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Motivational Changes Over the Course of a College Swim Season

By

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Abstract

Goal setting is a process that is used regularly in sports, academics, and business to both increase motivation and measure performance. This observational study of collegiate swimmers examines the way that goals and motivation change over the course of a college swim season. Goal times, lifetime best times, athletic histories, and importance and satisfaction ratings for 14 objectives were collected at pre-season and post-season time points. Decreases in satisfaction ratings were observed from pre-season measures to post-season measures for objectives that were specific, while less specific objectives did not yield significant changes. These findings suggest that the specificity of a given goal may influence how individuals evaluate their performance and whether they have a clear reference point to use in this comparison. In addition, while many objectives yielded decreases in satisfaction across the two time points, few objectives saw significant changes in importance ratings, suggesting a difference in how individuals report current feelings about their goals (importance) and how they forecast their future emotions related to their goals (satisfaction). Furthermore, self-focused goals yielded decreases in satisfaction from pre-season to post-season, while comparable teammate focused goals did not, indicating that individuals may be more influenced by personal performance outcomes than by team performance outcomes. Overall, the present study helps contribute to an understanding of how goal setting and motivation interact during a sports season, while also illuminating the potential application to other areas of performance.

Introduction

Goal setting is an important motivational technique used in sports, academics, and business. By setting specific goals, individuals create benchmarks that can be used to measure future performance and hence determine success (Heath, Larrick, & Wu, 1999; Locke & Latham, 1985). College athletics are a particularly ripe ground for studying goal setting and motivation. Throughout their athletic careers, college athletes are often expected to set goals both explicitly (consciously) and implicitly (unconsciously defined) (McClelland, Koestner, & Weinberger, 1989; Weinberg, Butt, Knight, & Perritt, 2001). For example, many college teams hold goal-setting meetings at the beginning of their season to outline their objectives and hold themselves accountable to the team and themselves (Giacobbi Jr., Whitney, Roper, & Butryn, 2002). The present study aims to investigate how the motivation of collegiate swimmers changes over the course of their season as measured by goal importance and predicted versus actual satisfaction, and to explore how individuals make sense of their performance outcomes.

Goal setting is a complex process that involves elaborating clear benchmarks and can help researchers understand the motivations that influence success and failure. To illustrate, two theories (Goal-Setting Theory and the Self-Determination Theory) establish a framework for understanding how concrete goals (as outlined by Locke (1968)) can be used to define and explain more diffuse motivational concepts (described by Ryan and Deci (2000)). Goal-Setting Theory explains how setting goals leads to changes in behavior when the goals are specific and challenging, and when the goals are viewed as attainable through certain behaviors (Locke, 1968). Under this theory, a goal is defined as an outcome resulting from behavior and only has an effect when it is recognized in this role. The achievement of a goal can be attributed both to act of setting the goal as well as the goal-directed behavior that lets an individual realize the goal

(Gollwitzer & Brandstätter, 1997). Therefore, when goals are set externally (such as by a coach or experimenter), they must also be accepted by the individual (Locke, Saari, Shaw, & Latham, 1981). Goal acceptance has been shown to increase when individuals have some choice in their goals or aspects of their goals, such as time to achieve them (Erez & Kanfer, 1983). Increasing goal acceptance essentially increases an individual's stake in reaching the desired outcome, thereby increasing motivation to succeed and possibly also the intensity of emotions attached to outcomes. In addition, goals can serve as reference points and influence how individuals evaluate their performance, especially in terms of emotional reactions and satisfaction (Heath et al., 1999).

However, Goal-Setting Theory also presents an inherent challenge because goals are most motivating when they are ambitious and difficult to achieve (Locke, 1968), but setting challenging goals also often leads to disappointment (Zeelenberg, Dijk, Manstead, & Pligt, 2000). Despite previous assertions that setting difficult goals can improve performance (Locke, 1968; Locke & Latham, 1985; Lunenburg, 2011), the disconnect between the ideal outcome and the experienced outcome may result in decreased satisfaction with performance (Markle, Wu, White, & Sackett, 2018). In addition, different types of goals may yield different magnitudes of negative emotion in these cases. With some types of goals, it is simple to clearly delineate success and failure (for example winning a conference meet), while other types of goals are not so easily defined (for example having fun). Previous research has determined that setting less specific "do best" goals does not necessarily produce improved performance outcomes, while setting more explicitly defined goals is more likely to improve performance (Locke & Latham, 2002). As a result of this innate tension between performance and satisfaction, the measurability of a goal may play a role in influencing how an individual evaluates their performance.

Self-Determination Theory focuses primarily on spelling out the motivational processes to investigate relatedness, internalization, and goal setting (Ryan & Deci, 2000). One of the major types of motivation that have been distinguished using Self-Determination Theory is intrinsic motivation, which involves participation in an activity because it is fun (Busemeyer & Diederich, 2002). Intrinsic motivation has been heavily investigated because it is thought to be linked to enjoyment and interest (Elliot & Harackiewicz, 1994), self-determination and choice (Zuckerman, Porac, Lathin, & Deci, 1978), competence (Gagne & Deci, 2005) and persistent participation in a sport (Alvarez, Balaguer, Castillo, & Duda, 2012). Taken together, Goal-Setting Theory and Self-Determination Theory allow motivational processes to be investigated both at the level of individual goals as well as at the level of broader motivational concepts.

Investigating individuals in a competitive setting may be an effective way of observing how these theories can be realistically applied. College athletes are often tasked with achieving goals not just at an endpoint such as the end of a season, but must also evaluate their performance throughout the course of the season, during training and competition. Goals can be either mastery oriented, therefore focusing on ability, or performance oriented, focusing on outcomes (Locke & Latham, 1985). In particular, this distinction maps onto the process of goal-setting (as described by Goal-Setting Theory) among college swimmers because goals are often set through a combination of intrinsic factors (“I want to improve my skill”), external factors (such as national championship time standards), and input from coaches (Weinberg, Burton, Yukelson, & Weigand, 1993). Because these goals have an extrinsic component, a given individual’s goal acceptance can be partially inferred by how much satisfaction they expect to gain by achieving a goal (Locke & Latham, 1985). This occurs because the more an individual

cares about attaining a given goal, the more satisfaction they should expect to feel when they are successful and the more disappointed they should feel when they fall short.

