

COACHING EFFICACY BELIEFS AND TRANSFORMATIONAL LEADERSHIP
BEHAVIORS: THEIR ABILITY TO PREDICT MOTIVATIONAL CLIMATE

Michael Runge, B.A.

Thesis Prepared for the Degree of
MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

August 2016

APPROVED:

Whitney Moore, Major Professor
Scott Martin, Committee Member
Jakob Vingren, Committee Member
Allen Jackson, Chair of the Department
of Kinesiology, Health Promotion,
and Recreation
Bertina Hildreth Combes, Interim Dean
of the College of Education
Victor Prybutok, Vice Provost of the
Toulouse Graduate School

Runge, Michael. *Coaching Efficacy Beliefs and Transformational Leadership Behaviors: Their Ability to Predict Motivational Climate*. Master of Science (Kinesiology), August 2016, 51 pp., 1 table, references, 44 titles.

This study investigated the relationships between belief in coaching abilities (coaching efficacy beliefs, CEB), transformational leadership behaviors (TLB), and motivational climate development of current strength and conditioning coaches working with high school level athletes. The measures used were the coaching efficacy scale for high school teams (CES II-HST, Myers et al., 2008), the differentiated transformational leadership inventory (DTLI, Callow et al., 2009), and the patterns for adapted learning scales (PALS, Midgley et al., 2000). It was hypothesized that CEB and TLB would influence motivational climate development, while coaches' background characteristics would correlate with CEB, TLB, and motivational climate development. The 60 coaches who participated reported an average of thirteen ($SD = 8$) years of experience and 51 were Certified Strength and Conditioning Specialists. Coaches reported high efficacy, frequent use of TLB, and development of a moderately high task- and somewhat ego-involving climate. Correlations between demographic variables and CEB, TLB, and motivational climate development revealed three significant relationships: years of coaching experience with CEB, and professional development activities and athlete to coach ratio with ego-involving climate development. CEB and TLB had a strong, positive correlation. Two regression analyses were conducted to determine if the outcomes of the CEB and TLB measures predicted motivational climate development. The only significant predictor was TLB positively predicting development of a task-involving motivational climate. Strength coaches can utilize the findings of this study to

help shape their leadership behaviors and develop a task-involving motivational climate that emphasizes effort, improvement, and cooperative learning and is optimal for athlete development and performance.

Copyright 2016

by

Michael Runge

ACKNOWLEDGMENTS

I would like to thank all the people who helped making this thesis project successful. First, I would like to thank Dr. Whitney Moore who no matter what I had going on, be it internships, jobs, or school work, kept me focused and moving forward toward completion of this study. Second, I would like to thank my committee members, Drs. Scott Martin and Jakob Vingren who were always available to help when I needed it. To my parents, Juergen and Christine Runge, I wouldn't be the person I am today without your unwavering guidance and support. Finally, thank you to my girlfriend Rachel and to all my friends who put up with me during this long but fulfilling process.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	iii
LIST OF TABLES	v
COACHING EFFICACY BELIEFS AND TRANSFORMATIONAL LEADERSHIP BEHAVIORS: THEIR ABILITY TO PREDICT MOTIVATIONAL CLIMATE.....	
Introduction	1
Methods.....	6
Experimental Approach to the Problem.....	6
Participants.....	6
Measures.....	7
Demographics.....	7
Coaching Efficacy Beliefs (CEB).....	7
Transformational Leadership Behaviors (TLB).....	8
Motivational Climate Development.....	9
Statistical Analysis.....	9
Results.....	11
Discussion.....	13
Limitations and Future Research.....	17
Practical Applications.....	18
References.....	21
Appendices	
A. REVIEW OF LITERATURE.....	25
B. INFORMED CONSENT.....	36
C. DEMOGRAPHIC QUESTIONNAIRE.....	39
D. PSYCHOLOGICAL MEASURES.....	42
COMPREHENSIVE REFERENCE LIST.....	48

LIST OF TABLES

	Page
1. Means, Standard Deviations, Correlations, and Reliabilities	24

COACHING EFFICACY BELIEFS AND TRANSFORMATIONAL LEADERSHIP BEHAVIORS: THEIR ABILITY TO PREDICT MOTIVATIONAL CLIMATE

Introduction

Coaches educate and train athletes to improve their athletic capabilities (Gilbert & Baldis, 2014). Effective coaches are able to establish connections with their athletes by positively developing athletes' competencies, confidence, and character (Côté & Gilbert, 2009). The characteristics and behaviors that make coaches effective have been an interest of researchers and practitioners for decades (Côté & Gilbert, 2009; Tharp & Gallimore, 1976). Coaches' experiences, including education and previous successes (e.g., win-loss records), are related to their coaching efficacy, personal beliefs in their capabilities to effectively lead others to complete tasks and reach goals (Kavussanu, Boardley, Jutkiewicz, Vincent, & Ring, 2008; Sullivan & Kent 2003). High levels of coaching efficacy are related to increased athlete satisfaction, as well as to higher winning percentages (Feltz, Chase, Moritz, & Sullivan, 1999). Coaches' behaviors, including showing genuine care, expecting high performance from their athletes, and fostering group goals (i.e., utilization of transformational leadership behaviors) have been predictive of athletes' reported intrinsic motivation (Charbonneau, Barling, & Kelloway, 2001). Based on coaches' ratings, these behaviors have also resulted in increased performance in practice and competition (Chelladurai & Saleh, 1980; Charbonneau et al., 2001). Coaching behaviors associated with a task-involving motivational climate are positively associated with athletes' objective performance (e.g., fitness, skill-level, and win-loss record; see Harwood, Keegan, Smith, & Raine, 2015; Newton & Duda, 1999; Newton, Duda, & Yin, 2000).

Horn's (2002) model of coaching effectiveness provides a framework for understanding how coaching efficacy, leadership behaviors, and motivational climate relate to one another and how they are associated with athlete behaviors and performance. These factors have been commonly studied to understand how coaches influence athletes' cognitive and physical development, as well as performance (Chelladurai & Saleh, 1980; Feltz et al., 1999; Myers, Feltz, Chase, Reckase & Hancock, 2008; Smith, Fry, Ethington & Li, 2005; Van-Yperen & Duda, 1999). However, there is limited research on how these factors relate to one another (Newland, 2015b, Newton, Podlog, Legg, Tanner, 2015). Therefore, research is needed to examine the relationships between these three factors of coaching effectiveness to understand how they relate to each other. The purpose of this study is to assess the relationships between coaches' background characteristics, coaching efficacy beliefs, transformational leadership behaviors, and motivational climate development.

Research supports Horn's (2002) model that background characteristics (e.g., age, years of coaching experience, higher education experience, and prior success) relate to the development of coaching efficacy beliefs (CEB; Feltz et al., 1999; Kavussanu et al., 2008). CEB are the extent to which coaches believe in their ability to influence the learning and performance of their athletes (Feltz et al., 1999). CEB have been theorized to affect coaches' leadership behaviors and motivational climate development, which in turn, influence athlete behavior and performance. Athlete-reported positive outcomes related to the perception of their coaches having higher levels of CEB, included increased levels of player and team satisfaction, self-efficacy, motivation, and higher winning percentage (Feltz et al., 1999; Horn, 2002; Sullivan &

Kent, 2003). Coaches with higher levels of CEB were observed providing more praise and encouragement to their athletes than coaches with lower levels of CEB (Feltz et al., 1999). Although CEB have been connected to many positive athlete outcomes, its relationship with leadership behaviors, specifically transformational leadership behaviors (TLB), has yet to be examined in strength and conditioning environments.

Transformational leadership is one coaching approach examined in the sport psychology literature to understand its relationship with athletic performance and development (Callow, Smith, Hardy, Arthur & Hardy, 2009; Charbonneau et al., 2001; Newland, 2015a; Vella, Oades & Crowe, 2012). Specifically, the more coaches' utilize TLB, the greater their athletes reported intrinsic motivation, effort in training, social and task cohesion and performance improvement (Charbonneau et al., 2001; Rowold, 2006; Vella et al., 2012). A transformational leader is a role model, who fosters inspirational motivation, intellectual stimulation, acceptance of group goals and teamwork, and high expectations for performance, while providing individual consideration and contingent rewards (Callow et al., 2009; Charbonneau et al., 2001). These characteristics of TLB have particular value in the youth sport setting and have been associated with many aspects of development, including identity development, as well as improved cognitive, physical, and social skills (Hansen, Larson, & Dworkin, 2003; Peterson, 2004). Recently, Newland (2015a) showed that the more adolescent basketball players perceive their coaches as utilizing TLB, the greater their cognitive and social skill development on and off the court. Horn's (2002) model suggests that athletes' cognitive and social skill development is influenced not only by their coaches' efficacy and leadership behaviors, but also through the motivational climate created by the coaches.

