

ASSOCIATION OF TRANSFORMATIONAL LEADERSHIP BEHAVIORS, EFFICACY, AND
PERFORMANCE IN ROTC CADETS

by

Ajala Baker

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Director of Thesis: Christine Habeeb, PhD

Major Department: Kinesiology

Transformational leadership is when leaders inspire, motivate, influence, and stimulate followers to build a connection and common belief towards goals. Military leaders that engage in transformational leadership encompass behaviors that can build their followers' confidence to reach their full performance potential individually and collectively. Confidence is mentioned as one of the most needed psychological skills to succeed in cadets' field training experiences. In addition to exhibiting transformational behaviors, effective military leaders instill confidence in their followers. Confidence comes from several sources including evaluations of oneself (i.e., self-efficacy; SE), leaders (i.e., other efficacy; OE), and the whole group (i.e., collective efficacy; CE). In addition to confidence, leadership styles can impact performance including military soldier's abilities to meet challenges and perform tactical tasks. Unfortunately, very little evidence exists to support if ROTC cadets exhibit transformational behaviors and how these behaviors relate to their confidence and performance.

The study's purposes were to (1) examine the relationship between transformational leadership behaviors and performance in ROTC cadets; and (2) examine whether efficacy mediates the relationship between transformational leadership and performance in ROTC cadets. We hypothesize (1) transformational leadership behaviors will have a direct relationship with performance; and (2) self-efficacy, other-efficacy, and collective efficacy will mediate the relationship between

transformational leadership and performance. Within the Army ROTC program, 67 participants completed all the assessments which included transformational leadership, efficacy, and performance measurements. Historical data of the cadet's Army Combat Fitness Test that includes the maximum deadlift, standing power throw, hand release push-up-arm extension, sprint-drag-carry, plank, and two-mile run was used to measure performance. To test hypotheses, direct and indirect effects among transformational leadership, efficacy, and performance were analyzed alongside means, standard deviations, and correlation. Due to the nonsignificant direct correlations, the results did not support hypothesis 1. Using collective efficacy as the mediator, Hypothesis 2 not supported based on the strong negative indirect connections between the top three transformative leadership behaviors and Maximum Deadlift as the performance outcome. In conclusion, leadership behaviors might eventually affect a soldier's or cadet's performance and confidence in a mentally and physically.

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Ajala Baker

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By

Ajala Baker

Thesis Director, Christine Habeeb, PhD

Committee Member, Thomas D. Raedeke, PhD

Committee Member, Patrick Rider, MS

Department Chair, J.K. Yun, PhD

Dean of Graduate School, Kathleen Cox, PhD

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Chapter 1- Introduction

The United States' Army is one of only six military branches and is the first line of defense against threat. The Army's vision and mission is built on performance and leadership. For example, the U.S. Military Academy at West Point is the preeminent leader development institution, and their stated mission is to:

educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, and Country and prepared for a career of professional excellence and service to the Nation as an officer in the United States Army (The United States Army, 2022).

Many universities and colleges have Army Reserve Officers' Training Corps (ROTC) programs which are also demanding and successful leadership programs in the country (Go Army, 2021). According to the Congressional Research Service (2022), only 18% of the armed forces are Officers; military personnel who have completed a ROTC program or military academy. ROTC programs train cadets by following the Army Doctrine Publication (ADP) 6-22. This doctrine outlines and defines the Army Profession, the fundamentals of Army Leadership, and the characteristics and core competencies. (U.S Army, 2019). In ROTC, cadets receive leadership development, military performance skills, and career training courses that take place both in the classroom and in the field to prepare to one day lead hundreds of military personnel.

Cadets are trained and educated about leadership by many types of senior military leaders that have varying leadership styles such as transformational, transactional, and laissez-faire. The ADP 6-22 (2019) defines leadership as an "activity of influencing people by providing purpose

direction, and motivation to accomplish the mission and improve the organization.” Within military leadership, soldiers are trained to know the attributes and competencies that leaders should develop over time. The ADP 6-22 defines an Army leader as “anyone who by virtue of assumed role or assigned responsibility inspires and influences people by providing purpose, direction, and motivation to accomplish the mission and improve the organization”. The ADP 6-22 uses keywords such as “inspires” and “influences” which display transformational leadership behaviors.