In reality however, the relationship between motivation and success is not unidirectional. Outcomes have the potential to alter motivation just as motivation can foster or inhibit a successful outcome (Linnenbrink & Pintrich, 2002). The psychological needs for autonomy, competence, and relatedness influence how individuals are motivated and how they evaluate their performance (Vallerand & Losier, 1999). Vallerand and Losier (1999) specifically addressed outcome goals and posited that success will increase intrinsic motivation, while failure will decrease intrinsic motivation (Atkinson, 1957; Atkinson, Bastian, Earl, & Litwin, 1960). Intrinsic motivation has also been studied in the context of competition and has been shown to decrease in competitive situations, in part because competition is an extrinsic task that causes focus to shift to external cues and rewards (Buxton, 2010; Vallerand, Gauvin, & Halliwell, 1986). However, there was a greater decrease in intrinsic motivation for those who did not succeed in competitions. Vallerand & Losier (1999) hypothesized that better sports outcomes may occur if athletes are encouraged to focus on the process of competing, rather than trying to predict an outcome, in order to perceive greater control over their situations, and maintain or influence their own intrinsic motivation.

Competitive sports are not just driven by motivation or goal specificity. Emotions can also play a key role in whether athletes are able to maximize their performance or alternatively fail to perform. Athletes are influenced by their emotions, and must reflect upon their past performances in order to help plan and predict future performance and emotions (Lazarus, 2000). Research on Affective Forecasting focuses on how individuals make predictions about how future events will make them feel (Wilson & Gilbert, 2003). The impact bias describes how

individuals tend to overestimate the magnitude of emotional intensity they expect to feel during future events. Research using track athletes has shown that athletic experience is not a mediating factor for impact bias, and can in fact result in larger miscalculation of predicted emotional intensity (Dijk, Finkenauer, & Pollmann, 2008). Specifically, these authors argued that the psychological immune system may play a role in muting negative feelings and reactions, but that individuals are bad at predicting the actions of this immune system. Therefore, individuals tend to overestimate the magnitude and extent to which they will be impacted by their disappointment when they fail, because they do not accurately take into account the role of the psychological immune system in mediating their disappointment.

The present study seeks to contribute to the understanding of the process of goal setting by investigating how motivation, goals, and emotions interact in tandem to influence performance. This understanding in turn clarifies how athletes set goals, experience changes in motivation, and interpret their performance outcomes. Specifically, we will focus on how swimmers' motivations change over the course of their season, especially in reaction to success or failure as measured by whether a swimmer met their previously stated goal time. In general, sports may be categorized as team or individual based on the level of interdependence observed between participants (Baker, Côté, & Hawes, 2000; Chelladurai & Saleh, 1978). In particular, past research has highlighted how individual "work" sports such as swimming are ideal for studying goal setting, because they utilize objective measurements of performance (such as timing). In terms of swimming, competition occurs in a standard length pool (25 yards for collegiate competition), and individuals compete both against opponents and the clock (Raglin & Turner, 1993). These elements facilitate scientific examination because valid comparisons can be made between performances across time.

The current study will include goals that deal with both intrinsic (“having fun”, “being part of a team”) and extrinsic (“winning a race”) types of motivation and asks participants to evaluate their commitment and satisfaction relative to both types. Participants will rate their motivation and satisfaction relative to many different types of goals, including process (“be part of a team”), performance (“beat my best time”), and outcome (“win the race”). The satisfaction ratings will also allow the experimenter to infer levels of goal acceptance.

The present study examines importance and satisfaction, both before and after individuals have either realized or fallen short of their goals. This construction may make it possible to discuss the role of affective forecasting and poor prediction of emotional intensity and duration in the context of college swimming. We have several hypotheses. First, we expect that most participants will report concrete goal times because goal setting has been shown to be an important part of achieving success in sports, and the process generally takes place in at least one form for most college athletes (Markle, Wu, White, & Sackett, 2018; Weinberg et al., 1993). Second, we expect that there will be differences between pre- and post-season ratings of importance and satisfaction of the 14 objectives surveyed and that more pronounced differences will occur for goals that are clearly measured (ie. “win a race”) compared to less clear goals (“be part of a team”). Third, we expect that individuals will adjust their importance ratings to compensate for their performance outcomes, meaning that individuals who fail to meet a given goal will later rate that goal as less important.

Our research offers insight into the motivational processes that occur over the course of a sports season. By examining the cognitive strategies that athletes use to make sense of their performance outcomes, it may be possible to make inferences about how performance is explained in other arenas such as academics or business. Application of this research has the

potential to help develop goal setting and performance coping strategies for athletes and for individuals who are striving to accomplish goals in their respective fields.

Method

Participants

37 NCAA Division III college athletes were recruited using email from four college swim teams to participate in the study. Participants were aged 18-23 years old ($M = 19.97$ years, $SD = 1.18$ years, 75.68% female). Participants had between 1 and 4 years of collegiate swimming experience ($M = 2.27$, $SD = 1.02$) and between 2 and 18 years of overall swimming experience ($M = 11.53$, $SD = 3.42$). Participants also varied in their skill level in the sport from individuals who finished in the top 3 in an event at the 2018 NCAA National Championships to individuals who finished in the bottom 10% of their 2018 conference meet.

Characteristics of the teams

In the National Collegiate Athletic Association (NCAA), swimming is divided into three divisions, based on school size and whether athletes can receive athletic scholarships. The collegiate swim season runs from October to March, with national championships for all divisions held in March. A college swim meet may include up to 21 events each for men and women, including diving events, and championship meets will contest prelims and finals of most events. Individuals accrue points for their team based on their placement in each event. Individuals are selected to participate in the NCAA National Championship by meeting an automatic qualifying standard, or by meeting a consideration standard and ranking high enough to be selected. Participants in the proposed study will be collegiate swimmers from teams in NCAA Divisions I and III.