There are two motivational climates according to Achievement Goal Perspective Theory—task-involving climate and ego-involving climate (Nicholls, 1984). Coaches foster a task-involving motivational climate by providing positive reinforcement when athletes improve or display high effort in practice and competition, along with fostering the belief that all players have an important role in the team’s success (Newton & Duda, 1999). Athletes who experience task-involving motivational climates report positive outcomes, such as higher levels of team satisfaction and intrinsic motivation (Seifriz, Duda & Chi, 1992; Smith et al., 2005). A task-involving climate has also been related to better win-loss percentages and increased physical performance (e.g., cardiovascular fitness, one-mile run times) (Harwood et al., 2015). On the other hand, coaches foster an ego-involving motivational climate by recognizing only the high-ability athletes, punishing poor performance and mistakes, and unequal use of positive reinforcement (Newton & Duda, 1999; Smith et al., 2005). When athletes perceive an ego-involving motivational climate, they also report less enjoyment, more anxiety, and no positive effects on performance (Harwood et al., 2015; Seifriz et al., 1992). Previous research has outlined advantages of a task-involving motivational climate with its ability to increase performance, as well as the concerning, negative effects of an ego-involving motivational climate (Harwood et al., 2015; Smith et al., 2005).

Horn’s model of coaching effectiveness, provides a guide for understanding how CEB, TLB, and motivational climate relate to one another, along with affecting athletes’ behavior and performance. Coaches who have high levels of CEB utilize coaching behaviors that are congruent with those related to TLB. TLB include positive reinforcement, praise and recognition for improvement, and promotion of teamwork,

which align with fostering a task-involving motivational climate. The purpose of this study is extend the research on CEB, TLB, and motivational climate development into the realm of strength and conditioning. Thus, it was hypothesized that a task-involving climate would be positively predicted by coaches' self-reported CEB and TLB. It was also hypothesized that an ego-involving climate would be negatively predicted by coaches' self-reported CEB and TLB. In addition, it was hypothesized that there would be significant relationships between the background characteristics (i.e., education, years of coaching, professional development participation) of the coaches and their motivational climate development. Years of coaching experience, education, certification, and participation in professional development activities are all expected to positively correlate with coaches' report of developing a task-involving climate and coaching efficacy, while being negatively correlated with their report of developing an ego-involving climate. Finally the athlete to coach ratio was hypothesized to correlate with TLB such that the more athletes per coach in a training session, the lower the expected coaches' self-reported use of TLB.

Methods

Experimental approach to the problem

To examine the relationships between CEB, TLB, and motivational climate development, we utilized a cross-sectional research design. Specifically, strength and conditioning coaches of high school athletes were recruited to participate in this study during two National Strength and Conditioning Association (NSCA) conferences and via online posting on websites for strength and conditioning coaches (e.g., NSCA Youth Special Interest Group Facebook page, NSCA High School Coaches Special Interest Group Facebook page). As an incentive for completing the survey, coaches were offered the opportunity to be included in a drawing for a one year paid membership to the NSCA taking place once the data collection concluded. The survey contained measures of their CEB, TLB, and motivational climate development from their perspective, along with demographic information.

Participants

The sample for this study consisted of sixty current strength and conditioning coaches of high school athletes from across the United States. Of the sixty coaches, five were female. Fifty participants reported being Caucasian, five African American, four Hispanic, and one American Indian/Alaskan. Forty-seven reported being employed directly by the high school at which they coached, and the remaining thirteen reported working for themselves or with other coaches in a private business. This study received university institutional review board for human subject research approval.

Measures

Demographics

Coaches were asked to report their gender, age, and race as well as if they held a specific title (e.g., head strength coach, assistant strength coach). Highest degree held, years of experience, and years with high school level athletes were also measured. Coaches reported their current certifications (e.g., NSCA CSCS, NSCA CSCS*D, USA Weightlifting Sports Performance Coach, SCCC). Other background characteristics measured, included the average athlete to coach ratio and their typically yearly professional development activities. The professional development activity categories were attending and/or presenting at different professional development events (e.g., local or national workshops, clinics, and conferences), as well as if they read field related research journals, applied-practitioner journals, and/or watched webinars by professional organizations. The number of professional development activity categories individuals participated in were summed and had a possible range of 0 to 12.

Coaching Efficacy Beliefs (CEB)

CEB were measured using the Coaching Efficacy Scale II for high school teams (CES II-HST; Myers et al., 2008). The 18-item CES II-HST measures CEB according to five subscales: motivation efficacy (ME), game strategy efficacy (GSE), technique efficacy (TE), character building efficacy (CBE), and physical conditioning efficacy (PCE). The CES II-HST items begin with the stem, “In relation to the athletes you are currently coaching, how confident are you in your ability to....” Being that our population of interest are strength and conditioning coaches, the four GSE items were replaced

with six items that measured coaches' programming strategy efficacy (PSE). For example, an original GSE item was "make effective personnel substitutions during competition," and the new item is "make effective exercise substitutions during training for injured athletes." Sample items for the remaining four subscales include: "motivate your athletes" (ME), "teach athletes appropriate basic technique during practices" (TE), "positively influence the character development of your athletes" (CBE), and "accurately assess your athletes' physical conditioning" (PCE). Coaches responded using a four point rating scale of their confidence: 1 = low, 2 = moderate, 3 = high, and 4 = complete. Myers, Feltz, Chase, Reckase, and Hancock (2008) found the original CES II-HST to have good internal reliability for each subscale ($\alpha = .73$ to $.83$) with a sample of high school coaches.

Transformational Leadership Behaviors (TLB)

The Differentiated Transformational Leadership Inventory (DTLI, Callow et al., 2009) measures coaches' transformational leadership behaviors from the perspective of the athlete. For this study the original stem was adjusted from "My coach...", to "I...", because we are measuring from the coaches' perspective. Coaches rated their levels of agreement with 25 statements about their behaviors with their athletes according to a 5-point Likert-type scale from 1 (not at all) to 5 (all of the time). The DTLI contains seven subscales: individual consideration (IC), inspirational motivation (IM), intellectual stimulation (IS), fostering acceptance of group goals and teamwork (AGG), appropriate role model (ARM), high performance expectations (HPE), and contingent reward (CR). Sample items from the DTLI include: "I help team members to develop their strengths" (IC), "I talk enthusiastically about what needs to be accomplished" (IM), and "I praise

athletes when they show improvement” (CR). When similarly adapted for use with high school sport coaches, the DTLI showed acceptable model fit (CFI = .91, RMSEA= .07; Newland, 2015a).

Motivational Climate Development

Motivational climate was measured utilizing the Approaches to Instruction measure from the Patterns of Adaptive Learning Scales (PALS, Midgley et al., 2000). The Approaches to Instruction was designed to assess teachers’ reported classroom goal structure. Measures for perceived goal structure within the PALS are congruent with the motivational climates, task- and ego-involving. The stem and some items’ wording was adjusted to be appropriate for the coach/weight room setting. For example, a sample item from the task-involving subscale “In my classroom, I give a wide range of assignments, matched to students’ needs and skill level” was adapted to read “In my strength and conditioning sessions, I give a wide range of exercises/drills, matched to athletes’ needs and skill level;” and from the ego-involving subscale: “In my classroom, I display the work of the highest achieving students as an example” was adapted to read “In my strength and conditioning sessions, I display the work of the highest achieving athletes as an example (e.g., performance boards).” Utilizing a five point Likert-type scale, the eight (8) items are anchored at 1 = “Strongly Agree,” 3 = “Somewhat Agree,” and 5 = “Strongly Agree.” Urdan, Midgley, and Anderman (1998) established internal consistency for task-involving ($\alpha = .77$) and ego-involving ($\alpha = .80$) scales.

Statistical Analysis

Before conducting hypothesis testing, the variables’ normality and descriptive statistics for each variable were calculated. These descriptive statistics included the

variables' means, standard deviations, and correlations. In addition, each scale's measurement reliability will be assessed by calculating Cronbach's alpha, with .70 being the criterion for meeting acceptable reliability (Christensen, Johnson & Turner, 2011). Two separate regression analyses were conducted to determine the ability for scores on TLB and CEB to predict each of the motivational climates, task-involving and ego-involving. The correlation relationships for the number of professional development activities, athlete to coach ratio, and years of coaching with the motivational climate development, CEB, and TLB were also examined. For the regressions and correlations, the alpha level was set to .05.

Results

Coaches ranged in age from twenty-five to sixty-two ($M = 40$, $SD = 10$) and had from one to thirty-eight ($M = 13$, $SD = 8$) years of coaching experience. Regarding the education level of this sample, fifty-nine had completed at least a bachelor's degree and thirty-six had also completed graduate degrees. The majority ($n = 51$) of the 60 coaches were Certified Strength and Conditioning Specialists (CSCS) by the National Strength and Conditioning Association (NSCA), including nine of them being a Certified Strength and Conditioning Specialist with Distinction (CSCS*D). In addition, twenty-seven had at least one of the United States of America Weightlifting (USAW) certifications. Their reported typical athlete to coach ratio ranged from 3 to 60 athletes per coach ($M = 28$, $SD = 13$), with 30 being the most often reported number of athletes per coach in a training session. The coaches typically participated in a moderate variety of professional development activities ($M = 6.0$, $SD = 2.0$).

The normalcy of the variables was assessed and found to be met based upon their skew (-1.1 to -.47) and kurtosis (-.61 to 1.1) values. Then, the scale reliability of the variables was assessed with Cronbach's alpha coefficient. All the variables were measured with acceptable reliability, except the ego-involving climate subscale ($\alpha = .56$). Given this reliability value, the ego-involving relationships should be interpreted with caution, and a measure more specific for strength and conditioning coaches seems warranted. The means, standard deviations, correlations, and reliabilities for the DTLI, CES-II HST, and PALS are all presented in Table 1.