Within the ROTC programs, the curriculum incorporates using a transformational leadership approach to teaching, learning, and performing the fundamentals of becoming an Army Leader. Transformational leadership is when leaders inspire, motivate, and influence their followers to build a connection and common belief towards the goals of a group (Hamad, 2015). Transformational leaders encompass behaviors that can elevate their followers’ confidence to reach their full performance potential (Dvir et al., 2002). These types of leaders are capable of using their charisma to encourage their followers to continue to sacrifice their own needs for the whole organization’s goal. Engaging in transformational leadership behaviors have been shown to be positively related to how individuals view their group’s performance and commitment through self-efficacy; one’s belief in abilities, and group cohesiveness; how well a group works together (Pillai & Williams, 2003).

Leaders can also use transactional leadership behaviors. Transactional leadership is when followers recognize the leader's authority and follow his or her instructions in return for access to resources, incentives, praise, or the avoidance of punishment. These differences in leadership styles can impact the cadet’s ability to meet challenges and perform tactical tasks necessary to be successful at their duties to lead other soldiers to defend the country. Hamad (2015) would argue

that transactional leadership styles may be more effective for short-term and non-repetitive situations, such as emergency tasks, due to the self-interest of being rewarded or facing the consequences. On the other hand, transformational leadership styles may be more effective for long lasting situations, such as military combat and tactical maneuvering, that require soldiers and leaders due to having to work as a team towards a mission.

Bass et al. (2003) suggests that it takes both active transactional and transformational leadership for an individual to be successful at completing a performance task that is unknown and challenging. Xenikou (2017) supported this suggestion with evidence that both transactional and transformational leadership are seen as complimentary styles of leadership that can increase organizational effectiveness through cognitive (i.e., thoughts and beliefs) and affective (i.e., emotions and feelings) identification. Therefore, within this study, contingent reward, which is a component of transactional leadership, is included into transformational leadership behaviors to assess the two leadership styles within this population. The other behaviors examined in this study, which are transformational, are inspirational motivation, appropriate role modeling, fostering acceptance of group goals, individual consideration, high performance expectations, and intellectual stimulation

Organizational effectiveness can be increased through efficacy as well. Efficacy is the confidence an individual has to perform a task or behavior that meets satisfaction or success. When working within groups, efficacy can be directed to the self and others, resulting in different types of efficacies including self-efficacy, other-efficacy, and collective efficacy. Self-efficacy is one's belief in themselves to successfully perform a task or behavior (Bandura, 1985). According to Bandura (1977), past experiences, vicarious experiences, verbal persuasion, and physiological/affective states are the four key intrapersonal sources of self-efficacy. High self-

efficacy is associated with individuals setting more difficult goals for themselves and persisting through challenges and failure in an efficient manner (Jex et al., 2001; Klassen & Usher, 2010). In addition, self-efficacy has been revealed to have on average a moderate size correlation with performance within sport and non-sport research contexts ($r = .38$, Moritz et al., 2000; Feltz et al., 2008).

Other efficacy, the second type of efficacy, is “an individual’s beliefs about his or her significant other’s ability to perform particular behaviors” (Lent & Lopez, 2002, p. 264). Dunlop et al.’s (2011) experimental study provided evidence that participants in the higher other-efficacy group outperformed those in the lower other-efficacy group. In comparison, self-efficacy did not have this same effect. Additionally, other-efficacy has many influences on the interactions that occur within dynamic relationships such as how much effort is expended on a task given. For example, if you have a high confidence level of a partner, you may contribute more effort towards a task (Lent & Lopez, 2002). Other-efficacy can have a significant impact on the outcomes of dynamic relationships and the level of effort put into tasks.

Collective efficacy, the third type of efficacy, is the “group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments” (Bandura, 1997, p. 477). Collective efficacy is a concept that starts with the individual team members and because of team social interactions, mutual tasks, and experiences, the team begins to connect with one another successfully (Kozlowski & Klein, 2000). In addition, collective efficacy can be based on the leadership displayed in higher and lower organizational levels (Chen & Bliese, 2002). Based on the tripartite model of relational efficacy beliefs (Lent & Lopez, 2002) there is a comparable predictive relationship between self-, other-, and collective efficacy when examined independently of one another to performance (Habeeb,

2020). The level of self-efficacy, other-efficacy, and collective efficacy can influence how individuals and groups interact with one another, which in turn can result in either insufficient or satisfactory levels of performance on assigned tasks.

