-setting effects has almost exclusively been restricted to behavioral outcomes (i.e. performance scores). Data obtained in this investigation suggest such a limited approach is inappropriate to goal-setting research in sport. In fact, the present findings indicate that for sport performers, the cognitive benefits of goal-setting training exceed the performance effects. Therefore, while goal-setting research in sport has essentially followed the industrial precedent in searching only for performance effects, apparently positive cognitive outcomes have been

unexplored. There are many possible explanations as to why performance effects fail to occur as consistently in sport as they do in business. Differences between organizational and sport settings perhaps make the translation of goals to performance more problematic in sport-related tasks. The importance of physical ability, the nature of feedback, and the significance of self-efficacy are just three ways in which industrial and sport tasks may differ. In general, the physical capacity to endure or perform a skill is more necessary in sport than in business. Also, the type of information received during and following athletic activity is usually more immediate, accessible, and often contains more salient physiological messages than feedback received in industrial jobs. Finally, the relevance of one's self-efficacy for executing sport-related tasks would appear more necessary, since frequently in sport, performances require sophisticated techniques which must be mastered in stages. Conversely, organizational tasks are often less complex, require less practice, and therefore would demand or permit few levels of mastery, a theoretical necessity for increases in self-efficacy (Bandura, 1982). The absence of objective performance effects in the present study may be attributable to these three unique characteristics of sport tasks.

Evidence of an ability ceiling effect was found in both the small deviations in free-throw accuracy during the five weeks (see Table 1) and the high percentage of shots made. The GT group's average free-throw percentage (68.8%) was not only above what would be expected of a relatively unskilled

group, but approached a level of performance competititive with elite basketball players. Locke and Latham (1985) stressed that the realization of improved performance through goal setting is highly dependent on the participants' abilities. In fact, Locke, Mento, and Katcher (1978) reported that ability, when combined with task difficulty, accounted for a large percentage of the variance (77%) of goal-setting effects. This suggests that once subjects near their performance limits, goals will have minimal or no effect on subsequent performances. However, the greater performance consistency demonstrated by the GT group does suggest a stabilizing effect of goal-setting. If, through goal setting, performance can be made more consistent, at or near athletes maximum level of ability, then its utility in sport should not be underestimated by an absence of continuous performance increments. It has been stated that, "The key to sport psychology in fulfilling its promise with high level athletes will be determined by sport psychologist's ability to bring about consistent performance in athletes who were once inconsistent" (Rotella & Connelly, 1984, p. 106). Thus, goal-setting training may present to practitioners in sport a simple, yet valuable, instructional program to assist athletes in stabilizing their performances by making self-percepts of efficacy and skill more positive.

The lack of experimental control over feedback and subject-initiated goal setting are two methodological dilemmas of goal-setting research in sport. In sport tasks, where monitoring of performance is so easy and unequivocal,

the most difficult problem is preventing controls from independently setting goals (Weinberg, et al., 1985). As in most studies, feedback was readily available to both the GT and NT groups in this investigation. By nature, free-throw shooting is a "make" or "miss" task, with each shot receiving either a 1 or 0 score. Thus, information regarding performance was immediate, precise, directly observable, and required little interpretation on the part of either group. If knowledge of results must work in combination with goals to effectively change performance (Locke, et al., 1981), then the GT group should have demonstrated superior performance-- unless the NT group had independently set goals. It was apparent from the verbal statements made by NT subjects during the study (eg. " I wanted to make 15 today") that they had, indeed, established specific performance aspirations. Failure to directly assess NT subjects' goals was a weakness of this investigation and should be avoided, even in studies that are not particularly concerned with self-initiated goal setting. Anticipating the absence of a true control group from the findings of Weinberg and his associates (1985), the present investigation made no effort to differentiate groups into "goal" and "no-goal/do-best" categories. Instead, a goal-setting training program was instituted, whereby the two treatments were designed to differ in the content and quality, but not presence of goals. By implementing such a design, not only was the need for a "no-goal" group avoided, but evidence from previous studies (Barnett & Stanicek,

