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The Effects of Goal Systems on Performance in Youth Baseball

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THE EFFECTS OF GOAL SYSTEMS ON PERFORMANCE IN YOUTH BASEBALL

A Masters Thesis

Presented to

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In Partial Fulfillment

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Master of Science in Psychology

By

Joshua A. Leet

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ABSTRACT

This thesis explores the relationship of multiple goals set by youth baseball players with past and present performance. Core to this investigation was the complexity, content, and number of distal and proximal goals reported by players who wrote their goals for an upcoming season. Results showed that players with a greater number of process goals (compared to performance or outcomes goals) and individual goals (compared to team goals) received higher ratings of performance by their coaches. Analyses also revealed that age significantly influenced aspects of goal structure and content for goal reported by players. That is, older players reported having more goals, and having higher number of individual performance goals. Results from this study highlighted the need for more research into the effects of age on goal-setting and motivation in sports. In addition, this study found further support for the use of process goals in athletics.

KEYWORDS: goal-setting, goal hierarchies, goal structure, sport, baseball

This abstract is approved as to form and content

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Chairperson, Advisory Committee
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INTRODUCTION

Inherent to the behavior of conscious organisms lies the concept of purposeful action. Purposeful actions are attempts to reach a desired end state, also defined as goals. Locke (1969) put forth that the conditional existence of an organism and its generation of organized actions to maintain its existence, are two characteristics that explain the nature of goals. In definition, "A goal is the object or aim of an action initiated by a living organism" (Locke, 1969, p 994). This definition of goals applies to purposeful behavior in a broad and general sense. When studying human behavior in complex situations, the application of goal setting theory has directed attention towards examining why some individuals outperform other individuals on identical or similar tasks.

Goal Content

Researching into the goal-performance relationship, goal content and goal intensity are two characteristics of goals that have received the bulk of attention (Latham & Locke, 1991; Locke, Shaw, Saari, & Latham, 1981). Within the domain of goal content, specificity and difficulty have been identified as important variants of goals, which influence subsequent task performance. Latham and Locke (1991) noted that goals can fluctuate from vague to specific, and goals can vary in difficulty (i.e., easy, moderate, difficult, or impossible). Research on goal specificity commonly used the goal "do your best" when assigning individuals to a vague conditions. With the support of numerous studies across settings, a positive relationship of goals to performance has been

found between goal difficulty and task performance when goals are specific (for reviews, see Locke et al., 1981; Locke, 1968).

Also relevant to the content of goals is that goals can vary in their contextual focus. Rooted in experimental findings within achievement settings (Schunk & Swartz, 1993; Zimmerman & Kitsantas, 1997; 1999), researchers have distinguished between process goals and outcome goals. Process goals emphasize developing techniques and strategies that are used to learn (Weinstein & Mayer, 1986). Outcome goals, on the other hand, focus on end production or the results of an accomplishment such as winning and losing (Weinstein & Mayer, 1986; Hardy & Jones, 1994). As mentioned above, early recognition of process and outcome distinctions came from studies in academic settings involving cognitive tasks. Zimmerman and Kitsantas (1997) further adapted this goal method in the study of complex motor tasks, finding that process goals resulted in significant increases in self-efficacy, performance, positive reactions to the task, and intrinsic value, when compared to outcome goals. The pursuit of outcome goals are problematic for efficient self-regulative processes due to the lack of salience, consistency, and timeliness of many outcomes (Zimmerman & Kitsantas, 1997), and "by focusing [learners'] practice goals on the strategic processes of proven models initially, novice learners can circumvent the frustrations of trial-and-error learning" (p. 30).

In addition to process and outcome goal distinctions, Hardy and Jones (1994) included a third classification for goals known as performance goals. Weinberg (2013) stated that performance goals "refer to one's actual performance in relation to their own standard of excellence" (p. 171). Performance goals differ from outcome goals in that they are not directly associated with the end results of a competition. Performance goals

also differ from process goals in that they do not specify the strategies or techniques involved in improving performance. As such, performance goals can be conceptualized as desired levels of individual-level performance. The majority of studies that employ training programs for goal-setting interventions have focused on promoting the use of performance goals (Kingston & Hardy, 1997). Burton's (1989) research on the use of performance goal-setting training programs in collegiate swimmers found evidence that performance goals led to increases in perceived ability, competitive cognitions, satisfaction, and performance. Burton argued that the flexibility and controllability of performance goals, in contrast to outcome goals, give individuals the ability to modify their goals to keep them challenging and realistic.

Goal Intensity

Equally important to the concepts within goal content is goal intensity, which has been recognized and studied primarily as goal commitment. Commitment to a goal is defined as "the degree to which the individual is attached to the goal, considers it significant or important, is determined to reach it, and keeps it in the face of setbacks and obstacles" (Latham & Locke, 1991, p 217). It is important to differentiate, however, between goal commitment and goal acceptance. Goal acceptance relates to the source of the goal and is a pledge to an assigned goal; whereas, goal commitment is not concerned with the source of the goal (Locke et al., 1981). Early literature used acceptance and commitment rather interchangeably, while literature that is more recent has given weight to distinguishing the two concepts. Initially, researchers experienced difficulty trying to support a goal commitment-performance relationship (e.g., Frost & Mahoney, 1976;

Lock et al., 1984; London & Oldham, 1976; Yukl & Latham, 1978). Locke et al. (1981) reasoned that different approaches used to measure goal commitment, a lack of variance between participant commitment, and untrained subjects may be the source of such difficulties. Since then, researchers have found significant commitment-to-performance relationships (e.g., Earley & Kanfer, 1985; Erez, 1986; Erez, Earley, & Hulin, 1985; Locke, Frederick, Buckner, & Bobko, 1984).

Locke and Latham (1990) put forth that goal commitment both directly influences task performance and moderates of goal effects on task performance. The former has been supported by findings that high goal commitment results in task performance that more closely aligns with the goal when compared to low goal commitment. And the latter receiving mixed support that high goal commitment improves performance when goals are difficult, but may hinder performance when goals are easy. Performers tend to be most committed to goals when expectations for success and the perceived value of goal attainment are high (Mento, Cartledge, & Locke, 1980). Additionally, Erez, Earley, and Hulin (1985) found greater goal commitment in groups that set their own goals rather than having goals assigned.