When the background characteristics (e.g., coaching experience, professional development activities, and athlete to coach ratio in training sessions) were correlated

with the coaches' reported CEB, TLB, and task- and ego-involving climate development, three correlations were significant. Years of coaching experience was the only characteristic found to be significantly correlated with CEB ($r = .27, p = .04$). TLB and task-involving climate development had no significant relationship with the three background characteristics. The ego-involving motivational climate had two significant, weak correlations: professional development activities ($r = .26, p = .05$) and athlete to coach ratio ($r = .29, p = .03$). The former relationship was not as hypothesized, whereas the latter, though not originally hypothesized to be significant, is not surprising in its direction.

Coaches reported developing a “somewhat” ego-involving ($M = 3.4, SD = .79$), and moderately high task-involving motivational climate ($M = 4.3, SD = .75$). In addition, coaches reported utilizing transformational leadership behaviors with a high frequency ($M = 4.5, SD = .39$) and having high levels of coaching efficacy ($M = 3.5, SD = .39$). Two correlations between these four variables were significant. Transformational leadership was positively and strongly correlated with CEB ($r = .73, p = .01$), and moderately correlated with developing a task-involving climate ($r = .46, p = .01$).

Two regressions were performed utilizing CEB and TLB as predictors for the development of task-involving and ego-involving motivational climates, respectively. The model with CEB and TLB predicting development of the task-involving climate was found to be significant ($p < .001$), accounting for 24% of the variance of the task-involving climate. TLB was the only significant predictor ($\beta = .64, p < .001$) of developing a task-involving climate. The model with TLB and CEB predicting the development of the ego-involving climate was found to be nonsignificant ($p = .27$).

Discussion

Previous research supports CEB, TLB, and motivational climate development influencing athletes' behavior and performance in sport (Feltz et al., 1999; Harwood et al., 2015; Horn, 2002; Mageau & Vellarand, 2003). The purpose of this study was to examine the relationships between current strength and conditioning coaches' background characteristics, self-reported CEB, TLB, and motivational climate development. The hypothesis that the task-involving motivational climate would be positively predicted by the coaches' self-reported CEB and TLB was only partially supported. The hypothesis that the ego-involving motivational climate would be negatively predicted by the coaches' self-reported TLB and CEB was not supported, which should be interpreted with caution due to the low reliability of the ego-involving climate measure. The low reliability of the ego-involving measure indicates that it needs further development for its future application with this population. Years of experience, athlete to coach ratio, and professional development activities were the only three background characteristics significantly related to coaches reported CEB and motivational climate.

Based upon the coaches' education, experience, and certification levels, the subjects of our sample were all highly qualified coaches. The certification held by the majority of our sample, the NSCA-CSCS, is one of the few accredited certifications accepted by the National Collegiate Athletic Association for Division 1 athletics (Jost, 2014). The qualifications of the current sample were similar to a previous sample of high school strength coaches (Duehring & Ebben, 2010). Although, being only slightly more educated (60% with a graduate degree vs 51%) than a previous sample, the current

sample was clearly more certified by the NSCA (85% with a CSCS vs 69%), which is not surprising given our data was primarily collected during NSCA conferences (Duehring & Ebben, 2010). The homogeneity of the coaches' background characteristics meant differences in CEB, TLB, or motivational climate development due to education or certification could not be examined. This highly educated and certified sample of coaches did report high CEB, TLB use, and moderately high task-involving climate development.

The significant, positive correlation found between years of coaching experience and CEB supports Horn's (2002) model of coaching effectiveness. Sullivan and Kent (2003) determined previous experiences (e.g. years in coaching, perceived team ability) and successes, such as win-loss records, related to coaches efficacy beliefs. The current results support the previous research with years of experience relating to CEB (Feltz et al, 1999). The results of the current study provide evidence that the positive relationship between coaching experience and efficacy is true for strength and conditioning coaches, in addition to sport coaches.

The strong, significant association between CEB and TLB among this sample of strength and conditioning coaches supports Horn's coaching effectiveness model. Newland (2015b) previously tested the relationship between CEB and TLB among youth basketball coaches, and determined that CEB contributed to the adoption of TLB. Combining the current and Newland's (2015b) study provide evidence that the more efficacious the coach, the more likely the coach is to use TLB. Further research is needed to test the complex relationships of Horn's model more explicitly (i.e., CEB predicts TLB, which predicts motivational climate). Thus, longitudinal data collection is

necessary to appropriately test TLB's hypothesized mediating role between CEB and motivational climate development.

TLB were found to be the only significant predictor of a task-involving motivational climate. This extends previous research examining the coaching behaviors associated with athletes reporting a task-involving climate. Athletes perceived coaches who provided more training instruction and positive feedback as creating a task-involving motivational climate (Gardner, 1998). In addition, the strongest predictors of high school athletes' perceiving a task-involving climate was their coaches' use of positive reinforcement, giving instructional feedback in response to mistakes, and not ignoring mistakes (Smith et al., 2005). These studies suggest that coaching behaviors, especially those related to TLB, contribute significantly to athletes' perceptions of the motivational climate (Smith et al., 2005). The current study examined this question from the coaches' perspective, and found that coaches' perceptions of their TLB positively predicted their promotion of a task-involving climate. CEB were not a significant predictor of coaches' reported task-involving motivational climate. This may have been due to this sample of coaches consistently reporting high levels of CEB, which was strongly associated with their reported use of TLB. While additional research is needed to compare the consistency between coaches' and athletes' perceptions of the motivational climate and TLB, the current results showed that coaches can increase the likelihood of developing a task-involving motivational climate by utilizing TLB.

Coaches' self-reported TLB and CEB did not significantly predict their ego-involving motivational climate development. The only variables the ego-involving climate was significantly related to were coaches' professional development activities and the

athlete to coach ratio. The small, positive association between the athlete to coach ratio and ego-involving climate development is worth noting. First, it gives some insight on how the athlete to coach ratio may affect motivational climate development from the coaches' perspective. As the number of athletes per coach increases, the more likely coaches selection a few athletes as examples for the other athletes, and/or to compare athletes to one another. Second, if this association is at least as strong from the athletes' perspective, then even coaches who do not report developing an ego-involving climate may be perceived as creating a more ego-involving climate as the number of athletes they train per session increases. Although, coaches may not be able to change the athlete to coach ratio, they can be more intentional about and aware of the motivational climate they are promoting with their larger groups of athletes.

It is also important to consider the need to improve the measurement quality of the ego-involving climate based upon the results with this sample. It should be noted that when leadership behaviors associated with an ego-involving climate was measured among collegiate and professional strength coaches, it also did not meet the .70 criterion for reliability with Cronbach's alpha (Magnusen, 2010). Examination of the current study's data provides some insight into how to improve measurement of the ego-involving climate from the coaches' perspective. One, the majority of coaches reported displaying the work of their highest achievers (e.g., posting performance) and encouraging athlete competition, yet most disagreed or only somewhat agreed with providing special privileges to the athletes who do the best work. This at least partially explains the weak reliability of the ego-involving measure. Two, the measure was adapted from one originally developed for teachers. Although, all the coaches trained

high school athletes, they did not all do so in a high school setting (22% did not coach in high schools). Therefore despite adapting the items to the strength and conditioning context, items may not have fit the variety of contexts in which these coaches trained high school athletes. Additionally, prior research reported that in many cases, strength and conditioning coaches were often placed in the role of disciplinarian for the teams they coach (Massey, Vincent, and Maneval, 2004). This suggests including items measuring coaches' punishment of mistakes or poor performance to capture the complexity of the motivational climate development that exists outside of the classroom setting for strength and conditioning coaches. It is recommended that further measurement development be done to improve the ego-involving subscale for use with this population in the future. Then, the effects of strength and conditioning coaches promoting a strong ego-involving climate when working with high school athletes can be interpreted with greater confidence.

Limitations and Future Research

Limitations to this study originate with the size and homogeneity of the sample. To examine how different demographic factors relate to CEB, TLB, and motivational climate development, a sample of coaches with more varied education and certification backgrounds is needed. While we found it positive that our sample all reported high levels of CEB and TLB, we were unable to test for differences in CEB and TLB due to coaches' education and certification(s). Ego-involving climate measurement reliability also played a factor in the ability to fully understand the motivational climate development of this sample. Although the PALS was found reliable in the education

setting (Midgley et al., 2000), its utilization in the strength and conditioning setting would benefit from further adaptation.

How coaches actually define success (e.g., high effort and improvement, vs comparative performance) was not measured. Future research could investigate the relationship between coaches' definitions of success and their motivational climate development. Future research would also benefit from examining how strength coaches view their role with respect to their leadership behaviors and motivational climate development. Do strength coaches view themselves as performance enhancers, athlete developers, or team disciplinarians? This study focused on high school level strength and conditioning coaches, future research might benefit from examining these relationships with strength coaches from other levels, such as collegiate and professional, for similarities and differences (Magnusen, 2010; Martinez, 2004). Continued research should also investigate CEB, TLB, and motivational climate from the athletes' perspective. Knowing how well athletes' and coaches' perceptions of these variables align, and which are the strongest predictors of athlete development both psychologically and physiologically can inform future professional development for strength and conditioning coaches in general, and individual coaches' ability to self-monitor and consistently strive to become an expert coach.

