

RELATIONSHIP BETWEEN CONSTRUAL LEVEL AND ATHLETIC PERFORMANCE

THE RELATIONSHIP BETWEEN CONSTRUAL LEVEL AND ATHLETIC  
PERFORMANCE

by

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Submitted to the Psychology Department  
School of Natural and Social Sciences  
in partial fulfillment of the requirements  
for the degree of Bachelor of Arts

Purchase College  
State University of New York

December 2022

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### Abstract

The current study investigated whether athletic performance in athletes increases with the increase in construal level. Construal level is the theory that people conceptualize, understand, and interpret various situations in levels of abstraction (Trope & Liberman, 2011). This form of thinking and reasoning are described as: high (abstract) and low (concrete). Therefore, construal level has been shown to be related to performance in athletic settings. If we can identify how construal levels can be more beneficial to athletes, athletes can use this theory to improve their performance. As well as information can be applied to sport psychology to help understand athletes' mental processes about athletic performance. The primary goal of this study is to assess whether higher construal levels result in higher levels of athletic performance in their sport. Soccer and Lacrosse athletes took a Behavior Identification Form (BIF) before participating in an athletic task that involved hitting targets. A linear regression model was used to assess the relationship between construal levels and athletic performance. Results showed a significant relationship between higher construals and higher performance. Future research can improve upon this study by introducing a manipulation to the construal level to see which athletes can benefit from different construal levels.

### **The Relationship Between Construal Level and Athletic Performance**

People can think about future situations, conditions, and alternative outcomes, even if they exist in the present. People take their willingness to learn about events outside their immediate framework for granted. However, literature (Liberman & Trope, 1998) proposes a unique phenomenon known as Construal Level Theory (CLT). CLT attempts to recognize how people can achieve such feats. Via the literature on CLT, we can investigate the content and role of construal level and how it applies to people every day. CLT (Trope & Liberman, 2010 for a review) is the theory that people conceptualize, recognize, and interpret different situations in levels related to psychological distance. Psychological distance is the cognitive space of oneself and other forms, including people, events, or times. The bulk of CLT focuses on interpreting various stimuli, whether greater or less than in detail. The concept of psychological distance is crucial for understanding CLT. In general, if an object or event is cognitively further away, a person would think more "abstractly" to focus on the main point, not the minor details. Vice-versa for something closer, a person would think more concretely, to focus on the immediate ideas and information. This type of thinking can be broken down into different levels of interpretation, as stated above. These levels are high (abstract) and low (concrete).

Some argue (Vallacher & Wegner, 1989) that we can interpret information at lower, subordinate, or higher-order superordinate divisions for knowledge (e.g., items and actions). For instance, take an athlete kicking a soccer ball into a net. This may be interpreted as a low-level construal as "kicking the ball into the net," which focuses on the "how" of the behavior. At a higher level of construal, such as "winning the match," which focuses on the "why" of the behavior. Higher construal levels suggest desirability, whereas lower construal levels are about feasibility. CLT believes that a person's construal level is susceptible to outside control,

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especially by distance manipulation, as stated prior. Studies (e.g., Liberman & Förster, 2009) suggests individuals' control of a stimulus or object changes as the psychological distance between them and the stimuli shifts. For example, when individuals think less about the material that is further away from their immediate framework, they experience high construal levels. On the other hand, when individuals have a stimulus closer, their construal level decreases. (Förster, 2009; Liberman, Trope, & Stephan, 2007).

### *Construal Level and Self Control*

Research (MacGregor et al., 2017) suggests that level of construal influences self-control. Self-control is related when someone needs to pick between more considerable postponed results over instant results. This can be viewed as delayed of gratification within goals. The level of construal that people use to interpret events has been shown (Fujita et al., 2006) to affect judgment, motivation, decision-making, and behavior in studies influenced by CLT. Research (Fujita et al., 2012) has addressed questions including "Why do people make certain decisions they later regret?" and "How do people make decisions they later regret?" What is the best way to achieve a healthy balance between their wants and needs and their own lives? Why do certain people excel at overcoming temptation while others fail? When and why do people behave unselfishly versus selfishly? Studies (Fujita et al., 2019) showed an association between the variables of high-level construal resulted in a reduced preference for immediate over delayed outcomes, such as increased physical endurance, stronger intentions to utilize self-control, and less favorable assessments of temptations that sabotage self-control. These findings support the premise that construal-level affects self-control. This influence on self-control and regulation can impact day-to-day tasks, as well as task issues. There is additional evidence of the benefits of higher construal levels during exercising (Morse et al., 2015). In their study, they investigated

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whether the interpreting exercise in high or low construals can increase a person's physical activity over one week. Seventy-six undergraduate students participated and were randomly selected to be in higher-level construal (abstract) or lower-level construal (concrete) test groups. The groups in the low-level construal condition were encouraged to think about the concrete (more detailed) procedures.