The University of Chicago, Smith College, and Wellesley College are members of the NCAA Division III, meaning that athletes cannot receive scholarship money for their athletic participation. Dartmouth College is a member of NCAA Division I and the Ivy League. The University of Chicago (undergraduate student population ≈ 6000) is a private research university located in Chicago, IL; Smith College (undergraduate population ≈ 2500) is a private liberal arts women's college located in Northampton, MA; Wellesley College (undergraduate population ≈ 2500) is a private liberal arts women's college located in Wellesley, MA; and Dartmouth College (undergraduate population ≈ 6500) is a private research university located in Hanover, NH. All four schools are known for being highly focused on academics and are ideal places to study sports motivation because athletes are not likely to become professional, and therefore are largely intrinsically motivated (Amorose & Horn, 2001).

Procedure

Collegiate swimmers were recruited from four university swim teams from NCAA Divisions I and III to participate in the study. Coaches were first contacted to gain permission to reach out to team members and explain the purpose of the study. Participants were recruited using an email that explained the purpose of the study and directed athletes to the linked survey. Online surveys (Qualtrics) were used to obtain consent from participants and collect data. Participants were given surveys (See appendix) at two time points during their season: pre/early season (December-January, Table 1) and post-season (Feb – Mar).

The survey included questions asking swim team members to rate expected satisfaction and importance of 14 objectives, including achieving best times, achieving goal times, conference placement, qualifying for nationals, being part of a winning team, scoring points, watching a teammate achieve a best time, doing one's best, being a member of a team, winning a

meet, winning a race, getting to swim on a relay, breaking a school record, and having fun, similar to surveys found in previous literature (Markle, Wu, White, & Sackett, 2017; Markle et al., 2018). These objectives were chosen to allow for analysis of different types of goals: performance goals where individuals are compared to others (winning a race, winning a meet, breaking a school record) versus mastery goals (going a best time, making a goal time) (Elliot & Church, 1997) and individual (winning a race, breaking a school record, going a lifetime best time, making a goal time, doing my best) versus team-oriented goals (winning a meet, having fun, being a part of a winning team, getting to swim on a relay, contributing points to the team). Specific goal times were also collected to compare to season outcomes (observed from each individual's last meet of the season) and previous best times (collected from an online database of swimming times). Most analyses including goal times used each individual's "event 1" because this is the category where most individuals provided data. Individuals were classified as "successful" or "unsuccessful" for a given goal or best time and satisfaction and motivation scores were compared.

Results

Descriptives

We calculated descriptive data about success rates, best times, gender makeup, goals, years swimming, and years swimming in college (see table 1). Using the data from Event 1, regressions were computed to determine if years of swimming or years of college were predictors of achieving best times, beating goal times, and importance and anticipated satisfaction of achieving best times and goal times. A paired t test was also computed between the rated importance of achieving a goal times and the anticipated importance of achieving a goal time. Initial pre-season analyses were completed using the sample of athletes who completed

pre-season measures ($n = 37$) and two other subpopulations were used for later analyses. The overall pre-season population was reduced ($n = 28$) to include only individuals who had indicated that they did indeed have specific goal times. Not all individuals who completed pre-season measures returned to complete post-season measures so the population for multiple time point comparison was further reduced ($n = 21$). For some comparisons, individuals were dropped for not providing data for the given question.

Although the significance of this study is limited by its small sample size (total $n = 37$), there are several features of the study population that allow for interesting analysis. The study population is heterogeneous in terms of collegiate participation ($M = 2.27$, $SD = 1.02$), athletic participation ($M = 11.53$, $SD = 3.42$), and skill level. The naturalistic setting provides the ideal environment to observe how individuals behave in the field.

Analysis of Pre-Season Data Set

According to the early season survey, 24.32% of athletes (37.5% of men, 21.43% of women) reported that they did not have specific time goals, while 75.68% of athletes (62.5% of men, 78.57% of women) reported having specific goal times. 82.14 % of participants failed to meet their goal time for event 1 while 64.29% failed to achieve a best time for event 1. Across all the events, participants failed to achieve goal times in 93.06% of cases and failed to achieve best times in 72% percent of cases (see Table 2). Of the 37 athletes that completed the pre-season survey, 56.7% returned to complete the post-season survey.

Table 2.

Description of the preseason data

	Total	Percent
Reported setting goals	28 (5 males, 22 females, 1 other)	75.68% (62.5% of males, 78.7% of females)
Reported not setting goals	9 (3 males, 6 females)	24.32% (37.5% of males, 21.43%

		of females)
Met goal time (event 1)	2	7.14% †
Failed to meet goal time (event 1)	23	82.14% †
Achieved best time (event 1)	8	28.75% +
Failed to achieve best time (event 1)	18	64.29% +
Achieved goal time (all events)	5	6.94 %
Failed to achieve goal time (all events)	67	93.06 %
Achieved best time (all events)	21	28.0%
Failed to achieve best time (all events)	54	72.0%

† 10.71% missing data

+ 7.14% missing data

When using just the information provided about each swimmers' first event (chosen because this event had the highest number of responses), years participating in swimming was not a predictor of achieving a best time ($b = -0.002, p = 0.93$) or of beating a goal time ($b = -0.002, p = 0.90$). Similarly, years participating in college swimming was not a predictor of achieving a best time ($b = -0.12, p = 0.24$) or of beating a goal time ($b = -0.05, p = 0.38$). Years participating in swimming and years participating in college swimming were not predictors of the expected satisfaction from achieving a goal time ($b = 0.006, p = 0.90$; $b = -0.18, p = 0.30$, respectively) or from achieving a best time ($b = 0.05, p = .44$; $b = -0.12, p = 0.58$, respectively). In addition, years participating in college swimming was not a predictor of the importance ratings of achieving a goal time ($b = -0.03, p = 0.89$) or best time ($b = 0.07, p = 0.63$). While total years swimming was not a predictor of the importance of best times ($b = 0.07, p = 0.06$), total years swimming was a predictor of the importance of achieving a goal time ($b = 0.14, p = 0.02$) (see Figure 1).