Practical Applications

Coaches should focus on utilizing behaviors such as positive reinforcement, giving informationally based feedback, along with not ignoring mistakes to help create a task-involving motivational climate (Newton & Duda, 1999; Smith et al., 2005). Providing athletes with the reasoning behind the importance of safety, lifting technique,

programming, and assessment are all ways current strength coaches can initiate the development of a task-involving climate. Strength coaches can utilize athletes' mistakes to create learning opportunities. Strength coaches can promote individual training goals, as well as team goals, in an effort to increase cohesion among teammates. Holding high expectations for athletes inside and outside the weight room while putting effort in developing an athlete's character have all been related to coach effectiveness (Côté & Gilbert, 2009; Gilbert & Baldis, 2014). Strength coaches can also utilize all the educational tools provided by associations like the Association for Applied Sport Psychology (AASP) or the Positive Coaching Alliance (PCA) when looking to develop the leadership style and motivational climate most effective for increasing athlete performance.

While this sample of strength coaches reported frequently participating in professional development activities, an examination of the activities available for coaches to take part in revealed some interesting findings. Of more 400 options for continuing education credit, a requirement for the maintenance of the NSCA CSCS certification, there were no courses which focused on the developing of coach's leadership behaviors or motivational climate (CEU Courses and Activities, 2016). When examining opportunities for education at the NSCA 2016 National Conference including clinics, lectures, and research presentations, there were less than 10 offerings with topics relating to leadership style or importance of motivational climate ("National Conference", 2016). The lack of possibilities for coaches to gain knowledge on leadership behaviors and motivational climate development creates a great opportunity for organizations, such as the NSCA, to take progressive steps toward incorporating

these aspects into professional development outlets (e.g., conference lectures, online webinars, and journal articles). These are professional development venues that already exist and coaches utilize, so the inclusion of these topics could be seamless. To be adept in skills and knowledge related to athlete motivation and development requires constant study and opportunities for strength and conditioning coaches to continue their education (Kraemer, 1990a, 1990b).

References

- 2016 National Conference. (2016). Retrieved April 12, 2016, from <https://www.nasca.com/events/conferences/2016-national-conference/>
- Callow, N., Smith, M. J., Hardy, L., Arthur, C. A., & Hardy, J. (2009). Measurement of transformational leadership and its relationship with team cohesion and performance level. *Journal of Applied Sport Psychology, 21*, 395-412. doi: 10.1080/10413200903204754
- CEU Courses and Activities. (2016). Retrieved April 12, 2016, from <https://www.nasca.com/Certification/Continuing-Education/CEU-Courses-and-Activities/CEU-Courses-and-Activities/>
- Charbonneau, D., Barling, J., & Kelloway, E. K. (2001). Transformational leadership and sports performance: The mediating role of intrinsic motivation. *Journal of Applied Social Psychology, 31*, 1521-1534. doi: 10.1111/j.1559-1816.2001.tb02686.x
- Chelladurai, P., & Saleh, S. D. (1980). Dimensions of leader behavior in sports: Development of a leadership scale. *Journal of Sport Psychology, 2*, 34-45.
- Christensen, L. B., Johnson, B., & Turner, L. A. (2011). Measuring variables and sampling. *Research Methods, Design, and Analysis* (pp. 139-166). Boston, MA: Pearson.
- Côté, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching, 4*, 307-323. doi:10.1260/174795409789623892
- Feltz, D. L., Chase, M. A., Moritz, S. E., & Sullivan, P. J. (1999). A conceptual model of coaching efficacy: Preliminary investigation and instrument development. *Journal of Educational Psychology, 91*, 765-776. doi: 10.1037/0022-0663.91.4.765
- Gardner, D. E. (1998). *The relationship between perceived coaching behaviors, team cohesion, and team motivational climates among Division I athletes*. Unpublished doctoral dissertation, Boston University, Boston, MA.
- Gilbert, W. D., & Baldis, M. W. (2014). Becoming an effective strength and conditioning coach. *Strength & Conditioning Journal, 36*(1), 28-34. doi:10.1519/ssc.0000000000000026
- Hansen, D. M., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence, 13*, 25-55. doi:10.1111/1532-7795.1301006
- Hardy, L., Arthur, C. A., Jones, G., Shariff, A., Munnoch, K., Isaacs, I., & Allsopp, A. J. (2010). A correlational and an experimental study examining the sub-components of transformational leadership. *Leadership Quarterly, 21*, 20-32.
- Harwood, C. G., Keegan, R. J., Smith, J. M., & Raine, A. S. (2015). A systematic review of the intrapersonal correlates of motivational climate perceptions in sport and physical activity. *Psychology of Sport and Exercise, 18*, 9-25.

- Horn, T. S. (2002). Coaching effectiveness in the sport domain. In T. S. Horn (Ed.), *Advances in Sport Psychology* (pp. 239-268). Champaign, IL: Human Kinetics.
- Jost, J. (2014). *NCAA Acknowledges NSCA's Effort for Raised Certification Standards*. Retrieved April 12, 2016, from <https://www.nasca.com/Education/Articles/NCAA-Raises-Certification-Standards/>
- Kavussanu, M., Boardley, I. D., Jutkiewicz, N., Vincent, S., & Ring, C. (2008). Coaching efficacy and coaching effectiveness: Examining their predictors and comparing coaches' and athletes' reports. *The Sport Psychologist, 22*, 383-404.
- Kraemer, W.J. (1990a) Education and learning. *National Strength and Conditioning Association Journal, 12*(2), 72–73.
- Kraemer, W.J. (1990b) A fundamental skill of the profession. *National Strength and Conditioning Association Journal, 12*(6), 72–73.
- Massey, C. D., Vincent, J., & Maneval, M. (2004). Job analysis of college Division IA football strength and conditioning coaches. *The Journal of Strength & Conditioning Research, 18*(1), 19-25. doi:10.1519/00124278-200402000-00002
- Mageau, G. A. & Vallerand, R. J. (2003). The coach-athlete relationship: A motivational model. *Journal of Sports Sciences, 21*, 883-904. doi: 10.1080/0264041031000140374
- Magnusen, MJ. (2010). Differences in strength and conditioning coach self-perception of leadership style behaviors at the National Basketball Association, division I-A, and division II levels. *Journal of Strength and Conditioning Research 24*, 1440–1450.
- Martinez, D. M. (2004). Study of the key determining factors for the NCAA Division I head strength and conditioning coach. *Journal of Strength Conditioning Research. 18*, 5–18. doi:10.1519/00124278-200402000-00001
- Midgley, C. (2002). *Goals, goal structures, and patterns of adaptive learning*. Hillsdale, NJ: Erlbaum.
- Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Freeman, K. E., Gheen, M., Kaplan, A., Kumar, R., Middleton, M. J., Nelson, J., Roeser, R., & Urdan, T. (2000). *Manual for the Patterns of Adaptive Learning Scales (PALS)*, Ann Arbor, MI: University of Michigan.
- Myers, N. D., Feltz, D. L., Chase, M. A., Reckase, M. D., & Hancock, G. R. (2008). The coaching efficacy scale II – high school teams. *Educational and Psychological Measurement, 68*, 1059-1076. doi: 10.1177/0013164408318773
- Newland, A. (2015a) Motivational Goal Orientations and Coaching Efficacy as Predictors of Transformational Leadership Behaviors. In A. Newland, *Transformational Leadership in Sports: Behaviors, Outcomes, and Predictors* (Doctoral Dissertation, The University of Utah, Utah).
- Newland, A. (2015b) Motivational Goal Orientations and Coaching Efficacy as Predictors of Transformational Leadership Behaviors. In A. Newland,

Transformational Leadership in Sports: Behaviors, Outcomes, and Predictors
(Doctoral Dissertation, The University of Utah, Utah).

- Newland, A., Newton, M., Podlog, L., Legg, W. E., Tanner, P. (2015). Exploring the nature of transformational leadership in sports: A phenomenological examination with female athletes. *Qualitative Research in Sport, Exercise, and Health, 7*, 663-687. doi: 10.1080/2159676X.2015.1007889
- Newton, M., & Duda, J. L., (1999). The interaction of motivational climate, dispositional goal orientations, and perceived ability in predicting indices of motivation. *International Journal of Sport Psychology, 30*, 63–82
- Nicholls, J. G. (1984). Achievement motivation: conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328-346. doi: 10.1037/0033-295X.91.3.328
- Peterson, C. (2004). Preface (to the positive youth development issue). *The Annals of the American Academy of Political and Social Science, 591*, 6–12
- Rowold, J. (2006) Transformational and transactional leadership in martial arts. *Journal of Applied Sport Psychology, 18*, 312-325. doi: 10.1080/10413200600944082
- Seifriz, J. J., Duda, J. L., & Chi, L. (1992). The relationship of perceived motivational climate to intrinsic motivation and beliefs about success in basketball. *Journal of Sport and Exercise Psychology, 14*, 375–391.
- Smith, S. L., Fry, M. D., Ethington, C. A., & Li, Y. (2005). The effect of female athletes' perceptions of their coaches' behaviors on their perceptions of the motivational climate. *Journal of Applied Sport Psychology, 17*, 170-177. doi: 10.1080/10413200590932470
- Sullivan, P. J., & Kent, A. (2003). Coaching efficacy as a predictor of leadership style in intercollegiate athletics. *Journal of Applied Sport Psychology, 15*, 1-11. doi:10.1080/10413200390180026
- Tharp, R. G., & Gallimore, R. (1976). What a coach can teach a teacher. *Psychology Today, 9*(8), 75-78.
- Urduan, T., Midgley, C., & Anderman, E. M. (1998). The role of classroom goal structure in students' use of self-handicapping strategies. *American Educational Research Journal, 35*, 101-122. doi: 10.3102/00028312035001101
- Van-Yperen, N. W., & Duda, J. L. (1999), Goal orientations, beliefs about success, and performance improvement among young elite Dutch soccer players. *Scandinavian Journal of Medicine & Science in Sports, 9*(6), 358–364. doi: 10.1111/j.1600-0838.1999.tb00257.x
- Vella, S. A., Oades, L. G., & Crowe, T. P. (2012). Validation of the differentiated transformational leadership inventory as a measure of coach leadership in youth soccer. *The Sport Psychologist, 26*, 207-223.