In comparison, high-level were encouraged to think about their actions' more abstract (minor detail) procedures. This variable was used to induce a difference in goal conflict within the study. The primary dependent variable measured was the number of minutes participants exercised over seven days. The results showed that participants in the high-level condition self-reported engaging in significantly more physical activity than those in the lower condition. Goal condition did not significantly impact the amount of physical activity. This provides evidence that different construal levels can affect physical activity and self-control. In that way, these findings are consistent with the notion that high-level construal improves self-control.

### *Construal Level Affecting Athletic Performance*

Studies (Kacperski & Hall, 2014) have provided evidence of a link between higher construal levels and improved athletic performance. The article measured 29 varsity athletes (15 table tennis/14 track & field – jumpers and throwers) at their baseline performance. After recording baseline athletic performance, each participant was manipulated into a low- or high-level construal frame. Manipulation was given in "why" or "how" questions? Observers asked a why question to induce a high-level construal by focusing on the desirability ("Please explain why you play soccer/badminton as the sport of your choice"). Inducing participants in low construal level was through a focus on feasibility ("Please explain how you prepare for a competitive match"). Athletic performance was then recorded after recording interview answers,

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resulting in an interaction between construal level and task outcomes. Table tennis players under low frames performed better than in high construal frames. Vice versa for track and field athletes, task outcomes were improved when in higher construal frames. This research demonstrates that athletic performance can be impacted by shifting the level of construal.

Research involving qualitative interviews with athletes demonstrates more research (Kacperski et al. 2019) on athletic performance and construal level. Athletes of 12 varsity athletes (martial arts, tables tennis, and track & field sports) were examined. The purpose of this study was to examine the role that high and low construal levels relate to sports performance outcomes. The answers of the athletes analyzed each interview. The interviews showed a narrative that abstract thinking became more helpful more frequently than concrete thinking. The interaction was proved to be significant ( $F(1,10) = 18.35, p = .001$  ( $p = .003$ )). The difference between reactive ( $M = 1.13, SD = 1.47$ ) and static ( $M = 4.33, SD = 2.33$ ) environments performance was not significant. Research stated above demonstrates that athletes' performance is affected by construal level.

In addition, research (Kacperski & Hall, 2016) was compromised of a pilot study followed by the main examination. In a pilot study, athletes were given random high or low construal frames that involved imagery recall recorded in the main examination. Athletes were given a Behavior Identification Form (BIF) to assess the construal level of an individual who takes the questionnaire. This form (Vallacher & Wegner, 1989) is a widely used instrument in research related to CLT. After completing the questionnaire, athletes participated in a performance outcomes task. The second examination comprised 32 participants (16 badminton and 16 soccer players). This between-within (high vs low construal conditions) experimental

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design was used to examine if executing extra soccer shots and badminton rallies, with verbal frames that included feasibility/desirability frames.

In their study (Kacperski & Hall, 2016), low construal is related to feasibility, including depictions of plans and tactics and the use of interpreting correct perceptual errors and plans for the competition. High construal is related to desirability as a motivational factor, symbolic representations, affect control, arousal and mastery, and mental representations. These manipulations were used to influence an athlete into certain construal levels comparable to those described in earlier CLT literature (Fujita et al., 2006). Successful outcomes for badminton were coded (as 1) on a successful rally and a loss (as 0) of each rally across all badminton participants. Soccer athletes' results were measured in penalty kicks, coded misses (as 0), and goals (as 1). This task has been performed a total of four times. Track and field athletes participated in either six jumps or throw in total. Fouls and distance were recorded for the data. Results of this investigation showed that soccer players benefited from being in a high-level ( $M = 0.88$ ,  $SD = 0.34$ ) frame than a low-level frame ( $M = 0.72$ ,  $SD = 0.46$ ). On the other hand, badminton players improved performance more in low-level frames ( $M = 0.63$ ,  $SD = 0.49$ ) than the high-level frames ( $M = 0.34$ ,  $SD = 0.48$ ). This research adds to the support that construal level affects athletic performance.