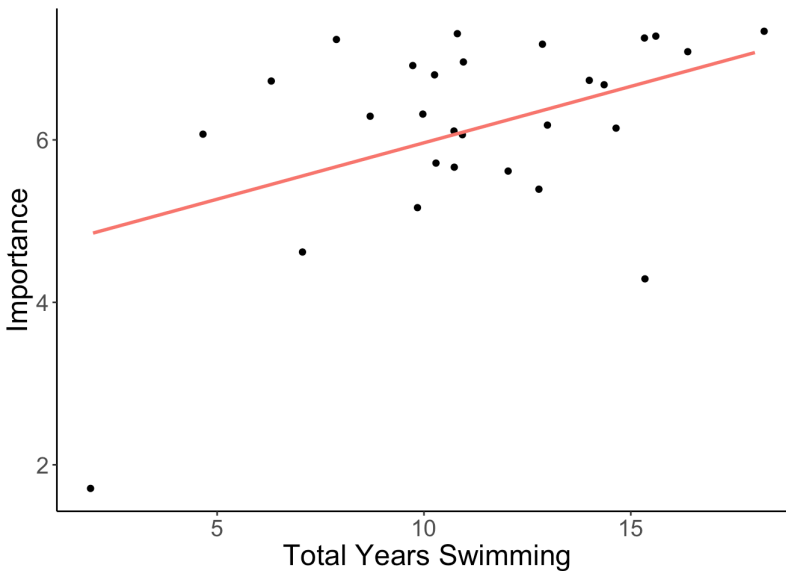


Figure 1: Relationship between total years of swimming and importance of achieving a goal time.

Analysis of the 14 objectives

In general, more pronounced differences were observed between pre- and post-season measures of satisfaction for goals that could be clearly measured and where success and failure were clearly delineated. Paired t-tests revealed significantly higher satisfaction at the pre-season time point compared to the post season time point for the objectives Winning a Race, Winning a Meet, Winning Conference, Qualifying for Nationals, Breaking a School Record, Achieving a Goal Time, and Achieving a Best Time, while there was not enough evidence to support differences between pre and post measures of satisfaction for the objectives Scoring Points, Watching a Teammate Achieve a Best Time, Being a Member of Team, Doing One's Best, Having Fun, Being Part of a Winning Team, or Being on a Relay (see Table 3). In terms of importance, only one objective, Winning a Race, had a significantly higher score for pre-season compared to post-season measures ($t(19) = 2.47, p < 0.05, d = 0.55$).

Table 3.

Comparisons between pre and post measured of satisfaction for the 14 objectives measured.

Goal Type	Objective	Satisfaction			Importance		
		Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Mean of differences [95% CI]	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Mean of differences [95% CI]
Measurable	Winning a Race	6 (1.61)	4.7 (1.30)	1.25 [0.59, 1.91] *	5 (1.59)	4.04 (1.46)	1.00 [0.15, 1.85] **
	Winning a Meet	5.76 (1.45)	4.68 (1.63)	1.11 [0.32, 1.89]*	4.33 (1.91)	4.38 (1.56)	-0.04 [-0.94, 0.85]
	Winning Conference	6.23 (1.04)	3.84 (1.54)	1.16 [0.13, 2.19]*	4.14 (1.77)	3.23 (1.87)	-0.52 [-1.46, 0.42]
	Scoring Points	6.28 (1.10)	5.73 (1.38)	0.47 [-0.11, 1.06]	5.62 (1.28)	5.48 (1.57)	0.14 [-0.32, 0.60]
	Qualifying for Nationals	5.95 (1.93)	3.79 (2.15)	2.21 [0.99, 3.43]*	4.71 (2.53)	4.19 (2.29)	0.52 [-0.47, 1.52]
	Breaking a School record	6.38 (1.43)	3.52 (2.01)	2.95 [1.96, 3.93]***	3.95 (2.22)	3.14 (2.12)	0.81 [-0.22, 1.84]
	Achieving a Goal Time	6.62 (1.07)	4.84 (2.00)	1.74 [0.63, 2.85]*	6.14 (1.19)	5.76 (1.73)	0.38 [-0.52, 1.29]
	Achieving a Best Time	6.57 (1.36)	4.63 (2.08)	1.89 [0.85, 2.93]*	6.47 (0.74)	6.14 (1.52)	0.33 [-0.39, 1.06]
	Watching a Teammate Achieve a Best Time	5.90 (1.14)	6.37 (0.76)	-0.37 [-0.86, 0.12]	5.85 (1.19)	5.52 (1.43)	0.33 [-0.21, 0.88]
Not Measurable	Being a Member of a team	6.33 (0.97)	6.47 (0.84)	-0.21 [-0.83, 0.49]	6.24 (0.77)	6.05 (1.63)	0.19 [-0.51, 0.89]
	Doing ones best	6.48 (0.96)	6.32 (0.95)	0.11 [-0.43, 0.64]	6.66 (0.66)	6.04 (1.77)	1.50 [-0.26, 1.50]
	Having Fun	6.29 (1.38)	6.05 (1.15)	0.20 [-0.76, 1.17]	6.24 (0.89)	5.85 (1.62)	0.38 [-0.40, 1.16]

	Being Part of a Winning Team	6.00 (1.34)	5.16 (1.71)	0.89 [-0.09, 1.88]	4.47 (1.78)	4.67 (1.68)	-0.19 [-1.10, 0.72]
	Being on a Relay	5.43 (1.57)	5.16 (1.83)	0.26 [-0.84, 1.36]	4.76 (1.84)	4.57 (2.11)	0.19 [-0.40, 0.78]

* $p < 0.05$ *** $p < 0.0001$

Overall Comparisons Between Overall Pre-Season and Post-Season Objectives

Post-season satisfaction with the season overall was significantly correlated to satisfaction with performance overall ($r = .85, p < 0.05$; Figure 2). In addition, when all of the pre-season satisfaction ratings were averaged and all the post-season satisfaction ratings were averaged and the two averages compared, overall expected satisfaction was significantly higher than overall experienced satisfaction ($t(18) = 5.67, p < .0001, d = 1.30$). On average, athletes expected to feel higher levels of satisfaction before their last meet than they experienced after the meet.