1979; Burton, 1983) has indicated that such goal-setting instruction programs have positive performance effects. Performance differences were not significant in the present investigation. However, performance effects reported in previously noted goal-setting training studies may have been, at least in part, a result of certain demand characteristics in those investigations. Burton (1983) apparently failed to offer both groups equal attention, and perhaps reinforcement. Thus, effects said to have resulted from goal-setting training may actually have been a consequence of experimental bias. During the NT group's instruction, proper shooting techniques (eg. follow through after the shot) were discussed and demonstrated by the teacher. No criticism of previous performances was given by the experimenter, contrary to the Barnett and Stanicek (1979) study. It was believed that doing so would undesirably affect the self-efficacy of the NT group. Another difference between this study and previous goal-setting training applications, was the examination of the present program's cognitive effects. The discovery of significantly more positive cognitive inputs for the GT group may have far-reaching implications.

According to Bandura (1982), an enhanced sense of self-efficacy has direct beneficial effects on performance. He further asserted that self-efficacy, rather than past performance, was a better predictor of performance. The major limitations of this study (small sample size, only two self-efficacy measures, correlational analyses) prevented a

direct analysis of the trial-to-trial association between these variables. Such an approach is necessary to determine the accuracy of Bandura's (1982) hypothesis. Therefore, the present study did not attempt to claim evidence for a direct causal relationship between self-efficacy and performance. Yet, partial support for Bandura's (1982) position emerged from a correlational analysis of both the self-efficacy-performance and past performance-performance relationships on the final trial. Contrary to previous findings (Feltz, 1982; Feltz & Mugno, 1983), the self-efficacy-performance relationship was higher than the past performance-performance relationship for both groups. A greater time interval between performance trials than between self-efficacy assessments and performance, in addition to the cognitive effects of goal-setting training, are but two possible explanations for why the results in the present investigation differed from the reported outcomes in past research. As predicted, the efficacy-performance relationship was much stronger for the GT subjects than the NT participants. These findings suggest that the GT group's performance was not only better predicted by self-efficacy than past performance, but that the efficacy-performance relationship was stronger for the GT group than the NT group. Thus, the cognitive-behavioral link may be enhanced through goal-setting training.

Perceptions of success were, unexpectedly, less related than performance to self-efficacy. McAuley's (1985a) investigation of the associations between attributions and

either subjective or objective measures of success indicated the two cognitve variables shared a stronger relationship than the cognitive-behavioral combination. However, due to the previously noted limitations in the study, no conclusive statements can be made regarding the differential effects of objective and subjective outcomes on self-efficacy. Of note was the almost nonexistent correlation (.047) between NT subjects' self-efficacy-perceived success measures. These two cognitive factors were more strongly related for GT subjects, suggesting a possible difference in the mental operations of the two groups.

The large gap between the GT and NT groups' perceptions of skill supports the notion that goal-setting training impacts on cognitive processing. Yet, no differences emerged from the two groups' opinions regarding the effectiveness of their instruction or the degree to which they improved their performances as a result of their respective instructional programs. One explanation for these similar perceptions is that the NT group considered the skill instruction very informative, even though they failed to fully utilize it in their free-throw performances. It might also be conjectured that once the goal-setting program was in place, the GT group perceived their improvement as being self-regulated. It may be that GT subjects received the information transmitted about goals during the instruction, internalized and utilized it, then assumed their behavior was entirely self-determined. Therefore, while the GT group experienced a greater increase

in all of the cognitive measures taken during the study, they failed to perceive the cause for these more positive self-statements as being related to the goal-setting instruction. This suggests that the perception of self-control experienced by the GT group was significantly increased by the goal-setting program. This greater sense of self-control may have been evidenced in the more stable free-throw perfomances of GT participants.

In addition to the ease with which the goal-setting training procedure can be applied, a very favorable characteristic of the instruction appears to be the positive influence it has on self-statements involving control, efficacy, and performance. These cognitive benefits could be extremely helpful in sport. For reserve, injured, or players who have transferred, goal-setting may have a very positive effect on their self-percepts and help them persist in their efforts to participate in games while "sitting out". Also, higher self-efficacy achieved through goal-setting may increase the likelihood that athletes will continue to strive, even in the face of failure. Thus, the adherence of less successful athletes to sport may be positively affected by a goal-setting training program. Finally, in professional sport, where money serves as a significant source of extrinsic motivation, goals may increase players' intrinsic motivation to perform. For example, the drop-off in players' performances following the signing of substantial free-agent or long-term contracts may be avoided by training those individuals in setting

important, nonmaterial goals.