Table 1

Means, Standard Deviations, Correlations, and Reliabilities

	1	2	3	4
1. Ego-Involving Climate	(.56)			
2. Task-Involving Climate	.17	(.74)		
3. Transformational Leadership	.08	.46**	(.92)	
4. Coaching Efficacy	.19	.21	.73**	(.93)
<i>M</i>	3.42	4.29	4.49	3.5
<i>SD</i>	.79	.76	.38	.39
<i>Scale Response Anchors</i>	1-5	1-5	1-5	0-4

Note. Along the diagonal are the Cronbach alpha reliabilities.
Correlation with ** is significant at the 0.01 level (2-tailed).

APPENDIX A
REVIEW OF LITERATURE

Coaching Efficacy, Leadership Behaviors, and Motivational Climate

A coach's influence on athletes' performance and behavior is mitigated by many factors relating to overall coaching effectiveness. Horn (2002) defines coaching effectiveness as the coach's personality, leadership styles, or behaviors that result in both successful performance outcomes (e.g., win/loss percentage) and positive psychological responses from athletes (e.g., high self-esteem, increased intrinsic motivation, and high levels of sport enjoyment). Horn's (2002) model of coaching effectiveness provides a framework for understanding the relationship that many of these factors have with athlete performance. Athletes' performance and behavior are influenced by personal factors, such as the athletes' level of motivation, personal characteristics, self-perceptions, beliefs, and attitudes. The athletes are also influenced by their perceptions and evaluations of their coaches' behaviors (Horn, 2002). Coaches' behaviors are made apparent through the motivational climate they foster with the team and their leadership style. Behaviors such as feedback patterns, decision making, planning, and athlete interaction comprise the coach's leadership styles and can be perceived by the athlete as creating a specific motivational climate. Horn's model further identifies the coach's efficacy as a personal factor that influences coach's leadership styles. Thus, coaches influence athletes' motivation and self-perceptions by their leadership style behaviors and motivational climate development, which are affected by the coaches own self-efficacy.

Following Horn's model, this review presents how motivational climate, coaches' leadership style, and coaches' self-efficacy, relate to each other, along with athlete performance and behavior. The first factor presented is motivational climate and its

relationship to coaching effectiveness. Previous research in motivational climate has identified two types, task-involving and ego-involving climates (Nicholls, 1989). The athletes' perception of the motivational climate as more task- or ego-involving is a result of the next factor to be examined, which is coaches' leadership style, specifically, transformational leadership style (Gardner, 1998). With roots in military and business management, transformational leaders are found to build relationships with their followers based on personal, emotional, and inspirational exchanges, with the goal of developing followers to their fullest potential (Callow, Smith, Hardy, Arthur, & Hardy, 2009). The last factor is coaching efficacy, which is a result of their experience, prior success, perceived skill of athletes, and surrounding support by the school and community (Feltz, Chase, Moritz, & Sullivan, 1999). Together how a coach's motivational climate, leadership style, and efficacy influence athlete behavior and performance represents the coach's effectiveness.

Motivational Climate

The motivational climate perceived by the athletes has been directly related to their behavior and performance (Horn, 2002). Nicholls' Achievement Goal Theory (AGT) relates the perception of different motivational climates with positive or negative outcomes. A task-involving climate is one where athletes are positively reinforced when they improve or give high levels of effort in practice or competition, while coaches also foster the belief that every player's role is important to the team's success (Newton & Duda, 1999). Athletes' perception of a high or more task-involving climate has been associated with athletes reporting higher levels of enjoyment and effort, team satisfaction, as well as more positive relationships with coaches (Smith, Fry, Ethington

& Li, 2005). Smith and colleagues defined an ego-involving motivational climate as “an environment where poor performance and mistakes are punished and competition between team members is encouraged” (p. 171). In an ego-involving motivational climate, athletes report negative outcomes, such as performance worry, less enjoyment, and less satisfaction with the team (Smith et al., 2005). Conclusion sentence needed

Researchers have examined the coaching behavior associated with perceiving a task- or ego-involving climate. Previous literature on athlete perceptions of motivational climates found coaches who provided more training instruction and positive feedback were perceived by athletes as having created a task-involving motivational climate (Gardner, 1998). When coaches responded to performance with high levels of praise and encouragement, the athletes reported higher levels of intrinsic motivation (Smith et al., 2005). This positive and encouraging feedback after both successful and unsuccessful performances, along with not ignoring mistakes, was also associated with athlete’s perception of a task-involving climate (Smith et al., 2005). Higher levels of punishment and a lack of positive, or encouraging feedback, can result in athletes’ perception of an ego-involving motivational climate (Smith et al., 2005). Coaches who provided negative feedback or punishment for mistakes and poor play caused athletes to focus on performance outcomes rather than learning and developing their skills (Smith et al., 2005). By understanding which motivational climate, task-involving versus ego-involving, has the most positive effect on athletes behavior and performance, coaches can model their behaviors accordingly. Increasing intrinsic motivation and effort of the athletes by fostering a task-involving motivational climate is suggested by the

research. To create a more task-involving motivational climate, coaches should focus on transformational leadership style behaviors.

Leadership Style

According to Horn's model of coaching effectiveness, a coach's behavior relates to athletes' perceptions of the motivational climate (Horn, 2002). Motivational climate is developed by the behaviors related to the specific leadership style of the coach. Many successful coaches believe player development to be an essential part of their job (Gould, Collins, Lauer, & Chung, 2007). Therefore, determining what leadership style produces behaviors most conducive to the development of athletes and increasing performance is greatly important for coaches.

One of the most recent leadership styles to be examined in sport is transformational leadership. The concept of transformational leadership was initially developed by Bass (1985). Transformational leaders display behaviors, such as fostering adoption of group ideals, acting as role models, and showing care and concern for each follower (Charbonneau, Barling & Kelloway, 2001). They inspire their followers by formulating a vision, setting challenging goals, and stimulating them intellectually to think about old problems in innovative ways (Charbonneau et al., 2001). The majority of the transformational leadership research has been in business, organizational management, and military settings. Within these settings, transformational leaders have been found to increase group cohesion, along with increase individual, group, and organizational performance (Bass, Avolio, Jung, & Berson, 2003; Yammarino & Bass, 1990). Originally developed for use in military and business settings, the Differentiated Transformational Leadership Inventory (DTLI) (Hardy, Arthur, Jones, Shariff, Munnoch,

Isaacs, & Allsopp, 2010) was designed to measure the demonstration of multiple leadership behaviors related to transformational leadership. The DTLI was designed with six subscales to effectively assess transformational leadership behaviors (Hardy et al., 2010). High performance expectation is the extent to which the leader provides high expectations for performance. The appropriate role model items measure the level to which a leader is a positive role model for their subordinates. The contingent reward subscale measures the leader's use of positive reinforcement to strengthen subordinates' behaviors. Individual consideration is the ability for a leader to understand and meet each individuals' needs for growth and development. Inspirational motivation is the ability of a leader to motivate subordinates by providing inspiration and an incentive to perform well. Intellectual stimulation is the extent to which a leader can challenge subordinates cognitively. To aid in the measurement of group/team cohesion, Callow and colleagues added a seventh subscale to the DTLI: Fostering acceptance of group goals and teamwork, which measures the ability for a leader to facilitate team cohesion (Callow et al., 2009). This updated version of the DTLI examined the validity of the DTLI in a sport setting, along with measuring the relationship between transformational leadership and team cohesion. Transformational leadership behaviors such as promoting teamwork, high performance expectations and individual consideration predicted an increase in team cohesion (Callow et al., 2009). These behaviors were also predictors of social cohesion (Callow et al., 2009). Another research study examining transformational leadership in the sport setting showed the transformational leadership behaviors of providing informationally based motivation and including athletes in decision-making positively influenced performance by increasing

the intrinsic motivation of the athlete (Charbonneau et al., 2001) . The influence of transformational leadership behaviors is not limited to individual athletes.

Coaches' leadership behaviors, while affecting intrinsic motivation, also influence athletes' identity development, social connections, teamwork, and cognitive and physical development, which are all outcomes of youth sport participation (Hansen, Larsen, & Dworkin, 2003). Therefore, transformational leadership behaviors are particularly important in the youth sport setting because increasing intrinsic motivation is critical for successful cognitive, social, and physical development (Peterson, 2004; Ryan & Deci, 2000). The findings of these studies support the need for further research on how transformational leadership behaviors relate with motivational climate in the sport setting.