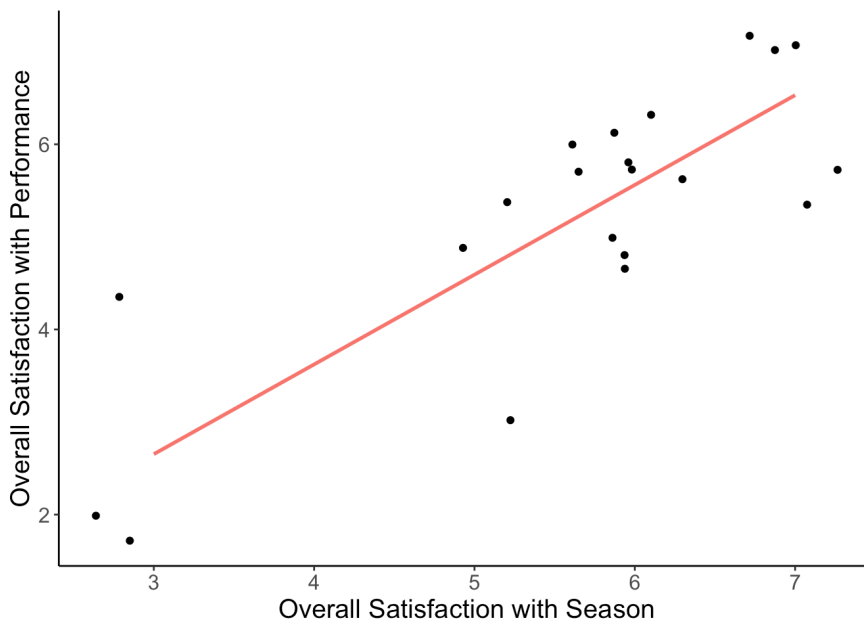


Figure 2: Correlation Between Satisfaction with Season and Performance

Paired t tests also revealed that pre-season values of expected goal satisfaction were significantly higher than post-season values of experience goal satisfaction for both individuals who reported setting goals ($t(14) = 2.79, p = 0.01, d = 0.72$) and those who did not report setting goals (paired, $t(3) = 5, p = 0.01, d = 2.5$). However, there was not enough evidence to support differences in pre-season satisfaction (Welch's, $t(7.88) = 1.16, p = 0.28, d = 0.57$) or post-season satisfaction (Welch's, $t(7.36) = -0.22, p = 0.83, d = -0.09$) between individuals who reported setting goals and those who did not.

Likewise, there was not enough evidence to determine if there is a significant difference between pre-season importance ratings and post-season importance ratings ($t(19) = 1.72, p = .10, d = 0.38$). One observation was dropped due to missing data. However, these results do not take into account whether the athletes actually succeeded at any of the objectives. In addition, since goal and best time importance ratings mostly did not show significant differences across time points, it makes sense that overall ratings would also reflect this.

Effect of Time and Success on Satisfaction Scores

A repeated measures ANOVA revealed a marginally significant effect of time point (pre vs post) on satisfaction score ($F(1,13) = 4.46, p = .05$). However, there was not enough evidence to support an effect of the goal success condition or of an interaction between goal success and time ($F(1,13) = 0.44, p = 0.52$). There was also a significant effect of time point (pre vs post) on score ($F(1, 17) = 6.06, p = .02$). However there was not enough evidence to support effects of achieving a best time ($F(1, 17) = 1.63, p = .22$), or the interaction between achieving a best time and time point on differences in scores of best time satisfaction ($F(1, 17) = 1.46, p = .24$).

Measures of Motivation

On average, returning athletes reported moderate to high excitement for the next season ($M = 5.25$, $SD = 1.54$) and expected to train during the off season at around 62% of their in-season intensity ($M = 62.67\%$, $SD = 21.23$).

For returning athletes, achieving goal times did not predict excitement about the next season or training in the off season ($b = 1.25$, $p = 0.32$; $b = 12.25$, $p = 0.48$, respectively). Similarly, achieving best times did not predict excitement about the next season or training in the off season ($b = 1.67$, $p = 0.11$; $b = 4.49$, $p = 0.77$, respectively). Pre-season expected satisfaction and post-season experienced satisfaction with goal times were not predictors of excitement about the next season ($b = 0.27$, $p = 0.88$; $b = 0.21$, $p = 0.46$), respectively.

However, excitement about the next season and amount of expected off-season training were correlated ($r = 0.59$, $p = 0.04$, Figure 3). On average, senior athletes surveyed reported that they were unlikely to continue to participate in swimming ($M = 2.66$, representing value between "probably not" and "might or might not").

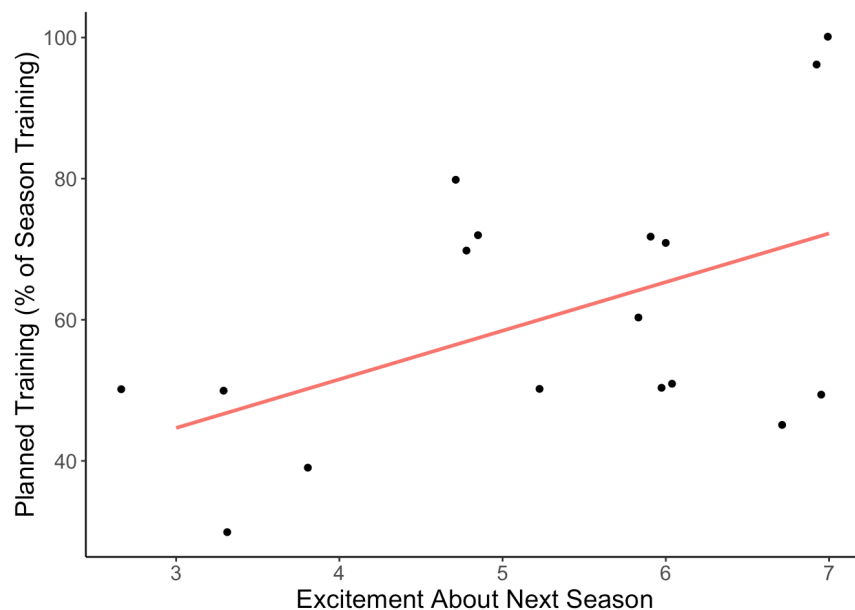


Figure 3: Correlation Between Excitement About Next Season and Off-Season Training