Future studies of goal-setting in sport should consider examining the cognitive, as well as behavioral effects, of goal setting. The present investigation's approach could be improved upon in several ways. In addition to a larger sample size and longer experimental period, future investigations might employ path-analysis to assess the trial-to-trial effects of goal setting on self-percepts and performance. The effects of goal setting on differing ability levels, diverse tasks (endurance vs. skill-related), and sports (eg. gymnastics vs. football) should also receive attention. Immediate and long-term effects of goal attainment on both the cognitive and behavioral functioning of sport participants are additional uncharted areas within the sport-related goal-setting literature.

Finally, a suggestion for coaches attempting to implement a goal-setting training program. As Kirschenbaum (1985) has noted, improperly set goals serve to restrict, rather than enhance behavior. Goal-instruction must provide the participants flexibility to make choices, and perceive their behavior as self-determined. Results of the present study indicate percepts of self-control are not separate from self-efficacy, perceived success, or perceived skill performance. Individual differences may influence the degree to which goals enhance perceptions of self-determination. Rotella and Connely (1984) emphasized the need to recognize the athlete's values when setting goals. Perfectionist, type A individuals, may feel so pressured to

accomplish a certain standard of performance, that the setting of goals may actually hinder performance by increasing their fear of failure. However, with proper application, a goal-setting training program allows the individual athlete the freedom and flexibility to set goals which fit into his/her personality and value structure. By avoiding the restrictive elements of goal assignment, goal-training serves to enhance the self-percepts of control, efficacy, and success of sport participants.

In conclusion, this study attempted to contribute further to our understanding of goal-setting in sport. Previously untested cognitive effects, such as self-efficacy, perceived success, and perceived skill execution, were examined, and found to have been significantly more positive in those subjects trained in goal setting. In addition, performance appears to be positively affected by goal-training in that more consistent behavior was exhibited by the GT group. The design of the study did not permit a direct causal analysis of theoretical cognitive-behavioral relationships (Bandura, 1977b; 1982), though it appeared goal-trained individuals were guided more by positive perceptions about their free-throw performances, than the actual number of shots made on a previous trial. Therefore, goal-setting training may be a way to help athletes feel more positive and in control of their performances. If, as suggested by results of the present study, these enhanced self-percepts lead to more consistent performances which approach maximum ability levels, then there may also be

behavioral benefits to setting goals.

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APPENDICES

APPENDIX A

Informed Consent

The purpose of this study is to examine the effectiveness of two types of instruction on free throw shooting. If you choose to participate in the experiment you will be randomly assigned to one of the two groups. Members of each group will be required to continue under their respective group instruction throughout the 6 week term of the study. While both teaching methods are considered likely to benefit your shooting performance, it is impossible to ensure that one approach will not be more effective than the other.

All experimental sessions will take place during regularly scheduled class meetings. Attendance will be required. Monday's session will include 10-minute teacher-led conferences for each group. Wednesday's class will involve subjects shooting 20 free throws in a manner prescribed by the instructor and responding to two short questionnaires. All answers and results of this study will remain confidential through the use of a coding system.

If requested, statistical results of the investigation will be made available to any subject wishing to obtain them.

If you choose to participate, confidentiality as to the type of instruction you are receiving will be required. If at any time you desire to discontinue as a subject, you will be free to withdraw at no penalty to your course grade.

I agree to participate in this study under the conditions stated above. NAME_____

APPENDIX B

PREPERFORMANCE QUESTIONNAIRE

Number_____

Listed below are four levels of free throw performance. Please indicate how confident you are, at that this moment, that you can complete each level successfully.

Note. If you are absolutely certain you can complete the level, you should circle 100. If you are moderately certain, you should circle 50. If you are highly uncertain, you should circle 10.