In the commitment model put forth by Locke et al. (1988), the determinants to goal commitment are split into three distinguishable categories; interactive factors, external factors, and internal factors. Interactive factors refer primarily to the degree of participation in the goal setting process. Early research conducted on the effects of participation on goal commitment failed to establish a convincing relationship between the two (for reviews, see Lock et al., 1988; Latham & Lee, 1986). In response to these difficulties and to settle a difference of opinion, Latham, Erez, and Locke (1988)

collaborated on a series of studies which concluded that "tell and sell" operated more effectively than solely using a "tell" approach when assigning goals (Locke et al., 1988).

Antecedents of goal commitment include legitimate authority, peer/group pressure, and rewards or value associated with goal accomplishment. A main contributor to the breadth of literature on authority is that many studies examining goals and goal-setting have been designed around the use of assigned goals (Locke et al., 1988). Through the use of assigned goals, research has shown that people frequently attempt to accomplish what is asked of them (Latham & Lee, 1986), and although there are exceptions to the rule (see Bandura, 1986), this generally happens as a result of the performer viewing the requested/assigned goal/task as being legitimate (Locke et al., 1988). More so, the physical presence of authority, degree of supervisory support, and level of trust in authority have all been identified as potential moderators of the relationship between goal source and goal commitment (Locke et al., 1988). Studies conducted in industrial and organizational settings have shown that group cohesion, managerial support, similarity of group standards, and perceived importance are also important determinants of goal commitment (see Locke et al., 1988 for review).

Finally, aspects of expectancy theory are applicable to goal commitment in that values and expectancies of achieving a goal influence how committed performers are to a goal. Hollenbeck and Klein (1987) provided a model of antecedents to goal commitment that were based of expectancy theory. In their model, commitment derives from two sources and attractiveness of goal attainment and expectancy of goal attainment, with each source being influenced by personal and situational factors. Because of the focus of my study, I only addressed factor relevant to sport settings. Relevant situational factors

for goal attainment attractiveness include publicness, volition, explicitness, reward structure and competition. Need for achievement, endurance, and type 'A' personality are pertinent personal factors that also influence the attractiveness of attaining a goal. On the other hand, peer influence, complexity, performance constraints are situational factors that affect the expectancy of goal attainment. Finally, personal factors that lead to expectancy beliefs include ability, past success, self-esteem (self-efficacy), and locus of control.

Self-Regulation

A fundamental notion of goal theory is that goals act as immediate regulators of human action (Locke et al., 1981). Goals influence the tasks and behaviors individuals seek to accomplish, thus, act to motivate. Goal setting facilitates motivation and works to improve performance through several mechanisms. First, it directs individuals to focus on activities that are related to goal attainment (Locke et al., 1981; Latham & Locke, 1991). Hence, goals help individuals define what actions need to be accomplished and helps focus their efforts towards tasks that are relevant. Second, goals help individuals determine the amount of effort necessary for goal attainment through the analyses of the goal and task requirements (Locke et al., 1981). In addition to generating immediate efforts, goals influence persistence to goal attainment. Latham and Locke (1991) reasoned that when no time limit exists on a goal, difficult goals influence people to work longer. Finally, goals may require individuals to generate strategies and sometimes to generate novel approaches to accomplish their goal (Locke et al., 1981). Extrapolating from the research supporting specific and difficult goals, these attributes of goal content

are assumed to provide enhanced direction, facilitate higher effort and persistence, and stimulate the development of more effective strategies.

Another aspect of goal-setting that is important to include within the domain of self-regulation is related to the proximity of various goals. Bandura (1997) reasoned that goals vary in terms of their short and long-term temporal orientation. Ranging from proximal goals to distal goals, individuals have various networks that resemble a hierarchy of interrelated goals. Goals that are closer to accomplishment in terms of time are deemed proximal goals and are immediate regulators of motivation and action. Distal goals are "desired and enduring aspirations that attract individuals toward meaningful destinations" (Masuda, Kane, Shoptaugh, & Minor, 2010, p 222). Furthermore, beyond distal goals reside peak goals. Peak goals are extremely long-term objectives that represent the ultimate desired end state within a specific domain. Several domains for which individuals maintain peak goals include professional, social, and family (Masuda et al, 2010). Although the differences between peak, distal, and proximal goals imply that clear-cut distinctions can be made on the basis of goal proximity, goal hierarchies can be very complex and unique to specific individuals. Therefore, it is important to note that the terms proximal and distal describe the relative temporal relationship of one goal to another.

In order for goals to effectively improve performance, individuals must be knowledgeable of results (Locke et al, 1981). In essence, feedback allows individuals to compare their current level of performance to their standard. The discrepancy between current performance and desired performance works to motivate individuals to reduce this discrepancy. In addition, feedback is essential for effective self-regulation as it often

provides information about where effort should be focused, what strategies are effective or ineffective, the difficulty of the goals to be set, and what goals should be abandoned. Several modern theories of self-regulation and motivation conflict in the way these discrepancy mechanisms work to influence motivation. According to control theory (CT), human action results from hierarchical negative feedback loops that act to reduce error discrepancies between perceptions of performance and internal standards or goals (Williams, Donovan, and Dodge, 2000). On the other hand, social cognitive theory (SCT) focuses on mechanisms of motivation that are more anticipatory rather than the reactive mechanisms proposed in CT (Bandura, 1991; Locke, 1991). In SCT, self-regulation is thought to include both discrepancy production and discrepancy reduction. Discrepancy production involves setting new goals above one's current level of performance, which works to motivate and initiate effort in order to reach anticipated outcomes. This discrepancy production is known as feedforward control. The notion of discrepancy reduction within SCT follows closely to CT in that it refers to "adjustments of effort and strategies to achieve the desired level of performance" (Williams et al., 2000, p 161). Whereas in CT the aim is to reduce error between perceptions, SCTs feedback control process involves self-incentives and is the difference between an individual's current performance and their goal that motivate one to reduce dissatisfaction from inadequate performance. In addition, Bandura's SCT model states that an individual's self-efficacy will influence the degree that discrepancy production is used and the types of reduction strategies that the individual selects (Bandura, 1991).