### *Reactive and Static Athletic Environments*

As shown above, construal level can affect athletic performance, but different construal levels are associated with positive outcomes for distinct types of environments. Findings (Kacperski & Hall, 2016) demonstrated that athletes in reactive environments perform better in low-level construals, while athletes in static environments perform better in high-level construals. A reactive environment allows the athlete to respond to changes (open skills),

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including opponents or balls, for example, soccer. On the other hand, a static environment is comparatively stable. The action is often self-paced and involves only one form of skill execution (closed skills), such as golf. Low-level construals may reduce assumptions and increase attention to detail in tasks requiring a more distant event expectation. This is exemplified in reactive environments. Lower levels of construal included depictions of plans and tactics and the use of images to correct perceived errors and planned competition. When competitors were divided by competition category and point in time, they discovered that abstract construals varied by experienced usefulness, implying that whether an athlete interprets being the fastest or reaching the finish line first depends on what time they are thinking about it and what sport they play. They found that athletes performing in reactive environments more often reported low construal levels helpful during the competitive performance.

In contrast, athletes performing in static environments reported high construal being helpful. Previous studies of CLT may provide hints as to how construal level could affect output in terms of the underlying processes responsible for these effects. Lower construal level (which also focuses on execution details) may be more debilitating for athletes in static sports who depend more on automatic activities, like a putt in golf or a discus throw, than higher construal levels (which focuses on target intentions and improves motivation and self-control) (Freitas, Gollwitzer, & Trope, 2004). Lower construal levels can reduce predictive biases and increase attention to detail in tasks that require pre-planned measures, including reactive environments. Our research aims to test against the previous research that reactive environments perform better in high construal frames. We test two reactive sport types (soccer and lacrosse) and anticipate that athletes will perform better in high construal frames.



## Methods

### *Participants*

Four collegiate athletic (Men's and Women's Lacrosse and Soccer) teams at Purchase College were emailed and informed about the opportunity for participating in an athletic performance study. The only inclusion/exclusion criteria specified was that participants could not be younger than 18 years of age and must competes on either the Men's or Women's Soccer or Lacrosse teams. After institutional ethics approval, 27 athletes (15 male and 13 female) consented to participate, composing our sample. All athletes had previously participated in at least some competitions, with 9.44 years of experience on average ( $SD=3.42$ ).

### *Procedure*

The principal researcher met with each Athlete during a time they had scheduled via *Doodle*. First, athletes took the Behavior Identification Form (BIF); a time limit was not enforced for any part of the study. The study took thirty minutes for each participant. After completion of the questionnaire, athletes began the athletic task. The athletic task was similar for soccer and lacrosse athletes- aiming to hit targets in goal, but the equipment used for this task for Soccer and Lacrosse was sport specific. Finally, the participants were debriefed on the research goal and thanked for their participation. Compensation given was in the form of a *Nalgene* 20oz water bottle.

### *Measures*

*Behavior Identification Form (BIF)*. Before the trials, participants completed the BIF, a 25-item questionnaire to identify the construal level of each participant. This form focuses on personal inclinations for how several different behaviors should be described and is commonly used in research related to construal level theory (Vallacher & Wegner, 1989). For each item on

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this task, participants are asked to select between two choices that reflect their conceptualization of different target actions; one of these choices reflects a higher-level construal. The other reflects a lower-level construal. For example, participants are presented with "making a list" and must choose if they think of this behavior more as more abstract, "getting organized" (high construal), or more concrete, "writing things down" (low construal). Participants are awarded 1 point for each high construal response and a 0 for the low-level responses; these scores are then summed to obtain a construal score, with higher scores representing higher-level construals. A median split was used to classify participants high and low in level of construal. Any construal score of 10 or greater was considered a high construal state.