Coaching Efficacy

According to Horn's model, coaches' behaviors directly influence athletes' performance and behavior. A factor that influences coaching behavior is coaching efficacy. The relationship between coaching efficacy and transformational leadership has only just begun to be studied. Coaching efficacy is the extent to which a coach believes in his/her ability to be an effective coach, including being able to positively influence the learning and performance of their athletes (Feltz et al., 1999). The specific components of coaching efficacy are: motivation efficacy, game strategy efficacy, technique efficacy, character-building efficacy, and physical conditioning efficacy (Feltz et al., 1999; Myers, Feltz, Chase, Reckase, & Hancock, 2008). Motivation efficacy is the confidence coaches have in their ability to motivate their athletes (Feltz et al., 1999). Game strategy efficacy is the coaches' confidence in their ability to lead and make

effective game time decisions during competition. Technique efficacy is the coaches' confidence in their instructional and diagnostic skills. Character building efficacy is the coaches' belief in their ability to influence the personal development of their athletes (Feltz et al., 1999). Physical conditioning efficacy is the coaches' belief in their ability to prepare their athletes for participation in sport (Myers et al., 2008). Coaches can only benefit from understanding what influences coaching efficacy.

Horn's (2002) model of coaching effectiveness presents multiple sources of coaching efficacy, such as: the extent of coaching experience and preparation, prior coaching success, perceived skill of athletes, and school and community support. The influence of these antecedents to coaching efficacy are supported by Feltz and colleagues (1999). As coaches gain experience, the belief in their abilities increases over time. This confidence in their ability increases even more so if they have experienced success in coaching. For coaches, high levels of coaching efficacy result in greater commitment to coaching, motivation, satisfaction, and confidence (Feltz et al., 1999; Sullivan & Kent, 2003). The positive outcomes related to coaching efficacy have been seen at the coach and athlete level.

Coaches who have high levels of coaching efficacy are more likely provide their athletes with positive and constructive feedback along with positive motivation techniques. Another positive outcome for coaches is greater player and team satisfaction with the coach (Sullivan & Kent, 2003). Although it should not be the primary goal of coaches, it is noteworthy to mention high efficacy coaches have significantly higher winning percentages over low efficacy coaches (Feltz et al., 1999). Athletes also report positive outcomes related to high levels of coaching efficacy such

as higher winning percentages, confidence, and motivation (Feltz et al., 1999). Other positive outcomes related to athletes perception of their coaches having higher levels of CE, included increased levels of player and team satisfaction and self-efficacy (Feltz et al., 1999; Horn, 2002; Sullivan & Kent, 2003). Coaching efficacy has also been seen to affect the behaviors that make up a coaches leadership style.

The proposed connection between coaching efficacy and leadership behaviors was tested by Sullivan and Kent (2003), measuring if coaching efficacy was a predictor of leadership behaviors. Coaches who are high in self-efficacy provide more praise and encouragement along with positive feedback (Feltz et al., 1999, Myers et al., 2008). These coaching behaviors, such as positive and informational feedback, praise, and encouragement are the same behaviors as those provided by coaches who employ a transformational leadership style. They are also associated with athletes' perceptions of a task-involving motivational climate. From the athletes' perspective, this climate can foster the development of intrinsic motivation, which influences athletes' performance and behavior (Charbonneau et al., 2001).

Many undesirable behavior outcomes have been related to low levels of coaching efficacy (Feltz et al., 1999). Low efficacy coaches engaged in more instructional and organizational behaviors along with more punishment for poor performance while providing less positive feedback (Feltz et al., 1999). These negative behavioral outcomes are consistent with those resulting in the athletes' perception of an ego-involving motivational climate (Smith et al., 2005). The perception of an ego-involving climate is in support of the findings that athletes' perceptions of these motivational climates are influenced by coaching behaviors. It also supports that

coaches' efficacy is what influences coaches' behavior, as per Horn's (2002) model of coaching effectiveness. Coaching efficacy plays an integral part of overall coaching effectiveness, but its relationship with transformational leadership and motivational climate is a hole in the current literature for research to address.

Summary

With the development of Horn's working model of coaching effectiveness, we have a guide for understanding the variables that lead to and affect athletes' performance and behavior. Considering previous research, three key variables that influence athletes' performance and behaviors are the motivational climate, coach's leadership style, and efficacy. According to AGT research, athletes who perceive their coach as promoting a task-involving motivational climate, also report higher levels of enjoyment in sport, team satisfaction, and positive relationships with coaches and parents (Smith et al., 2005). Coaches develop a task-involving climate when they positively reinforce athletes' hard work, improvement of skills and performances, while genuinely believing each athlete is important. In contrast, an ego-involving climate results when coaches punish poor performance, recognize high-ability team members over other members, and foster intragroup rivalry and competition. Perceptions of an ego-involving climate can lead to less enjoyment and team satisfaction as reported by athletes (Smith et al., 2005). The development of these different motivational climates are a direct result of the coaching behaviors a coach expresses.

Young athletes' development is greatly influenced by the leadership of their coaches (Gould & Carson, 2010). Coaches' leadership style is an expression of their coaching behaviors. Coaches who use a transformational leadership style, which by definition,

are coaches who act as role models and show genuine care for each of their athletes, are crucial at the youth sport level. Coaches' transformational leadership style has only been related to the antecedents of motivational climate. One of these antecedents being the coaching efficacy beliefs of the coach. To further examine the influence of coaches on their athlete's performance, investigating the relationship of perceived motivational climate, leadership style, and coach self-efficacy, would be valuable in understanding coaching effectiveness.

APPENDIX B
INFORMED CONSENT

University of North Texas Institutional Review Board

Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

Title of Study: Coaching Efficacy and Leadership Style: Their Ability to Predict Motivational Climate

Student Investigator: Michael Runge, University of North Texas (UNT) Department of Kinesiology, Health Promotion, and Recreation. **Supervising Investigator:** Dr. Whitney Moore.

Purpose of the Study: You are being asked to participate in a research study which involves the completion of questionnaires designed to measure different coaching strategies, philosophies, and techniques. Similar research has been conducted with sport coaches, but not yet with strength and conditioning coaches. However, strength and conditioning coaches are usually one of the few individuals who knows athletes across sports, which makes the number of athletes they are able to impact much greater.

Study Procedures: You will be asked to complete this one time survey about your approaches to coaching and background related to coaching. The survey will take about 15 minutes of your time. We also request that you share the information about this survey with your peers, so they may also complete this survey.

Foreseeable Risks: No foreseeable risks are involved in this study.

Benefits to the Subjects or Others: We expect the project may benefit you directly by providing an opportunity to reflect on your current coaching strategies, which is always beneficial to self-improvement. In addition, we hope to learn more about how strength and conditioning coaches are working with this important age group. The results of this study are expected to be presented at a future NSCA National Conference and submitted for publication in JSCR, which should provide all coaches with feedback regarding the coaching strategies used by current strength and conditioning coaches of high school level athletes.

Compensation for Participants: By completing the survey and entering your email at the end of the survey, you will be entered into a random drawing to receive a free one year membership to the NSCA, Shape America, or USA Weightlifting.

Procedures for Maintaining Confidentiality of Research Records: Confidentiality will be maintained to the degree possible given the technology and practices used by the online survey company. Your participation in this online survey involves risks to confidentiality similar to a person's everyday use of the internet. Data collected in-person will be maintained in a locked container. All data collected will be maintained on a password protected computer. Only the researchers of this study will have access to the data to conduct the necessary analyses. Results will be presented based upon all the responses collected as a whole, and not on an individual basis. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

Questions about the Study: If you have any questions about the study, you may contact Michael Runge at MichaelRunge@my.unt.edu or Whitney Moore at Whitney.Moore@unt.edu.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-4643 with any questions regarding the rights of research subjects.

Research Participants' Rights:

Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- The study has been explained to you and all of your questions answered. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.

Printed Name of Participant

Signature of Participant

Date

APPENDIX C
DEMOGRAPHIC QUESTIONNAIRE

Demographics:

- 1) How many years have you been a strength and conditioning coach?

- 2) How many years have you been a strength and conditioning coach for high school age athletes? _____
- 3) Please provide the state/province and country that you work in:

- 4) Please select the best description of the area in which you work:
 - a. Urban/city
 - b. Suburban
 - c. Rural
- 5) Your high school athlete training is primarily:
 - a. done during a high school class period
 - b. associated with school(s), but outside of the regular high school class schedule (i.e., before or after school, not for a grade)
 - c. not associated with high school teams (Ex. Work at a private facility, contracted with non-school affiliated teams/organizations)
 - i. If "c" please explain: _____
- 6) What is the typical ratio of high school athletes to strength and conditioning coaches per training session? (Ex. 30: 1, 80:4)

- 7) Please select the certifications you hold related to strength and conditioning coaching:
 - a. CSCS
 - b. CSCS*D
 - c. CPT
 - d. SCCC
 - e. USA Weightlifting Sports Performance Coach
 - f. USA Weightlifting National Coach
 - g. USA Weightlifting Club Coach
 - h. USA Weightlifting Advanced Sports Performance Coach
 - i. Other:

- 8) Please select the degrees you hold, and next to it add what the degree was in
 - a. PhD
 - b. MS
 - c. MA
 - d. Post-bachelors's

- e. BS
- f. BA
- g. HS

9) Please put how often you do each of the following professional development activities on a yearly basis:

- a. Attend local/regional conference(s), workshop(s), and/or clinic(s) _____
- b. Present at local/regional conference(s), workshop(s), and/or clinic(s) _____
- c. Attend national conference(s) _____
- d. Present at national conference(s) _____
- e. Watch webinars by professional organizations _____
- f. Read research journal issues (Ex. Journal of Strength and Conditioning Research, Res. Quarterly) _____
- g. Read journal issues (Ex. Strength and Conditioning Journal, JOPERD) _____
- h. Other: _____

10) Have you ever received a state, regional, or national recognition award for your work as a strength and conditioning coach/teacher? Yes No

a. If yes, please write the name of the award:

11) Please select your gender: Female Male

12) Please enter your age: _____

13) Are you Hispanic or Latino? Yes No

14) Which one or more of the following would you say is your race?