A.I can successfully make 7 out of 20 free throws. Yes__No__

10 20 30 40 50 60 70 80 90 100

Highly Uncertain — Moderately Certain — Absolutely Certain

B.I can successfully make 10 out of 20 free throws.Yes__No__

10 20 30 40 50 60 70 80 90 100

Highly Uncertain — Moderately Certain — Absolutely Certain

C.I can successfully make 13 out of 20 free throws.Yes__No__

10 20 30 40 50 60 70 80 90 100

Highly Uncertain — Moderately Certain — Absolutely Certain

D.I can successfully make 16 out of 20 free throws.Yes__No__

10 20 30 40 50 60 70 80 90 100

Highly Uncertain — Moderately Certain — Absolutely Certain

APPENDIX C

POSTPERFORMANCE QUESTIONNAIRE

Number_____

Age_____

Sex_____

Goal Setting Results Sheet

Date	Skill Attainment		Free Throw Score
EXAMPLE: 1/24	Yes	No	9
SESSION #_____ _____	Yes	No	_____

Rate your skill attainment:

1 very poor 2 3 4 5 6 7 very good

How successful were you in shooting free throws today?

1 not at all successful 2 3 4 5 6 7 extremely successful

APPENDIX D

POSTPERFORMANCE QUESTIONNAIRE

Number:_____

Age:_____

Sex:_____

1. Free throw score? _____

2. Rate your skill level in today's performance:

1	2	3	4	5	6	7
very low						very high

3. How successful were you in shooting free throws today?

1	2	3	4	5	6	7
not at all successful						extremely successful

APPENDIX E

NUM _____

SEX_____

AGE_____

POST-TEST QUESTIONNAIRE

Please answer the following questions regarding the free-throw shooting study you participated in during the last five weeks of the semester. (Circle the number)

1. How effective was the instruction you received each week before shooting free throws?

1	2	3	4	5	6	7
Not at all			Moderately			Very Much

2. Do you feel your free-throw shooting skill was improved by the instruction you were given?

1	2	3	4	5	6	7
Not at all			Moderately			Very Much

Comments:

APPENDIX F

GOAL-SETTING TRAINING PROGRAM OUTLINE

WEEK — DESCRIPTION OF INSTRUCTION

1. Subjects were instructed to take a positive goal orientation by setting goals with, "I will" rather than "I won't" self-statements. The effectiveness of goal setting in producing better performances and more positive cognitions was discussed during a brief summary of the literature.
2. The importance of short-term goals was described, with regard to how subgoals serve to create interest, generate greater effort, and increase persistence toward attaining long-term goals. Examples of proximal and distal goals were given to illustrate. Also, the use of multiple goals was recommended, to insure some degree of success if performance fails to achieve the most desired level.
3. Goal difficulty was presented as a major moderator of goal-effects. Subjects were encouraged to set goals that would be at, but not beyond, their capabilities. The importance of both goal acceptance and goal commitment in determining the effectiveness of goals, easy or hard, was also noted.
4. Differences between outcome and performance goals were examined, by way of both definition and example. Subjects were told the benefits of performance-based goals, and it was suggested that their goals not hinge

on scores.

5. Goal specificity was the final dimension of goals to be covered. Participants were taught to set their goals with specific objectives in mind, yet to make them flexible enough so failure to achieve some of them would not be a total loss. The role of both knowledge of results and performance in goal setting was also mentioned.

NOTE. Each session began with a brief review of the previous week's instruction.

APPENDIX G

Number:_____

Age:_____

Sex:_____

GOAL SETTING DATA SHEET

DATE	SKILL GOAL	SHOOTING GOAL
EXAMPLE: 1/24	To use proper grip on ball. To bend knees.	10 out of 20
Session 1		
Session 2		
Session 3		
Session 4		
Session 5		

APPENDIX H

PROCEDURAL OUTLINE

Prior To The Study:

1. All subjects received skill instruction and practice in free throw shooting during class sessions, over a 7-week period.
2. Subjects were matched by skill levels into pairs and randomly assigned to either the goal-training (GT) or no-goal-training (NT)(skill-instruction only) group.

During the Study.