Goal-Setting in the Context of Sport

The application of goal setting has its empirical roots well established in work and organizational contexts. There have also been efforts to understand the effects of goal setting on physical tasks, psychomotor tasks, and athletic performance. Locke and Latham (1985) advocated goal setting as a way to increase skill and confidence in athletes. Early research into goal setting in sports were equivocal and produced varying conclusions for goal specificity, difficulty, and proximity (for review, see Weinberg, 1992, and Kyllo & Landers, 1995). Locke (1991) argued that the ambiguous results obtained from early studies were consequences arising from several methodological flaws. For one, it is possible for individuals in the "do best" condition to set their own personal specific goals if given feedback on their progress. This failure to manipulate an experimental condition were shown by Locke's (1991) reference to numerous studies of goal difficulty in sport; where researchers failed to investigate, control, and/or report the number of participants in "do best" conditions that set specific personal goals. Another methodological flaw involved participants' rejection of assigned goals in favor of spontaneously set personal goals. Laboratory studies in goal setting often involve assigning goals to participants; however, assigned goals affect personal goals, which, in turn, influence performance (Locke & Latham, 1990). Locke (1991) postulated that assigning goals can influence participants to revise and set their own goals, inherently affecting the manipulation of goal setting attributes.

In addition to the several methodical flaws introduced by Locke (1991), Weinberg and Weigland (1993) added that differences in participant motivation and the type of tasks inherent in athletics are fundamentally different from those in work and

organizational settings, thus, are in-part to blame for the ambiguity in the findings. More specifically, the researchers argued that participants in studies involving goal-setting in a physical setting participate in the specific sport or exercise voluntarily and, therefore, may have a higher motivation to complete such tasks. Weinberg and Weigland also noted the importance of feedback in goal to performance relationships and argued that feedback in athletic settings is often more salient and free from manipulation when compared to feedback in organizational settings. The issues put forth by Locke (1991) and Weinberg and Weigland (1993) highlighted important matters that have likely contributed to the equivocal conclusions drawn from early research on goal-setting in sport.

Goal Structures and Self-Regulation

Goal theory (Locke & Latham, 1990) asserted that individuals possess hierarchically structured goal systems to guide, motivate, and measure progress towards some desired outcomes (Masuda et al., 2010). Peak goals represent the ultimate accomplishment an individual aims to achieve within a specific domain and provide meaning to other goals in the goal structure. Together, the goals arranged in goal-structures serve to measure one's ultimate progress toward their peak goals. The multiple goals in goal structures represent one's plan to reach their peak goals. The plan is translated into action through the task goals that guide immediate self-regulated action (Masuda et al, 2010). When one makes progress or becomes frustrated in pursuing their task goals, they can associate that feedback with more distal goals in order to determine their progress to their peak goals.

Hypotheses

When viewing a goal structure as a planning tool, certain features of goal structures become salient to the viability of one's plan. First, the number of goals that exist within a structure likely reflects the time and attention an individual has put towards constructing and organizing the structure. Additionally, the logical arrangement and completeness of goal hierarchies may also relate to the degree of thought and emphasis placed on a goal. When individuals spend time and cognitive effort contemplating plans to achieve some goal, one would expect these individuals to be more committed and motivated when compared to others who spend less effort to conceptualize and organize their goals. In complex environments such as sport settings, which require efforts toward training, learning, executing, skill development and more, variation in the number and structure of goal hierarchies should exist. Because goals help motivate and guide individuals through the various mechanisms discussed above, goal structures that have a high quantity of diverse goals likely help athletes attend to a broad spectrum of sub-goals related to their long-term success. A high quantity of diverse goals also likely help athletes regulate in the sub-domains of their athletic context such as practice, off-season training, technique and strength development, teamwork, leadership, and competition. A high quantity of diverse goals should reflect a goal-setter's intention to assert effort across sub-domains, essentially helping performers progress across different facets of their sport domain. In addition, the logical arrangement of goals in structures may signify the quality of the plans that help to make efforts efficient. Thus, my first set of hypotheses focus on the quality and completeness of goal structures.

H1a: *Individuals who have a more complex goal structure will receive higher ratings of performance than individuals with low levels of goal structure complexity.*

H1b: *Individuals who have a more complex goal structure will receive higher ratings of composite performance, defined by combined assessments of athletic performance, leadership, coachability, and development.*

In order to judge the completeness of a goal structure the various facets of skills that are relevant to the accomplishment of a distal goal must be determined. In this study of baseball players, we identified seven categories of skills that are common to the sport; hitting, fielding, throwing, pitching, strength/conditioning, team-orientation, and general play. It is theorized that individuals who possess goals in more, as opposed to less, of these seven skill areas will see greater progress and performance because they will exert effort and regulate development to improve multiple aspects of their game. Therefore, my next two hypotheses were:

H2a: *Individuals who have goals that span a wider breadth of goal dimensions (more complete) will receive higher ratings of season development than individuals with a lower breadth of goal dimensions (less complete).*

H2b: *Individuals who have goals that span a wider breadth of goal dimensions will receive higher ratings of composite performance, defined by combined assessments of athletic performance, leadership, coachability, and development.*

In addition to the complexity and completeness of a goal structure, the content of goals and sub-goals within the goal system are also theorized to affect performance. As described in above sections, goals typically focus on either an outcome, a process, or individual performance, and this focus in turn affects individual performance. Winters and Latham (1996) posited that a greater ratio of process goals to performance goals should translate into greater progress. The ratio of process, performance, and outcome goals within a structure should, therefore, influence the type of activities an individual engages in. Previous research has highlighted the benefits of process and performance goals over the use of outcome goals (e.g., cite) and thus parallels the following hypotheses.