Discussion

The present study seeks to understand how athletes make sense of their performance by examining changes in importance and satisfaction between pre-season and post-season surveys. We expected that individuals would adjust their importance ratings to help explain their performance outcomes, meaning that individuals who failed to meet a given goal would later rate that goal as having been less important all along. More specifically, we expected to observe larger changes in importance and satisfaction ratings for goals where success and failure are clearly delineated compared to less concrete goals, partly because this construction may allow individuals to evaluate their goals compared to clear reference points (Heath et al., 1999). The following will discuss several key findings of the present study. First, the role of goal specificity in influencing motivation and satisfaction. Second, observed differences in the way ratings of importance and satisfaction changed from pre-season measures to post-season measures. Third, observations about the way athletes viewed self-directed versus team-directed objectives.

Although setting specific goals has been shown to improve performance outcomes (Burton, 1989), only 75.68% of the athletes sampled reported setting concrete goal times. In addition, this study observed a high occurrence of failure to meet both goal times (93.06%) and best times (72%). These low success rates are consistent with previous literature that also observed a majority of participants failing to meet performance goals (Dijk et al., 2008; Markle et al., 2018; Van Dijk, 2009). Because goals are necessarily challenging benchmarks, it follows that most individuals would be unable to perform up to the standards that they had set for themselves. Yet, coaches do not observe athletes quitting sports in high numbers following unsuccessful seasons, possibly in part because failure can be motivating (Baumeister & Tice,

1985). Perhaps failing to achieve a goal acts as a motivating force to encourage hard work during the next season.

Whether an individual is motivated by failure may also be influenced by other aspects of their character. In terms of Goal-Setting Theory (Locke, 1968), the current findings support the assertion that specific and difficult goals are more effective at increasing motivation than less measurable and “do best” goals. Our results suggest that not only are specific, measurable goals are more motivating, but they are also related to more pronounced changes in importance and satisfaction after the performance. In short, we demonstrated that the specificity of a goal may be related to how critically individuals evaluate their performance in terms of importance and satisfaction.

In addition, goal specificity may also influence how readily individuals can compare their performance to a reference point (Heath et al., 1999). With specific goals, individuals can more clearly see when they have succeeded relative to their goal and may adjust their satisfaction as a result. Likewise, whether individuals chose to set specific goals to begin with may contribute to how they framed and evaluated their performance outcomes.

Interestingly, of the 14 objectives measured, only concrete, measurable objectives (winning a race, winning a meet, winning conference, qualifying for nationals, breaking a school record, achieving a goal time, and achieving a best time) saw significant decreases in satisfaction from the pre-season time point to the post-season time point, while less measurable objectives (doing ones best, being a team member) did not show significant differences. This relates to previous research that specific and difficult goals produce higher quality performances and increased motivation compared to “do-best” goals. Previous research has also examined the relationship between emotional reactions and satisfaction in business contexts and health policy

(Locke, 1969; Shirley & Sanders, 2013). The present study suggests that specific and measurable goals may also be related to stronger emotional reactions, such a satisfaction, than “do best” goals. It is also possible, however, that the measurability of some of the objectives led athletes to more critically evaluate their performances resulting in decreased post-season satisfaction ratings.

Participants reported higher expected satisfaction from meeting their goal times than the importance of their goal times, for both those individuals who reported setting goals and for those who did not. This may be due to differences between asking participants to rate their current feelings about their goals (importance) and to forecast their future emotions related to their goals (satisfaction). This finding is related to previous research using track athletes that found athletes were more likely to overestimate how they expected to feel about a future accomplishment (Dijk et al., 2008). In the context of our study, participants were asked to rate the expected intensity of their satisfaction they would feel upon achieving a given goal. Satisfaction can be thought of as the emotional reaction to a comparison between some internal standard of performance and the experienced performance (Dube-Rioux, 1990). Similarly, the present study also confirms the finding in Dijk et al (2008) that importance of a goal is related to emotional intensity, which in this case can be seen in the satisfaction measure.

Although goal importance and satisfaction were correlated, there was not enough evidence to assert whether years of swimming or years of college accounted for expected satisfaction from goal or best times, importance of best time, or achieving best or goal times. This study did reveal a relationship between total years of swimming and importance of achieving a goal time, yet when this is depicted graphically (see Figure 3), this relationship seems driven by the single data point in the lower left corner. When this observation is removed

before running the regression, the relationship is no longer significant. However, previous studies did indicate a relationship between experience and predicted satisfaction, with more experienced athletes more strongly over predicting their feelings (Dijk et al., 2008).

On average across all categories, athletes expected to feel higher levels of satisfaction before their last meet than they experienced after the meet. More specifically, individuals reported much higher expected satisfaction from achieving both goal and best times before their last meet than they did after their performances. These findings are consistent with previous findings concerning impact bias and poor prediction of future emotions (Wilson, Wheatley, Meyers, Gilbert, & Axson, 2000). Future research could include another measurement point to assess the durability of emotions in this context. While expected satisfaction was higher before the meet than after it, upon closer inspection, a difference in importance was only seen for individuals who failed to meet goal or best times. This indicates that individuals may be moderating their importance after the fact to rationalize their failure.

Another interesting difference was also observed between satisfaction and importance ratings, in that satisfaction appeared to be more influenced by failure than was importance. An overwhelming majority of participants failed to achieve best times (72%) and even more failed to achieve goal times (93.05%), yet only satisfaction ratings significantly differ between pre-season and post-season measures. This suggests that while most participants were less satisfied than they had expected to be with their performances, they still held their goals as equally important.