- a. White
- b. Black or African American
- c. American Indian or Alaska Native
- d. Native Hawaiian
- e. Asian Indian
- f. Other Asian _____
- g. Other Pacific Islander _____

APPENDIX D
PSYCHOLOGICAL QUESTIONNAIRE

Personal Teaching Efficacy

Adapted from: Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Feeman, K. E., Gheen, M., Kaplan, A., Kumanr, R., Middleton, M. J., Nelson, J., Roeser, R., & Urdan, T. (2000). *Teacher Scales*. In: *Manual for the Patterns of Adaptive Learning Scales*. University of Michigan: Ann Arbor, MI.

		Strongly Disagree		Somewh at Agree		Strongly Agree
1	If I try really hard, I can get through to even the most difficult athlete.	1	2	3	4	5
2	Factors beyond my control have a greater influence on my athletes' achievement than I do (reversed).	1	2	3	4	5
3	I am good at helping all the athletes in my training sessions make significant improvement.	1	2	3	4	5
4	Some athletes are not going to make a lot of progress this year, no matter what I do (reversed).	1	2	3	4	5
5	I am certain that I am making a difference in the lives of my athletes.	1	2	3	4	5
6	There is little I can do to ensure that all my athletes make significant progress this year (reversed).	1	2	3	4	5
7	I can deal with almost any learning/training problem.	1	2	3	4	5

Approaches to Instruction

Adapted from: Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Feeman, K. E., Gheen, M., Kaplan, A., Kumanr, R., Middleton, M. J., Nelson, J., Roeser, R., & Urdan, T. (2000). *Teacher Scales*. In: *Manual for the Patterns of Adaptive Learning Scales*. University of Michigan: Ann Arbor, MI.

	<u>Instructions: In my strength and conditioning sessions:</u>	Strongly Disagree		Somewh at Agree		Strongly Agree
8	I give special privileges to athletes who do the best work.	1	2	3	4	5
9	I display the work of the highest achieving athletes as an example (e.g., performance board, etc.).	1	2	3	4	5
10	I help athletes understand how their performance compares to others.	1	2	3	4	5
11	I encourage athletes to compete with each other.	1	2	3	4	5
12	I make a special effort to recognize athletes' individual progress, even if they are below grade level.	1	2	3	4	5

13	During training, I often provide several different exercise levels/versions so that athletes can choose among them.	1	2	3	4	5
14	I consider how much athletes have improved when I give them performance reports and/or grades.	1	2	3	4	5
15	I give a wide range of exercises/drills, matched to athletes' needs and skill level.	1	2	3	4	5
Differentiated Transformational Leadership Inventory -- Coach						
<p>Callow, N., Smith, M. J., Hardy, L., Arthur, C. A., & Hardy, J. (2009). Measurement of transformational leadership and its relationship with team cohesion and performance level. <i>Journal of Applied Sport Psychology, 21</i>, 395-412. doi: 10.1080/10413200903204754</p>						
<i>Instructions: The following questions will ask you about your behaviors with your current teams and/or athletes. Please CIRCLE a number from 1 to 5 to show how much you agree with each statement.</i>		Not at all				All of the time
16	I treat each team member as an individual.	1	2	3	4	5
17	I talk optimistically about the future.	1	2	3	4	5
18	I help the athletes to develop their strengths.	1	2	3	4	5
19	I talk in a way that makes the athletes believe that they can succeed.	1	2	3	4	5
20	I give athletes special recognition when they do very good work.	1	2	3	4	5
21	I talk enthusiastically about what needs to be accomplished.	1	2	3	4	5
22	I give my team/training group praise when they do good work.	1	2	3	4	5
23	I get them to rethink the way that they do things.	1	2	3	4	5
24	I praise athletes when they show improvement.	1	2	3	4	5
25	I show athletes how to look at difficulties from a new angle.	1	2	3	4	5
26	I consider that each athlete has different strengths and abilities from others.	1	2	3	4	5
27	I encourage athletes to be team players.	1	2	3	4	5
28	I expect a lot from all of my athletes.	1	2	3	4	5
29	I develop a strong team attitude and spirit among team or training group members.	1	2	3	4	5
30	I recognize that different athletes have different needs.	1	2	3	4	5
31	I lead by example.	1	2	3	4	5
32	I expect my athletes to achieve high standards.	1	2	3	4	5

33	I express confidence that goals will be achieved.	1	2	3	4	5
34	I lead from the front whenever I can.	1	2	3	4	5
35	I challenge athletes to think about problems in new ways.	1	2	3	4	5
36	I will not settle for second best.	1	2	3	4	5
37	I get the team to work together for the same goal.	1	2	3	4	5
38	I lead by 'doing' rather than simply 'telling'.	1	2	3	4	5
39	I am a good role model for my athletes to follow.	1	2	3	4	5
40	I always recognize training group members' achievements.	1	2	3	4	5
Coaching Efficacy Scale II – High School Teams Myers, N. D., Feltz, D. L., Chase, M. A., Reckase, M. D., & Hancock, G. R. (2008). The coaching efficacy scale II – High school teams. <i>Educational and Psychological Measurement, 68</i> , 1059-1076. doi: 10.1177/0013164408318773						
	<u><i>Instructions: In relation to the athletes you are currently coaching, how confident are you in your ability to...</i></u>	Low Confidence	Moderate Confidence	High Confidence	Complete Confidence	
41	motivate your athletes?	1	2	3	4	
42	make training programs that incorporate drills/exercises to improve athletes' strengths?	1	2	3	4	
43	teach athletes the complex technical skills of lifts and drills during training?	1	2	3	4	
44	effectively instill an attitude of respect for others in your athletes?	1	2	3	4	
45	prepare an appropriate plan for your athletes' off-season physical conditioning?	1	2	3	4	
46	help your athletes to not become overly confident in their ability to perform when they are performing well?	1	2	3	4	
47	devise strategies to maximize the transfer of their S&C training to their sport?	1	2	3	4	
48	make effective exercise substitutions during training for injured athletes?	1	2	3	4	
49	detect subtle technique errors by your athletes during practices?	1	2	3	4	
50	make training programs that incorporate drills/exercises to improve athletes' weaknesses?	1	2	3	4	
51	positively influence the character development of your athletes?	1	2	3	4	

52	implement an appropriate training program for your athletes during the season?	1	2	3	4
53	help your athletes to maintain confidence in their ability to perform when they are performing poorly?	1	2	3	4
54	explain how their training program's exercises relate to their sport?	1	2	3	4
55	devise training strategies that minimize athletes' injury susceptibility?	1	2	3	4
56	teach athletes appropriate basic technique during practices?	1	2	3	4
57	effectively promote good sportsmanship in your athletes?	1	2	3	4
58	accurately assess your athletes' athletic abilities, such as power, agility, endurance, and flexibility?	1	2	3	4
59	motivate your athletes for training/testing on a skill they perform better than their peers?	1	2	3	4
60	implement a program for your athletes to peak appropriately during the season?	1	2	3	4

Conceptions of the Nature of Ability Questionnaire – Version 2

Wang, C. K. J., & Biddle, S. J. H. (2001). Young people's motivational profiles in physical activity: A cluster analysis. *Journal of Sport and Exercise Psychology*, 23, 1–22

	Please select the number that best describes how much you agree or disagree with each statement below. These are general statements about people's ability in sport.	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
61	We have a certain level of ability in sport and we cannot really do much to change that level.	1	2	3	4	5
62	To be successful in sport you need to learn techniques and skills, and practice them regularly.	1	2	3	4	5
63	Even if you try, the level you reach in sport will change very little.	1	2	3	4	5
64	You need to have a certain "gifts" to be good at sports.	1	2	3	4	5
65	You need to learn and to work hard to be good at sports.	1	2	3	4	5
66	In sports, if you work hard at it, you will always get better.	1	2	3	4	5
67	To be good at sports, you need to be born with the basic qualities which allow you success.	1	2	3	4	5

68	To reach a high level of performance in sport, you must go through periods of leaning and training.	1	2	3	4	5
69	It is not unusual for someone who is good at one sport to experience difficulties in other sports.	1	2	3	4	5
70	How good you are at sports will always improve if you work at it.	1	2	3	4	5
71	It is difficult to change how good you are at sport.	1	2	3	4	5
72	To be good at sport you need to be naturally gifted.	1	2	3	4	5
73	If you put enough effort into it, you will always get better at sport.	1	2	3	4	5