H3: *Individuals with a high number of process goals will receive higher ratings of development and coachability than participants with low to no process goals.*

H4: *Individuals with a high number of performance goals will receive higher ratings of performance than participants with low to no performance goals.*

Finally, the realm of team sports offers another distinction that can be made in terms of goal content, which is theorized to influence player behavior. Much like

process/performance/outcome distinction, individuals will likely possess goals that either focus on their individual skill-set or goals that focus on aspects of the team. A high number of team-oriented goals would indicate that the individual values the team and focuses on behaviors that may connect them to teammates in meaningful ways; whereas, a higher number of individual goals would point towards a greater emphasis being placed on developing one's skill as a player. This leads to my final two hypotheses:

H5: *Individuals who possess a high ratio of individual goals to team goals will be rated higher in their development and performance.*

H6: *Players with a high ratio of team goals to individual goals will be rater higher as a leader.*

METHODS

Participants

Approximately 100 male youth baseball players from a Midwestern youth baseball organization were recruited to participate in this study. Of the 100 that were recruited, goals were collected from 62 players who were used in this study. Age groups of the players were U12 (n=16), U13 (n=13), U14 (n=15), U16 (n=5), U17 (n=7), and U18 (n=6). Prior approval for this project was obtained from the Missouri State University IRB (March 24, 2015; approval #15-0411). Additionally, in accordance with the requirements of the human subject review, consent was obtained from a legal guardian who was informed of the study's components for all participants under the age of 18.

Measures

Goal Hierarchies. Participants reported goals on a questionnaire by responding to 6 questions (see Appendix A). Questions were: "Overall, what is your most important individual long-term baseball goal", "What is your most important individual baseball goal to accomplish this season", "List some other important individual goals you have for this season", "What is your most important team goal this year", "What other team goals do you have for the season", and "What are some things you will do to help your team reach your team goals".

A team of three trained raters individually mapped out goal structures based on the goals reported by each player. A goal-rater template (Appendix B) was provided to

raters to help categorize and code relevant aspects of the goal structures. The template resembled a hierarchical structure with a long-term peak goal at the top and distal and task goals categorized by independent and qualitatively sub-domains dimension existing below (e.g., team goals, technique goals, strength and conditioning goals, and performance goals). Sub-domains relevant to long-term accomplishments in baseball were determined at the onset of the study. Multiple goals in subdomains were arranged hierarchically according the rater's determination of goals that served to accomplish higher order sub-domain goals. For instance, a player's goals 'to do push-ups everyday' were structured below the subdomain goal of 'build strength.' After goals were mapped into hierarchical structures, raters analyzed the structure and evaluated the numbers of goals, goal structure completeness, and goal structure complexity. Raters also evaluated goal content for process, outcome, and team-oriented goals.

Number of Goals, Goal Completeness, and Goal Complexity. The number of goals reported by participants was determined by counting the discrete statements reported on the goal questionnaire that defined a performance, process, or team outcome. Player statements that were not considered goals were excluded from calculation and further analyses.

Goal completeness was defined as the number of skill domains identified in players' goal structures. Seven categories of goals, reported by players, were relevant to baseball performance; (1) hitting, (2) fielding, (3) throwing, (4) pitching, (5) strength/conditioning, (6) team-oriented goals, and (7) general play. Three trained raters each placed player goals into the corresponding dimensions and counted the number of dimensions that contained at least one goal; ranging from 0 to 7. Disagreements were

discussed until a consensus was reached. Prior to discussion, inter-rater reliability was (α = .96).

Goal complexity represented goals from multiple sub-domains (completeness) in combination with identifying multiple goals within sub-domains (number of goals). Hence, goal complexity represented the product of goal completeness and goal number.

Goal Content. A team of three trained raters reviewed player goals and labeled them as process, performance, or outcome goals. Raters were trained using definitions and samples of participant goal statements. The total number of each goal was calculated for each player with rater differences resolved through discussion until a consensus was reached. Prior to discussion, inter-rater reliability was (α = .91) for process, (α = .94) for performance, and (α = .96) for outcome.

In addition, a team of three trained raters labeled each goal as an individual goal or a team goal and counted the total number for each player. Raters were trained using definitions and samples of participant goal statements. Rater differences were discussed until a consensus was reached. Prior to discussion, inter-rater reliability was (α = .96) for individual goals, and (α = .95) for team goals.

Coach Ratings. Following the end of the season, player ratings for various performance and success criteria were gathered from a coach. The various criteria for ratings included overall season performance, player development, coachability, and leadership.

Overall Performance, Development, and Coachability. A rating of overall performance, which included performance over the course of one season, was obtained for each player using ratings from a coach. Instructions given to coaches for making

overall performance read, "Overall performance can be thought of as how well the player did over the course of the season. Consider all aspects of baseball (hitting, fielding, pitching, base-running, etc…), player stats, and most importantly on-the-field performance". Ratings ranged from 1 (Extremely Low) to 10 (Extremely High).

A rating of development over the course of one season was obtained for each player using ratings from a coach. A sample of instructions given to coaches reads, "Development is essentially the degree to which a player acquires or develops knowledge, skills, and abilities over the course of the season. Players who rank high in development are those that have improved on a number of aspects in their game". Ratings ranged from 1 (No Development) to 10 (High Degree of Development).

Coachability was described as the receptivity and motivation of players to listen and apply feedback from coaches. The instructions read, "Players that rank high in coachability are focused in practice and look to apply what they learn." A rating of coachability was obtained for each player using ratings from a coach. Ratings ranged from 1 (Not Coachable) to 10 (Highly Coachable).

Leadership and Composite Performance. Coaches evaluated player leadership by focusing on the frequency of team-oriented behaviors displayed by players. Coaches first read this description of leadership: "Players who are team-oriented consistently attend to the needs and desires of the team and display qualities of a leader." Coaches rated the frequency of team leadership behaviors exhibited by players ranging for 1 (No Team Orientation) to 10 (Highly Team-Oriented).

Composite performance is a combined assessment using ratings of season performance, development, coachability, and leadership. Mean scores from the four

ratings were calculated for each individual followed by a conversion to z-scores, which was used in analyses.