In addition to individual performance aspects, collegiate swimming also often fosters team environments where teammates cheer for one another, and scoring performances contribute points to the team. In light of this, it was expected that participants might rate high expected satisfaction and importance of watching teammates achieve best times. On average, participants

did highly value watching their teammates perform well, both in terms of satisfaction and importance, but these values did not significantly change across the two time conditions. This suggests that for the athletes surveyed, watching a teammate fail is not as detrimental to satisfaction as is personally experiencing that failure.

However, the current work is not without its limitations. First, we did not examine whether setting concrete goals was related to individuals achieving a successful outcome because there is no way to measure success if individuals did not indicate a goal time. However, there were no measureable differences between satisfaction ratings between individuals who set goals and those who did not, at both time points. Both goal-setting individuals and non-goal-setting individuals reported significantly higher satisfaction ratings at the pre-season time point than the post-season time point. Similarly, there were no measurable differences between the two groups at either time point, suggesting that the process of setting goals may be less related to satisfaction than previously believed. Our findings present a challenge to previous research that have asserted a positive relationship between setting goals and satisfaction (Kim & Hamner, 1976; Locke, 1968). These studies examined goal-setting and non-goal-setting individuals and observed higher satisfaction in goal-setting individuals compared to their non-goal-setting counterparts. Our study instead compared the satisfaction of goal-setting individuals across time and found significant decreases in satisfaction at the post-season time point. However, we also observed a population that was for the most part unsuccessful at meeting their goal and best time benchmarks (93.05% and 73%, respectively). In addition, the comparisons between pre-season and post-season measures do not take into account whether or not individuals were successful in achieving their goal or best times.

Another major drawback of this study design is sample size. The small sample size limits conclusions that can be drawn from the results, because even when there are significant results the power is often very small. Another limitation of this study is the gender imbalance of the sample. This is partially because two of the schools sampled from are women's colleges, which influenced the sample makeup. The gender imbalance limits the types of analyses that can be performed and conclusions that can be reached from the data. Previous research has outlined gender differences in motivational strategies as well as reactions to success and failure (Ablard & Lipschultz, 1998; Dweck, 1986), suggesting the need for further examination of how the gender makeup of our sample may have influenced the results.

The present observations may have also been influenced somewhat by survivorship bias, in that we were only able to collect post-season measures for participants that chose to complete both surveys and not for those who dropped out after only completing the first one. As a consequence of this, our results may only be showing participants that have some sort of characteristic in common. One possible explanation is that participants who were more disappointed with their season were less motivated to complete the post survey, because the act of doing the survey would necessitate them to examine their failures.

To conclude, the current observational study of swimmers provides insight into how people overall interpret their goals and motivations and makes sense of their successes and failures. These findings may not only hold significance for athletes, but may also be generalized to help other populations understand how specific types of goal setting can affect performance and satisfaction. Overall, this study demonstrates that the measurability of goals may play a role in influencing the perceptions of the goal satisfaction and importance. In general, specific goals were related to more significant differences in satisfaction, while less specific goals did not show

pronounced differences in satisfaction. In addition, factors such as total years participating can also influence perceptions of the importance and satisfaction gained by achieving different goals. By examining satisfaction in both athletic and other goal-setting contexts, researchers can begin to address how to improve motivation, goal attainment, and satisfaction in the general population.

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Appendix

Table 1.

Example of pre-season survey

Question	Type of answer
Name and email	
Are you a member of a college varsity sports team?	Multiple choice: yes/no for inclusion criteria
How many years have you been a member of your college team?	Options 1-4
What school do you attend?	Short answer
What sport do you play?	Short answer
How many years have you participated in this sport?	Short answer
Please select your gender	Multiple choice
Looking ahead to the rest of season, how important are the following objectives for you? (1 = Very Unimportant, 7 = Very Important) • having fun • winning a race • winning a meet • breaking a school record in an individual event • achieving a best time • seeing a teammate achieve a best time • being part of a winning team • making a goal time • getting to swim on a relay • contributing points to the team • doing my best • winning a conference championship • qualifying for nationals	Likert scale 1-7
Do you have specific goal times? • List them	Yes/No Short answer
• How likely is it that you will make you goal time for a given event?	Likert 1 (Very Unlikely) – 7 (Very Likely)
Looking ahead to the rest of season,	Likert scale 1-7

how satisfied will you feel if you meet the following objectives? (1 = Very Unsatisfied, 7 = Very Satisfied) • having fun • winning a race • winning a meet • breaking a school record in an individual event • achieving a best time • seeing a teammate achieve a best time • being part of a winning team • making a goal time • getting to swim on a relay • contributing points to the team • doing my best • winning a conference championship • qualifying for nationals	
Please comment on other reasons you participate in athletics that have not been covered in the previous sections.	Short answer

Supplementary Analyses

Having Fun

There was not enough evidence to support a difference in satisfaction (paired, $t(19) = 0.43$, $p = 0.67$, $d = 0.09$) or importance (paired, $t(20) = 1.02$, $p = 0.32$, $d = 0.22$) between pre and post time points.

Winning a race

A paired t test revealed significant difference between expected satisfaction (pre) of winning a race and experienced satisfaction in the post survey (paired, $t(19) = 3.96$, $p < 0.05$, $d = 0.89$). A second paired t test revealed that there was also a significant difference between pre importance measures and post importance measures for winning a race (paired, $t(19) = 2.47$, $p < 0.05$, $d = 0.55$).

Winning a meet

A paired t test revealed a significant difference between pre and post satisfaction measures for winning a meet ($t(18) = 2.96$, $p < 0.05$, $d = 0.68$). However, there was not enough evidence to support a difference between pre and post importance ratings for winning a meet ($t(20) = -0.11$, $p = .91$, $d = -0.02$).

Being part of a winning team

There was not enough evidence to support a difference between pre and post measures for either satisfaction (paired, $t(18) = 1.90$, $p = 0.07$, $d = 0.44$) or importance (paired, $t(20) = -0.44$, $p = 0.66$, $d = -0.09$) for being part of a winning team.