1. Separate 10-minute teacher-led conferences were held with both the GT and NT groups.
2. The GT group submitted performance goals on data sheets (Appendix F) provided by the experimenter.
3. Both groups completed a preperformance questionnaire (see Appendix B) to assess their levels and strengths of self-efficacy (Weeks 1 and 5).
4. Each member of both groups shot 20 free throws in two sets of 10.
5. Immediately following their performance, shooters completed postperformance questionnaires, designed specifically for both the goal-trained and untrained groups (see Appendices C and D) to measure subjects' perceived and actual success.

Following the Study:

1. One week after the study, subjects completed a post-test inventory (see Appendix E) to determine their perceptions of the effectiveness of the instruction and degree to which they believed their skills for the task had improved as a result of the instruction.

APPENDIX I

RAW DATA

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DATA GOALSET;
INPUT GROUP 1 SUB 2 SEX 3 AGE 4-5 EFF1 6-8
SCORE1 9-10 SUCCESS1 11 SKILL1 12 SCORE2 13-14
SUCCESS2 15 SKILL2 16 SCORE3 17-18 SUCCESS3 19
SKILL3 20 EFF4 21-23 SCORE4 24-25 SUCCESS4 26 SKILL4 27
EFF5 28-30 SCORE5 31-32 SUCCESS5 33 SKILL5 34 INST 35 IMP 36
ARRAY SCOREA (I) SCORE1-SCORE5;
ARRAY EFFA (I) EFF1-EFF5;
ARRAY SUCCESSA (I) SUCCESS1-SUCCESS5;
ARRAY SKILLA (I) SKILL1-SKILL5;
DROP SEX AGE;
DO OVER SCOREA;
SCORE=SCOREA; EFF=EFFA; SUCCESS=SUCCESSA; SKILL=SKILLA;
WEEK=I;
OUTPUT;
END;
CARDS;
311240771135155514440871333090143355
322190501233101212430801475075145666
331190701156156612230871345090156665
341210921666176618771001876100197567
351190921354145515560971134095177766
361200751344146615660871365100155576
371210501244145509110770811077102254
381210921656165519760951766095154366
391180821466124517660821867095081166
411250271355103211530671265070092465
422180651034123308110551766042102166
431210801223186612420921565092155466
441230801132122217650851423087162356
451210751666144414440821222065155665
461250751244165413440900944085093455
471240871022103213330951566095103455
481300971411207718661001866097121164
491220651222111213220701544067122254
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THE EFFECTS OF A GOAL-SETTING TRAINING PROGRAM ON FREE-THROW SELF-EFFICACY AND PERFORMANCE

by

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AN ABSTRACT OF A MASTER'S THESIS

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requirements for the degree

MASTER OF SCIENCE

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ABSTRACT

Though consistently positive performance effects have been reported in organizational studies, discrepent findings have resulted from the few goal-setting studies in sport. One successful application of goals to the sport environement used goal-setting instruction as its approach (Barnett & Stanicek, 1979). The present study employed a similar method, while searching for both cognitive and behavioral explanations for the inconsistencies that appear in the literature. Undergraduate students enrolled in a beginning basketball class were matched by free-throw shooting ability, then randomly assigned to either goal-setting training (GT) or skill-instruction only (NT) treatments. The hypothesis that goal-setting has positive cognitive effects, was confirmed. Subjects in the GT group had significantly higher self-efficacy, perceptions of skill execution, and perceptions of success. Performance effects were nonsignificant, though the GT group had greater free-throw accuracy in 4 of 5 trials, demonstrated much more consistent free-throw performance, and approached a free-throw percentage (68.8%) believed to be near their ability ceiling. Final trial correlations of self-efficacy-perceived success, self-efficacy-performance, and past-performance-performance revealed much higher relationships between the cognitive and behavioral components of performance for the GT group than for the NT group. Bandura's (1977b; 1982) theoretical position regarding self-efficacy as a regulator of performance was found to be more

relevant for the GT group, as the cognitions of the NT group had very little relationship to their behaviors. GT participants did not attribute their improvement to the goal-training instruction, suggesting a strong sense of self-regulation can result from goal-setting. Explanation of the results centered on the differences between business and sport settings. The nature of feedback, the relevance of self-efficacy, and the importance of physical ability are among the aspects that differ. An ability ceiling effect, believed to have contributed to the absence of a performance effect in the present investigation, is identified as one possible cause for the inconsistent goal-setting effects found in sport.