Procedures

Prior to the collection of data, coaches distributed information on the study and informed consent to all parents. Players who volunteered to participate were asked to complete a goal questionnaire (Appendix A) that identified personal peak, distal, and short-term baseball goals. Goal questionnaires were administered in two groups prior to the beginning of the season and were given in self-report format. After the completion of the season, player ratings of performance, development, coachability, and team-orientation where collected from their coach.

RESULTS

To better understand how the features of goal structure influenced aspects of individual performance, correlational analyses were implemented to test the predicted relationships. Before running the analyses, data were screened for assumptions and multivariate outliers were assessed using Mahalanobis distance. All assumptions were met and no multivariate outliers were identified; however, one participant was removed from analyses due to the absence of ratings for performance. T1and T2 provide sample sizes, means, standard deviations, and correlations for all study variables.

Hypothesis 1a and 1b

Hypothesis 1a theorized a positive relationship between goal structure complexity and season performance. A two-tailed correlational analysis of the two variables revealed only a small insignificant correlation between variables ($r = .12, p > .05$). In addition, a hierarchical regression was implemented to test if goal complexity predicted performance after controlling for age. Overall, the first model was significant, indicating that age predicted season performance ($R^2 = .21, F(1, 59) = 15.46, p < .001$). The second step added complexity and found that complexity did not significantly predict performance after controlling for age ($R^2 = .002, F(1, 58) = .17, p = .69$). The complexity of individual goal structures did not predict performance, ($\beta = .05, t(58) = .41, p = .69$).

Hypothesis 1b predicted that individuals who have a more complex goal structure will receive higher ratings of composite performance when compared to individuals with relatively little complexity in their goal structure. Once again, a two-way correlational

analysis did not detect a significant relationship between the two variables ($r = .11, p > .05$).

A hierarchical regression, controlling for age, detected age as a significant predictor of composite performance ($R^2 = .07, F(1, 59) = 4.17, p < .05$), but complexity did not predict composite performance ($\beta = .07$, $t(58) = .50, p = .60$). In summary, there was no evidence for significant relationships between goal complexity and performance, and goal complexity and composite performance. Hence, hypothesis 1a and 1b were not supported.

Table 1. Descriptive Statistics for Study Variables

Variable	Mean	SD
Number of Goals	7.44	2.53
Completeness	3.48	1.07
Complexity	27.58	15.71
Number of Process Goals	1.94	1.49
Number of Outcome Goals	3.19	1.89
Number of Performance Goals	2.31	1.74
Number of Team Goals	2.65	1.46
Number of Individual Goals	4.79	2.44
Season Performance	6.16	1.60
Development	6.03	1.64
Coachability	6.62	1.91
Leadership	6.74	1.84
Composite Performance[1]	.00	1.00
Age Group	14.16	2.04

[1] Converted to z-scores

Table 2. Correlations Among Study Variables

	Season Perf.[1]	Development	Coachability	Leadership	Composite Perf.[1]
Number of Goals	.13	.13	.10	.01	.10
Completeness	.12	.13	.07	-.08	.07
Complexity	.12	.15	.12	.004	.11
Process	.03	.08	.09	.08	.08
Outcome	-.11	-.03	.11	.10	.03
Performance	.29*	.15	-.05	-.16	.05
Team	-.31*	-.28*	-.17	-.13	-.24
Individual	.32*	.30*	.20	.09	.25*

* $p < .05$, ** $p < .001$ [1] Perf. = Performance

Hypothesis 2a and 2b

Hypothesis 2a projected that individuals with a higher degree of completeness within their goal structure would be rated higher in terms of season development. A two-tailed correlational analysis revealed a small positive relationship; however, results were not significant ($r = .13$, $p > .05$). A hierarchical regression was also used to test if completeness predicted development after controlling for age. The first step revealed age was a significant predictor of development ($R^2 = .07$, $F(1, 59) = 4.69$, $p < .05$). After controlling for age, completeness did not predict development ($R^2 = .02$, $F(1, 58) = 1.08$, $p = .30$).

Hypothesis 2b theorized that individuals with a higher degree of completeness within their goal structure would be rated higher in their composite performance. Using a

two-tailed correlational analysis, results indicated there was no significant relationship between goal completeness and composite performance ratings ($r = .07, p < .05$). Once again, a hierarchical regression controlling for age found age to be a significant predictor of composite performance ($R^2 = .07, F(1, 59) = 4.17, p = .046,$) while completeness did not significantly predict composite performance ($R^2 = .004, F(1, 58) = .24, p = .62$). Hypothesis 2a and 2b were not supported.

Hypothesis 3

Hypothesis 3 predicted that players with high numbers of process goals will receive higher ratings of development and coachability when compared to players with low numbers of process goals. A correlational analysis was used to analyze the relationship between process goals and development and coachability. Results showed that both development ($r = .08, p > .05$) and coachability ($r = .09, p > .05$) were not significantly related to number of process goals. In summary, hypothesis 3 was not supported.

Two separate hierarchical regressions were used to test the predictability of process goals for development and coachability after controlling for age. The first analysis tested whether process goals predicted development after controlling for age. Earlier analyses already discovered that age was a significant predictor of development. The second step, however, revealed that the number of process goals were not significantly predictive of development after controlling for age ($R^2 = .003, F(1, 58) = .22, p > .05$).

A second hierarchical regression was used to test the predictability of process goals for coachability after controlling for age. The first step in the regression showed that age was not a significant predictor of coachability ($R^2 = .018$, $F(1, 59) = 1.05$, $p > .05$). More so, the second step revealed that process goals also failed to predict coachability ($R^2 = .006$, $F(1, 58) = .36$, $p > .05$).

Hypothesis 4

Hypothesis 4 predicted the players with high numbers of performance goals will receive higher ratings of performance than players with a low number or no performance goals. To test the predicted relationship a correlational analysis was employed and results indicated a significant relationship between the number of performance goals and ratings of performance ($r = .29$, $p = .02$). Hypothesis 4 was supported in that individuals with higher numbers of performance goals also saw higher ratings of season performance.