*Athletic Performance Task.* Soccer athletes were given a soccer ball from fifteen yards away. Lacrosse athletes were given the same task on their respected net with a lacrosse ball. The object of this task was to aim for the designated targets located on the corners of the net. The designated targets were flat red circular targets. The size of targets was different between sports. Targets for Lacrosse were 3" wide and for Soccer was 6" wide. Athletes had twenty attempts to hit as many targets as possible. Athletes could go for the same target for all twenty attempts if they choose. We coded each target hit (as 1) and a miss (as 0) for each sport task for all trials. Results were recorded on a cellphone during trials. Scores for each attempt were summed to obtain an Athletic Performance Score.

### *Statistical analysis*

Excel software was used for data calculations, and *JASP* statistical software was used for statistical analysis. Preliminary analyses were run to determine whether any significant group differences needed to be considered in analyses related to our hypothesis.

## **Results**

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### *Preliminary Analyses*

Despite women ( $M=11.5$ ,  $SD = 3.43$ ) attaining higher average athletic performance scores than men ( $M = 9.4$ ,  $SD = 3.33$ ), there was no significant effect for sex,  $t(27) = -0.50$ ,  $p = 0.62$ ; sex was therefore not considered in any further analyses. Average athletic performance however did differ by sport type, (provide t results), with soccer athletes ( $M = 9.14$ ,  $SD = 2.12$ ) performing better than lacrosse athletes ( $M = 6.20$ ,  $SD = 2.51$ ),  $t(27) = -2.77$ ,  $p = 0.12$ . Finally, years of experience playing one's respective sport also significantly predicted athletic performance,  $\beta = 0.42$ ,  $t(26) = 2.30$ ,  $p = 0.18$ , with greater years of experience related to higher athletic performance scores (Figure B). Given these preliminary differences, the main hypothesis that construal level would be related to athletic performance was evaluated using both adjusted regression analyses and adjusted regression analyses, controlling for sport type and years of experience. Consistent with the way construal level has been considered in previous research (Kacperski & Hall, 2016), we also investigated whether athletic performance differed by Construal Level (high vs. low) using t-tests.

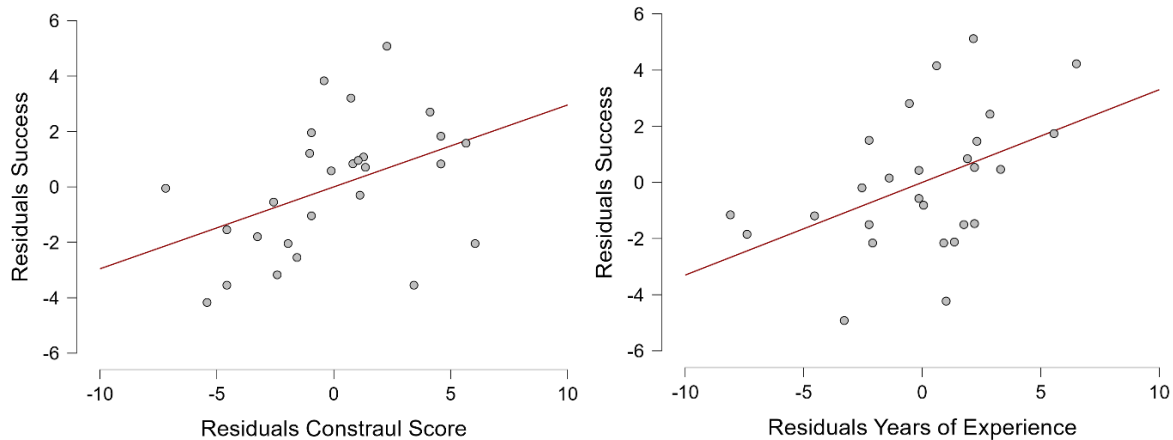
### *Construal Level and Athletic Performance*

A simple linear regression was carried out to investigate the relationship between construal level and athletic performance. Figure A shows construal significantly predicted athletic success,  $\beta = 0.38$ ,  $t(26) = 2.30$ ,  $p = 0.03$ . While Figure B, shows that success was significantly predicted by years of experience.  $\beta = 0.20$ ,  $t(26) = 2.23$ ,  $p = 0.03$ . The proportion of variance was 0.365 (36.5%). There was no significant effect for sex,  $t(27) = -0.50$ ,  $p = 0.62$ , despite women ( $M=11.5$ ,  $SD = 3.43$ ) attaining higher scores than men ( $M = 9.4$ ,  $SD = 3.33$ ). Sport type was significantly different regarding athletic success. Soccer athletes ( $M = 9.14$ ,  $SD = 2.12$ ) performed better than lacrosse athletes ( $M = 6.20$ ,  $SD = 2.51$ ),  $t(27) = -2.77$ ,  $p = 0.12$ ,

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despite having less participants. The variables construal score and athletic success were strongly correlated,  $r(27) = 0.44, p = 0.02$ .