COMPREHENSIVE REFERENCE LIST

- 2016 National Conference. (2016). Retrieved April 12, 2016, from <https://www.nasca.com/events/conferences/2016-national-conference/>
- Arthur, C., Woodman, T., Ong, C., Hardy, L., & Ntoumanis, N. (2011). The role of athlete narcissism in moderating the relationship between transformational leader behaviors and athlete motivation. *Journal of Sport and Exercise Psychology*, 33(1), 3-19. <http://journals.humankinetics.com/JSEP>
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207–218. doi: 10.1037/0021-9010.88.2.207
- Bass, B.M. (1985). Leadership and performance. New York: Free Press.
- Callow, N., Smith, M. J., Hardy, L., Arthur, C. A., & Hardy, J. (2009). Measurement of transformational leadership and its relationship with team cohesion and performance level. *Journal of Applied Sport Psychology*, 21, 395-412. doi: 10.1080/10413200903204754
- CEU Courses and Activities. (2016). Retrieved April 12, 2016, from <https://www.nasca.com/Certification/Continuing-Education/CEU-Courses-and-Activities/CEU-Courses-and-Activities/>
- Charbonneau, D., Barling, J., & Kelloway, E. K. (2001). Transformational leadership and sports performance: The mediating role of intrinsic motivation. *Journal of Applied Social Psychology*, 31, 1521-1534. doi: 10.1111/j.1559-1816.2001.tb02686.x
- Chelladurai, P., & Saleh, S. D. (1980). Dimensions of leader behavior in sports: Development of a leadership scale. *Journal of Sport Psychology*, 2, 34–45.
- Christensen, L. B., Johnson, B., & Turner, L. A. (2011). Measuring variables and sampling. *Research Methods, Design, and Analysis* (pp. 139-166). Boston, MA: Pearson.
- Côté, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching*, 4, 307-323. doi:10.1260/174795409789623892
- Feltz, D. L., Chase, M. A., Moritz, S. E., & Sullivan, P. J. (1999). A conceptual model of coaching efficacy: Preliminary investigation and instrument development. *Journal of Educational Psychology*, 91, 765-776. doi: 10.1037/0022-0663.91.4.765
- Gardner, D. E. (1998). *The relationship between perceived coaching behaviors, team cohesion, and team motivational climates among Division I athletes*. Unpublished doctoral dissertation, Boston University, Boston, MA.
- Gilbert, W. D., & Baldis, M. W. (2014). Becoming an effective strength and conditioning coach. *Strength & Conditioning Journal*, 36(1), 28-34. doi:10.1519/ssc.0000000000000026

- Gould, D., Collins, K., Lauer, L., & Chung, Y. (2007). Coaching life skills through football: A study of award winning high school coaches. *Journal of Applied Sport Psychology, 19*, 16–37. doi:10.1080/10413200601113786
- Hansen, D. M., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence, 13*, 25-55. doi:10.1111/1532-7795.1301006
- Hardy, L., Arthur, C. A., Jones, G., Shariff, A., Munnoch, K., Isaacs, I., & Allsopp, A. J. (2010). A correlational and an experimental study examining the sub-components of transformational leadership. *Leadership Quarterly, 21*, 20-32.
- Harwood, C. G., Keegan, R. J., Smith, J. M., & Raine, A. S. (2015). A systematic review of the intrapersonal correlates of motivational climate perceptions in sport and physical activity. *Psychology of Sport and Exercise, 18*, 9-25.
- Horn, T. S. (2002). Coaching effectiveness in the sport domain. In T. S. Horn (Ed.), *Advances in Sport Psychology* (pp. 239-268). Champaign, IL: Human Kinetics.
- Jost, J. (2014). *NCAA Acknowledges NSCA's Effort for Raised Certification Standards*. Retrieved April 12, 2016, from <https://www.nasca.com/Education/Articles/NCAA-Raises-Certification-Standards/>
- Kavussanu, M., Boardley, I. D., Jutkiewicz, N., Vincent, S., & Ring, C. (2008). Coaching efficacy and coaching effectiveness: Examining their predictors and comparing coaches' and athletes' reports. *The Sport Psychologist, 22*, 383-404.
- Kraemer, W.J. (1990a). Education and learning. *National Strength and Conditioning Association Journal. 12*(2), :72–73.
- Kraemer, W.J. (1990b). A fundamental skill of the profession. *National Strength and Conditioning Association Journal. 12*(6), :72–73.
- Mageau, G. A. & Vallerand, R. J. (2003). The coach-athlete relationship: A motivational model. *Journal of Sports Sciences, 21*, 883-904. doi: 10.1080/0264041031000140374
- Magnusen, MJ. (2010). Differences in strength and conditioning coach self-perception of leadership style behaviors at the National Basketball Association, division I-A, and division II levels. *Journal of Strength and Conditioning Research 24*, 1440–1450.
- Martinez, D. M. (2004). Study of the key determining factors for the NCAA Division I head strength and conditioning coach. *Journal of Strength Conditioning Research. 18*, 5–18. doi:10.1519/00124278-200402000-00001
- Massey, C. D., Vincent, J., & Maneval, M. (2004). Job analysis of college Division IA football strength and conditioning coaches. *The Journal of Strength & Conditioning Research, 18*(1), 19-25. doi:10.1519/00124278-200402000-00002
- Midgley, C. (2002). *Goals, goal structures, and patterns of adaptive learning*. Hillsdale, NJ: Erlbaum.

- Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Freeman, K. E., Gheen, M., Kaplan, A., Kumar, R., Middleton, M. J., Nelson, J., Roeser, R., & Urdan, T. (2000). *Manual for the Patterns of Adaptive Learning Scales (PALS)*, Ann Arbor, MI: University of Michigan.
- Myers, N. D., Feltz, D. L., Chase, M. A., Reckase, M. D., & Hancock, G. R. (2008). The coaching efficacy scale II – high school teams. *Educational and Psychological Measurement, 68*, 1059-1076. doi: 10.1177/0013164408318773
- Newland, A. (2015a) Motivational Goal Orientations and Coaching Efficacy as Predictors of Transformational Leadership Behaviors. In A. Newland, *Transformational Leadership in Sports: Behaviors, Outcomes, and Predictors* (Doctoral Dissertation, The University of Utah, Utah).
- Newland, A. (2015b) Motivational Goal Orientations and Coaching Efficacy as Predictors of Transformational Leadership Behaviors. In A. Newland, *Transformational Leadership in Sports: Behaviors, Outcomes, and Predictors* (Doctoral Dissertation, The University of Utah, Utah).
- Newland, A., Newton, M., Podlog, L., Legg, W. E., Tanner, P. (2015). Exploring the nature of transformational leadership in sports: A phenomenological examination with female athletes. *Qualitative Research in Sport, Exercise, and Health, 7*, 663-687. doi: 10.1080/2159676X.2015.1007889
- Newton, M., & Duda, J. L., (1999). The interaction of motivational climate, dispositional goal orientations, and perceived ability in predicting indices of motivation. *International Journal of Sport Psychology, 30*, 63–82
- Nicholls, J. G. (1984). Achievement motivation: conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328-346. doi: 10.1037/0033-295X.91.3.328
- Peterson, C. (2004). Preface (to the positive youth development issue). *The Annals of the American Academy of Political and Social Science, 591*, 6–12
- Rowold, J. (2006) Transformational and transactional leadership in martial arts. *Journal of Applied Sport Psychology, 18*, 312-325. doi: 10.1080/10413200600944082
- Seifriz, J. J., Duda, J. L., & Chi, L. (1992). The relationship of perceived motivational climate to intrinsic motivation and beliefs about success in basketball. *Journal of Sport and Exercise Psychology, 14*, 375–391.
- Smith, S. L., Fry, M. D., Ethington, C. A., & Li, Y. (2005). The effect of female athletes' perceptions of their coaches' behaviors on their perceptions of the motivational climate. *Journal of Applied Sport Psychology, 17*, 170-177. doi: 10.1080/10413200590932470
- Sullivan, P. J., & Kent, A. (2003). Coaching efficacy as a predictor of leadership style in intercollegiate athletics. *Journal of Applied Sport Psychology, 15*, 1-11. doi:10.1080/10413200390180026
- Tharp, R. G., & Gallimore, R. (1976). What a coach can teach a teacher. *Psychology Today, 9*(8), 75-78.

- Urduan, T., Midgley, C., & Anderman, E. M. (1998). The role of classroom goal structure in students' use of self-handicapping strategies. *American Educational Research Journal*, 35, 101-122. doi: 10.3102/00028312035001101
- Van-Yperen, N. W., & Duda, J. L. (1999), Goal orientations, beliefs about success, and performance improvement among young elite Dutch soccer players. *Scandinavian Journal of Medicine & Science in Sports*, 9(6), 358–364. doi: 10.1111/j.1600-0838.1999.tb00257.x
- Vella, S. A., Oades, L. G., & Crowe, T. P. (2012). Validation of the differentiated transformational leadership inventory as a measure of coach leadership in youth soccer. *The Sport Psychologist*, 26, 207-223.
- Yammarino, F. J., & Bass, B. M. (1990). Transformational leadership and multiple levels of analysis. *Human Relations*, 43, 975-995. doi:10.1177/001872679004301003