A hierarchical regression was also implemented to test if the number of performance goals were predictive of season performance after controlling for age. Once again, earlier analyses already revealed that age was a significant predictor of performance, ($R^2 = .21$, $F(1, 59) = 15.46$, $p < .001$). However, step 2 in the regression found that number of performance goals did not predict performance after controlling for age ($R^2 = .006$, $F(1, 58) = .45$, $p > .05$).

Hypothesis 5

Hypothesis 5 predicted that players with a high number of individual goals will receive higher ratings of development and performance when compared to players with low numbers of or no individual goals. A two-tailed correlational analysis revealed that the number of individual goals was significantly related to season performance ($r = .32, p = .01$) and development ($r = .30, p = .02$). Therefore, hypothesis 5 was supported.

Additionally, two separate hierarchical regressions were used to test the predictability of individual goals for performance and development after controlling for age. Earlier analyses showed that age is a significant predictor of both performance ($R^2 = .21, F(1, 59) = 15.46, p < .001$) and development ($R^2 = .07, F(1, 59) = 4.69, p < .05$). The first regression tested if individual goals were predictive of performance, and after controlling for age, results indicated that individual goals did not predict performance ($R^2 = .01, F(1, 58) = .89, p > .05, \beta = .13, pr^2 = .02$). Next, the following regression tested if individual goals were predictive of development, and after controlling for age, results showed that individual goals were not predictive of development ($R^2 = .04, F(1, 58) = .25, p > .05, \beta = .22, pr^2 = .04$).

Hypothesis 6

Hypothesis 6 projected that individuals with a higher number of team goals will also be rater higher in terms of their leadership. A two-tailed correlational analysis revealed that team goals and leadership were not significantly related ($r = -.13, p > .05$). Hypothesis 6 was not supported.

In addition, a hierarchical regression was employed to see if the number of team goals were predictive of leadership after controlling for age. Overall, the first model showed that age was not predictive of leadership ($R^2 = .008$, $F(1, 59) = .47$, $p > .05$). Next, the second step in the regression also revealed that team goals were not significantly predictive of leadership, ($R^2 = .01$, $F(1, 58) = .43$, $p > .05$, $\beta = -.11$, $pr^2 = .01$).

DISCUSSION

This study examined aspects of goal theory and motivation from a unique perspective that has rarely been addressed through research. Using self-reported, free-set goals, a hierarchically structured goal system unique to each individual was constructed, and attributes of that structure were tested to understand how multiple goals function to predict performance.

Key Findings

The first two sets of hypotheses examined structural components of goal systems. Hypotheses 1a and 1b tested for a relationship between structure complexity and performance, while hypotheses 2a and 2b tested for a relationship between goal completeness and development. Correlational analyses did not provide evidence to support any of the predicted relationships. The lack of support was surprising for this set of predictions, since I expected that individuals who maintain a greater number of goals and a greater number of goals that focus on multiple facets of performance would develop and perform better than those who set fewer goals. It is possible that such findings were influenced by a relatively small sample size. The age of participants was also a source of concern as it was found to be significantly correlated with number of goals ($r = .31$, $p = .01$), suggesting that the number of goals individuals set increased with age, and thus influenced the computations for goal complexity. In addition, there were also issues, including potential bias and error, in the coaches' performance ratings, which could have influenced the results. Players' reported goals often reflected aspects

of performance that may not have aligned with the way that coaches evaluated performance. For instance, players may have reported a goal to 'hit my first home-run,' which implies a single at-bat during a season. It is unlikely that accomplishing such a goal would be strongly weighted by coaches in evaluating player performance.

The final four hypotheses focused on the content of goals within a structure and the resulting relationship of goal content with various aspects of performance. Hypothesis 3 and 4 examined the role of process and performance goals within a structure and found evidence to support a positive relationship between the frequency of performance goals and season performance, while no relationship was found between process goals and coachability or development. The correlation between performance goals and season performance further supported that notion that setting performance goals helped to motivate individuals above and beyond the setting of process or outcome goals; both of which were not correlated with season performance ($r = .03$, $p > .05$; $r = -.11$, $p > .05$). On the other hand, the predictive relationship between performance goals and season performance was not supported in hierarchical regression analyses after controlling for age, which highlights the influence that player age had on these results. As mentioned above, age correlated with number of goals ($r = .31$, $p = .01$), and with number of performance goals ($r = .48$, $p < .001$).

A correlational analysis of all study variables also showed that the frequency of process goals did not correlate with any dimensions of season performance, which is surprising because the majority of research on process goals tout the benefits of goals that orient learners to focus on process (Winters & Latham, 1996; Zimmerman & Kitsantas, 1999). One possible reason for the absence of evidence supporting this relationship is the

relatively low numbers of process goals reported by players. An analysis of means showed that, on average, participants set fewer process goals ($M = 1.94$) than performance ($M = 2.31$) and outcome goals ($M = 3.19$). The low numbers of process goals is not surprising given that process goals require individuals to thoroughly consider their skill set and have knowledge of specific strategies or techniques that will benefit them. It is possible that age and player maturity were requisite to developing the knowledge necessary to understand both the skills sets to develop and methods to develop those skill sets. This notion is reflected in the strength of the correlation between performance goals and age ($r = .48$, $p < .001$), and further supporting age as an important factor. In addition to the concerns surrounding age as a covariate, another possible factor influencing results relate to the degree that coach's evaluations match the content of goals reported. For example, a performance goal for a catcher might be to 'throw out someone stealing second base'; however, the coach's ratings did not include a specific measure for this type of performance. A disconnect between player and coach's perceptions of performance could lead to problems when testing the predicted relationships.

Additionally, research might address what the components of a quality process goal might be. For example, are difficulty and specificity important for process goals? Process goals likely differ in quality; in that, some may represent a poor understanding of what is necessary for player development. The motives for setting process goals, also, may flow from consistent and frequent coaching feedback. That is, setting process goals may promote player development; however, underperforming players may receive frequent coaching feedback that raises their awareness of the technical elements of the game and to the setting of process goals.