Winning conference

A paired t test revealed a significant difference in satisfaction between pre and post time points for winning conference ($t(18) = 2.36$, $p = 0.03$, $d = 0.54$). However, there was not enough

evidence to support a difference in importance measures for the winning conference objective ($t(20) = -1.16, p = 0.26, d = -0.25$)

Being on a relay

There was not enough evidence to support a significant difference in satisfaction ($t(18) = 0.50, p = 0.62, d = 0.11$) or importance ($t(20) = 0.68, p = 0.51, d = 0.15$) between pre and post measures for the objective of being on a relay.

Scoring points

There was not enough evidence to support a significant difference in satisfaction ($t(18) = 1.69, p = 0.11, d = 0.39$) or importance ($t(20) = 0.64, p = 0.52, d = 0.14$) between pre and post measures for scoring points.

Doing ones best

There was not enough evidence to support a significant difference in satisfaction (paired, $t(18) = 0.42, p = 0.68, d = 0.09$) or importance (paired, $t(20) = 1.46, p = 0.16, d = 0.32$) between pre and post measures for the objective of doing one's best.

Qualifying for nationals

A paired t test revealed a significant difference between expected satisfaction (pre) and experience satisfaction (post) for the objective of qualifying for nationals (paired, $t(18) = 3.81, p < 0.05, d = 0.87$). However there was not enough evidence to support a difference between pre and post importance measures for the objective of qualifying for nationals (paired, $t(20) = 1.1, p = 0.28, d = 0.24$).

Being a member of a team

There was not enough evidence to support a significant difference in satisfaction (paired, $t(18) = -0.75$, $p = 0.46$, $d = -0.17$) or importance (paired, $t(20) = 0.57$, $p = 0.58$, $d = 0.12$) between pre and post measures for the objective of being a member of a team.

Breaking a school record

A paired t test revealed a significant difference between expected satisfaction (pre) and experience satisfaction (post) for the objective of breaking a school record (paired, $t(18) = 6.30$, $p < .0001$, $d = 1.44$). However there was not enough evidence to support a difference between pre and post importance measures for the objective of qualifying for nationals (paired, $t(20) = 1.63$, $p = 0.12$, $d = 0.36$).

Achieving a goal time

A paired t test revealed significant difference between expected satisfaction of achieving a goal time (pre) and satisfaction after achieving a goal time (post) (paired, $t(18) = 3.28$, $p < 0.05$, $d = 0.75$). In general, individuals expected to feel more satisfied upon achieving a goal time then they actually experienced after the fact. However, there was not enough evidence to support a difference between perceived importance of achieving a goal time (pre) and perceived importance of achieving a goal time (post) (paired, $t(20) = 0.88$, $p = 0.39$, $d = 0.19$).

Achieving a best time

A paired t test revealed that there was also a significant difference between expected satisfaction of achieving a best time (pre) and experience satisfaction from achieving a best time (post) (paired, $t(18) = 3.83$, $p < 0.05$, $d = 1.11$). In general, individuals expected to feel more satisfied upon achieving a best time than they reported feeling after seeing their results. However,

there was not enough evidence to support a difference between perceived importance of achieving a best time (pre) and perceived importance of achieving a best time (post) (paired, $t(20) = 0.96$, $p = 0.35$, $d = .28$).

Watching a teammate achieve a best time

There was not enough evidence to support a significant difference between pre and post satisfaction measures of watching a teammate achieve a best time ($t(18) = -1.60$, $p = 0.13$, $d = -0.36$) or between pre and post importance measures of watching a teammate achieve a best time ($t(20) = 1.27$, $p = 0.22$, $d = 0.28$).

Table 4.

Paired t-test comparisons between pre and post measured of satisfaction for the 14 objectives measured.

Goal Type	Objective	Satisfaction	Importance
Measurable	Winning a Race	$t(19) = 3.96$, $p < 0.05^*$, $d = 0.89$	$t(19) = 2.47$, $p < 0.05^*$, $d = 0.55$
	Winning a Meet	$t(18) = 2.96$, $p < 0.05^*$, $d = 0.68$	$t(20) = -0.11$, $p = .91$, $d = -0.02$
	Winning Conference	$t(18) = 2.36$, $p = 0.03^*$, $d = 0.54$	$t(20) = -1.16$, $p = 0.26$, $d = -0.25$
	Scoring Points	$t(18) = 1.69$, $p = 0.11$, $d = 0.39$	$t(20) = 0.64$, $p = 0.52$, $d = 0.14$
	Qualifying for Nationals	paired, $t(18) = 3.81$, $p < 0.05^*$, $d = 0.87$	$t(20) = 1.1$, $p = 0.28$, $d = 0.24$
	Breaking a School record	$t(18) = 6.30$, $p < .0001^*$, $d = 1.44$	$t(20) = 1.63$, $p = 0.12$, $d = 0.36$
	Achieving a Goal Time	$t(18) = 3.28$, $p < 0.05^*$, $d = 0.75$	$t(20) = 0.88$, $p = 0.39$, $d = 0.19$
	Achieving a Best Time	$t(18) = 3.83$, $p < 0.05^*$, $d = 1.11$	$t(20) = 0.96$, $p = 0.35$, $d = .28$
Not Measurable	Watching a Teammate Achieve a Best Time	$t(18) = -1.60$, $p = 0.13$, $d = -0.36$	$t(20) = 1.27$, $p = 0.22$, $d = 0.28$
	Being a Member of a team	$t(18) = -0.75$, $p = 0.46$, $d = -0.17$	$t(20) = 0.57$, $p = 0.58$, $d = 0.12$

	Doing ones best	$t(18) = 0.42, p = 0.68, d = 0.09$	$t(20) = 1.46, p = 0.16, d = 0.32$
	Having Fun	$t(19) = 0.43, p = 0.67, d = 0.09$	$t(20) = 1.02, p = 0.32, d = 0.22$
	Being Part of a Winning Team	$t(18) = 1.90, p = 0.07, d = 0.44$	$t(20) = -0.44, p = 0.66, d = -0.09$
	Being on a Relay	$t(18) = 0.50, p = 0.62, d = 0.11$	$t(20) = 0.68, p = 0.51, d = 0.15$