**Figure A.) Success vs. Construal Score**      **Figure B.) Success vs. Years of Experience**



### Discussion

The purpose of this article was to investigate whether higher construal levels are associated with increased athletic performance. Previous research suggests that by thinking more abstractly, one may simultaneously perform better in athletic settings, especially those that are reactive. We predicted that higher construal levels would be related to improved athletic performance. The present study advanced the current state of the research by focusing on one group of construal rather than two. Our hypothesis was supported in that athletic performance increases as construal levels become higher.

Moreover, as reported in previous literature on athletes, our study also indicated high levels of construal could increase athletic performance. Previous research (Kacperski & Hall, 2016) has tested other sport types and had imagery related to their studies. Our study focuses on the immediate cause of high and low levels of construal affecting athletic performance.

When interpreting the contributions of our study to athletic performance concerning construal level, some limitations need to be addressed. First, we focused on only two-sport types,

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soccer and lacrosse. This could be counteracted by additionally testing “static” athletic environments. Literature (Kacperski & Hall, 2016) shows that performance outcomes can vary in different construal’s based on different athletic environments. Second, we had a difference in participants in each sport type. For example, lacrosse athletes outnumbered soccer athletes by 20. This can be resolved in future research by constructing an equal distribution of athletes.

Further implications can also be due to college experience. This could vary if tested within lower or higher levels of competition. These findings can be implemented to advance coaching techniques to further improve athletes’ performance. Creating abstract practice environments and coaching styles can be a resource to enhance a team’s performance. It would be interesting to see group implementations rather than individual thought processes around performance. Additionally, construal might have not actually been the construals used while performing the athletic task. studies could investigate this further by manipulating or measuring task-related construal. In conclusion, it was found that high levels of construal improve athletic performance.

**References**

- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of experimental social psychology, 40*(6), 739-752.
- Fujita, K., & Carnevale, J. J. (2012). Transcending temptation through abstraction: The role of construal level in self-control. *Current Directions in Psychological Science, 21*(4), 248-252.
- Fujita, K., Scholer, A. A., Miele, D. B., & Nguyen, T. (2019). On metamotivation: Consumers' knowledge about the role of construal level in enhancing task performance. *Journal of the Association for Consumer Research, 4*(1), 57-64.
- Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of personality and social psychology, 90*(3), 351.
- Kacperski, C. S. (2016). *Construal Levels in the Context of Sport Imagery and Performance* (Doctoral dissertation, The University of Western Ontario).
- Kacperski, C., & Hall, C. R. (2014). Framing high or low mental construal level improves performance in various sport tasks. *Journal of Exercise, Movement, and Sport (SCAPPS refereed abstracts repository), 46*(1), 163-163.
- Kacperski, C., Ulloa, R., & Hall, C. (2019). Do athletes imagine being the best, or crossing the finish line first? A mixed methods analysis of construal levels in elite athletes' spontaneous imagery. *Journal of Mixed Methods Research, 13*(2), 216-241.
- Liberman, N., & Förster, J. (2009). Distancing from experienced self: how global-versus-local perception affects estimation of psychological distance. *Journal of personality and social psychology, 97*(2), 203.

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- Liberman, N., & Förster, J. (2009). The effect of psychological distance on perceptual level of construal. *Cognitive science*, 33(7), 1330-1341.
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75(1), 5-18.
- Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. *Social psychology: Handbook of basic principles*, 2, 353-383.
- MacGregor, K. E., Carnevale, J. J., Dusthimer, N. E., & Fujita, K. (2017). Knowledge of the self-control benefits of high-level versus low-level construal. *Journal of personality and social psychology*, 112(4), 607.
- Morse, P., Sweeny, K., & Legg, A. M. (2015). A situational construal approach to healthcare experiences. *Social Science & Medicine*, 138, 170-178.
- Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of experimental psychology: General*, 104(3), 192.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, 117(2), 440-463.
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social psychology*, 57(4), 660.