Hypotheses 5 and 6 examined the impact that individual versus team goals have on aspects of performance. Results from hypothesis 5 supported the notion that the reported number of individual goals positively related to season performance and season development. This effect is likely a function of focus; those players more focused on improving or attaining individual goals will likely do so when compared to players who set team-oriented goals. Hypothesis 6 tested if a greater number of team-oriented goals relate to coaching evaluations of leadership; however, no evidence supported this contention. One possible reason for the lack of support has to do with the type of team goals set. Many of the goals that were identified as team-oriented goals were also identified as outcome goals, such as 'win a championship.' A player might contribute to this type of goal by playing well individually, rather than being a good teammate or leader. It is also possible that good teammates and team leaders set different types of team-oriented goals that were not distinguished in this study. Identifying the types of goals that leaders set and the content-focus of goals that relate to being a leader proved to be a challenge in this study. Further, it is possible that the players who reported team goals, such as 'be a good teammate', do not have the skills or strategies to accomplish them. Some team goals, like 'win a championship,' might be better gauged at the team level versus the individual level since individuals have little control over such outcomes.

Future Directions

Although support for hypothesized relationships was not strong, this study identified several issues that might be targeted by future research. One such issue lies within the procedure and sample size. Noticeable difficulties existed in process of

identifying and labeling participant goals as process, performance, or outcome goals (unclear). Such difficulties seemed to arise from poorly expressed goals, especially among younger participants. Future research may focus on older samples or include some type of goal-setting training so that participants report goals that are more easily categorized. In addition, future research may include ratings of goal difficulty and specificity, along with the categorizations of goals, to better account for differences between individual's goals.

Another potential focus for similar studies relates to the ratings of performance. As mentioned above, differences between the content of participant's goals and coach's perceptions of performance can influence the relationships between the two. One way to combat this issue would be to have coaches rate players on more specific criteria, such as their fielding performance, hitting performance, and pitching performance; and/or fielding development, hitting development, and pitching development. More specific criteria would help isolate the specific effects that goal content has on the various facets within one's game.

Study Limitations

In summary, this study highlighted some important factors of goal structures and opened up avenues for future research. First, this research supported the idea that some aspects of goal structures are related to proximal performance and can influence motivation. More specifically, it provided evidence that the number of performance goals within a structure are positively related to performance. Although no support was found for goal complexity and completeness, it is believed that a larger and more mature

sample size could provide a better test for whether completeness is a viable construct that is relevant to performance.

Age was determined to be a recurring theme in this study and likely had large implications on the data and results. As highlighted by hierarchical regression analyses, age was a significant predictor for a majority of performance criteria and accounted for a large degree of variance in relationships that were found to be significant through correlational analyses. Future research may examine the influence that age has on planning and developing goals and larger goal systems. It is possible that some youth who participate in athletics are not doing so for themselves or do not have long-term goals and aspirations for a particular sport, which would affect the viability and effectiveness of their goal system. In addition, goal-setting might be a developed skill that matures as players age. Nonetheless, this study expanded the current trend in goal theory to focus on a singular goal and begins to understand exactly how larger, and more personal (as opposed to assigned goals), systems of goals affect motivation and influence performance.

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APPENDICIES

Appendix A. Baseball Goal Form

Name[Print]: _____ **Age:** _____

Below, write about what you **ideally, yet *realistically*, want to *personally* achieve** as a baseball player.

____ (check here if you have not considered baseball goals)

1. Overall, my most important long-term baseball goal is:

_____

Check here if you do not have a long-term baseball goal: _____

2. What would you like to accomplish in the next 3 to 5 years as a baseball player?

_____

Check here if you do not think you will be playing in 3 to 5 years: _____

3. This year, what is your main goal as a baseball player?

_____

Check here if you do not have a main goal this year: _____

4. List some other goals you have for this year *(list in order of importance)*:

_____
_____
_____
_____

5. What is your most important goal for **your team** to accomplish this year?

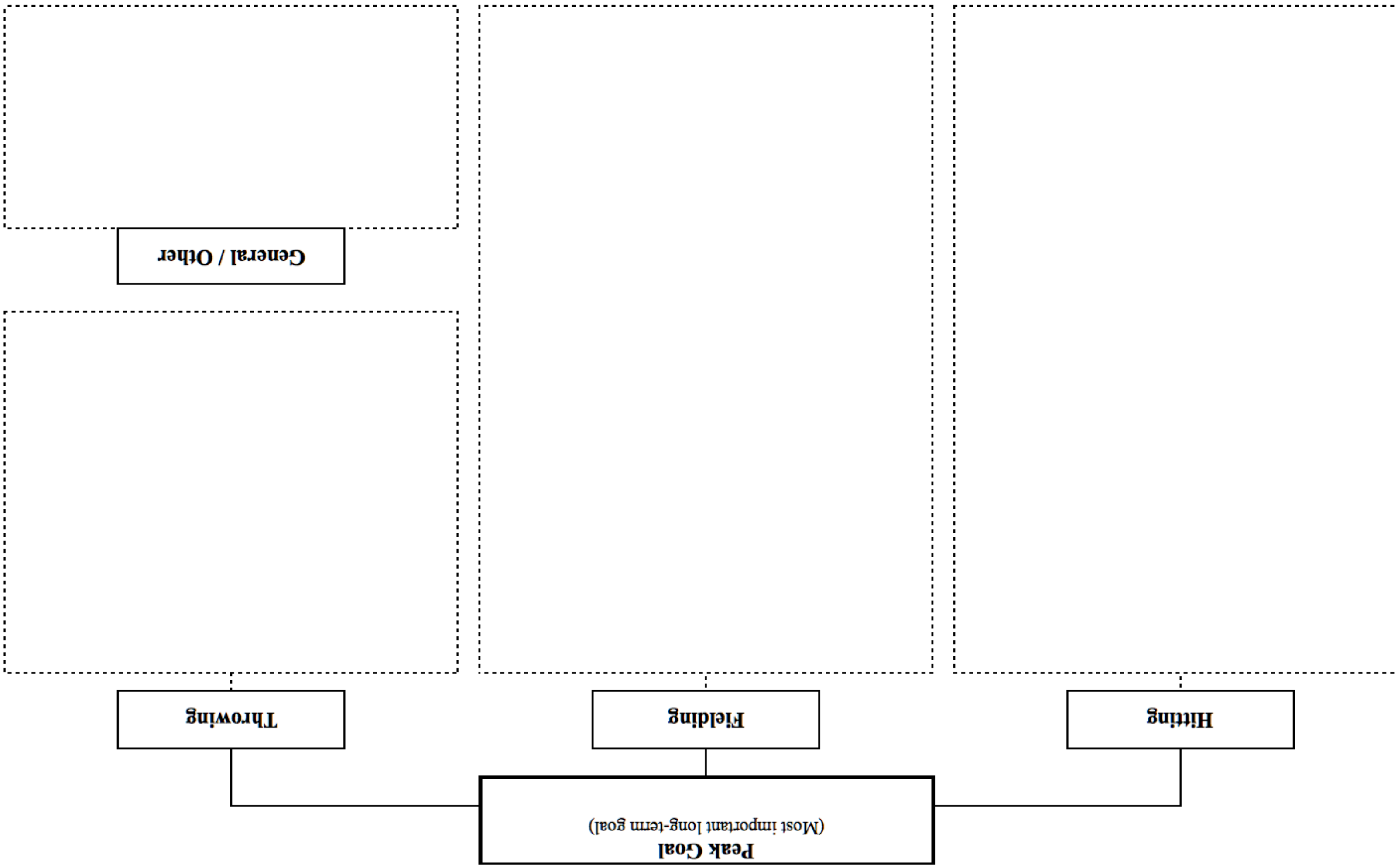
_____

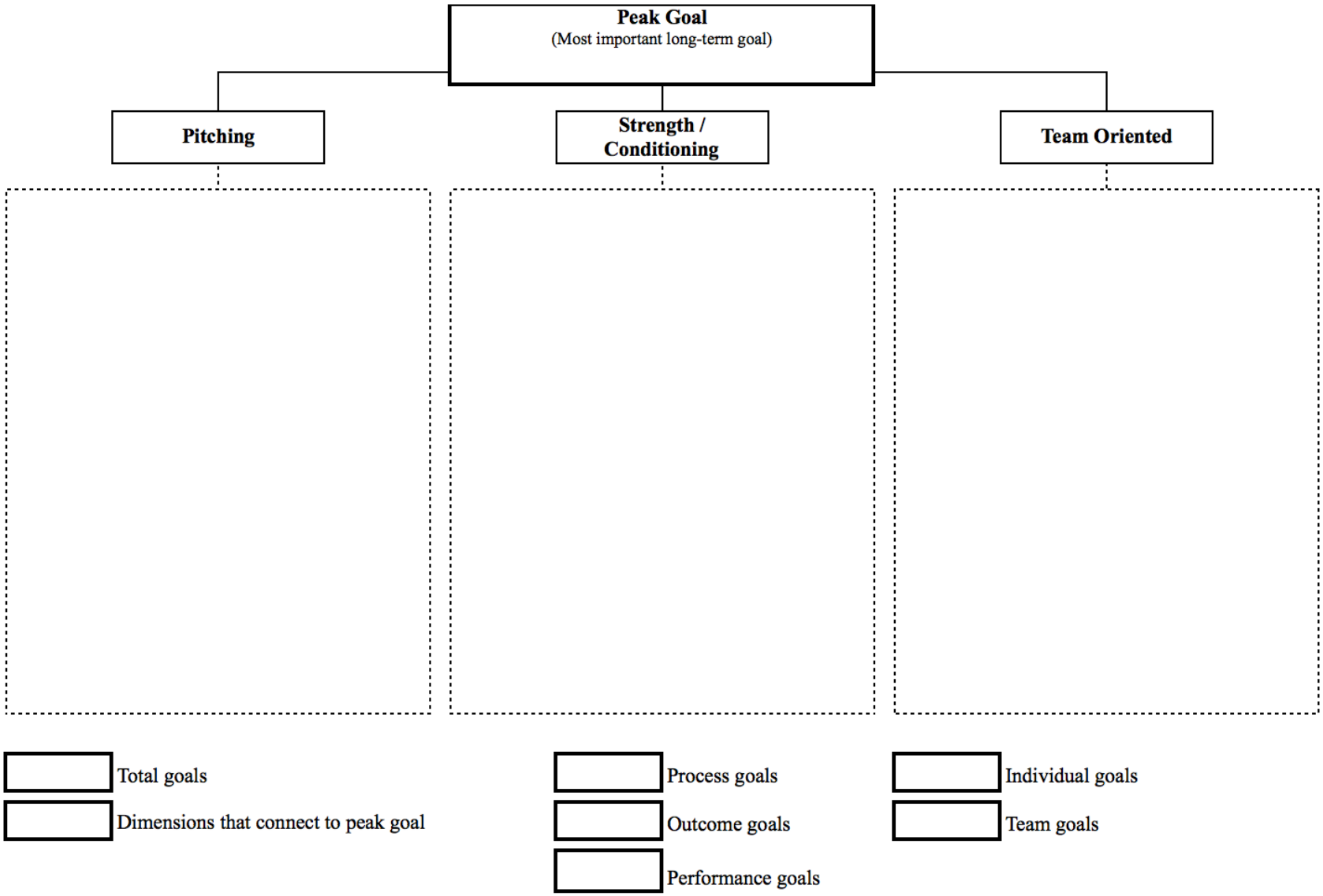
Check here if you do not have a goal for your team this year: _____

6. What are some things you will do to help your team reach your team goal?

_____
_____
_____
_____

Appendix B. Goal Rater Template




Peak Goal
(Most important long-term goal)
Pitching
Strength / Conditioning
Team Oriented
Total goals
Dimensions that connect to peak goal
Process goals
Outcome goals
Performance goals
Individual goals
Team goals