Overall, it is known that there is a positive relationship between efficacy and performance (Moritz et al., 2000) and that transformational leadership enhances organizational effectiveness empowerment, group cohesiveness, and perceived group effectiveness (Bass et al., 2003; Chen & Bliese, 2002; Jung & Sosik, 2002; Xenikou, 2017). However, the gap in the research is that studies have not focused on the relationships between transformational leadership, physical performance, and different types of efficacies in a non-sport context. It is important to further research in the field of performance psychology with the military population to gain a better understanding of how leadership styles can ultimately impact an individual's performance and confidence in a psychologically and physiologically challenging environment. The purpose of this study was to (1) examine the direct relationship between transformational leadership behaviors and performance in ROTC cadets; and (2) examine the indirect effects associated with self-, other-, and collective efficacy in the relationship between transformational leadership and performance in ROTC cadets.

Delimitations:

This study is limited to active Army ROTC cadets at a Southeastern university.

Potential Limitations and Assumptions:

Self-reported data

Participant Count

Modified Questionnaires

Leadership, Efficacy, and Performance will have a positive relationship to each other

Acronyms:

ROTC- Reserve Officers' Training Corps

MBE- Managing by exception

ACFT- Army Combat Fitness Test

MS-#s- Military Science Class Number

DTLI-Differentiated Transformational Leadership Inventory

MDL-3 Repetition Maximum Deadlift

SPT- Standing Power Throw

HRP- Hand Release Push-Up

SDC- Sprint-Drag-Carry

PLK- Plank

MR- 2-Mile Run

SE- Self-efficacy

OE- Other-efficacy

CE- Collective efficacy

IM- Inspirational Motivation

RM- Appropriate Role Modeling

GG- Fostering Acceptance of Group Goals

IC- Individual Consideration

PE- High Performance Expectations

IS- Intellectual Stimulation

CR- Contingent Reward

Chapter 2-Literature Review

This literature review will include a focus on different leadership styles and the known association leadership has on efficacy beliefs and performance. The objective of this study is to examine the extent transformational leadership behaviors are associated with efficacy and performance which will rely on previous sport and military research. This literature review will include leadership behaviors and the sources of the different efficacies as it relates to performance outcomes.

Leadership in the Military

The Army is a hierarchical organization that requires those who are in charge of leading followers to also follow their superiors in the chain of command (Department of the Army, 2019). The Headquarters at the Department of the Army (2019) defines leadership as “the activity of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization.” This definition of leadership is transformational and encourages individuals to build connections and focus within the organization. The Headquarters of the Department of the Army (2019) further defines an army leader as a person who “inspires and influences people by providing purpose, direction, and motivation to accomplish the mission and improve the organization.” To influence an individual requires explaining and showing examples that persuade them to perform a task or behavior. Providing purpose to an individual is to be able to provide the reason to achieve the desired outcome clearly and directly through requests, orders, or directives. Through this process of providing purpose and encouraging to rise

above self-interest, leaders can inspire followers to perform to their best ability. In addition, an Army leader provides directions by effectively communicating, prioritizing, assigning, supervising, and ensuring the individuals perform the tasks or behaviors to meet standards and employ mission command. Army leaders motivate individuals by understanding the personal ambitions in favor of the broader team goals by recognizing their followers' needs and converting them into team objectives. The Army leadership requirements have been validated by Army research and includes components of a leader such as respectable presence, intelligence, achievements, development, leadership, and character (Department of the Army, 2019). Overall, these requirements influence individual and unit readiness and effectiveness to achieve the given goal.

Types of Leadership

Transactional and transformational are two types of leadership styles individuals may adopt. Hamad (2015) elucidated that a *transactional leader* uses rewards and punishments to make soldiers comply with orders. On the other hand, a *transformational leader* inspires, motivates, influences, and stimulates their followers to build a connection and common belief towards the goals. In the military, transformational and transactional leadership are both used to fulfill daily operations.

Transactional Leadership

Bass et al. (2003) described a transactional leadership style as being when followers agree, accept, and comply with the leader in exchange for resources, rewards, praise, or avoidance of punishment. During transactional leadership, expectations and objectives are outlined, and the leader provides recognition when the objective is accomplished. Typically,

transactional leaders act in accordance with contingent rewards and/or managing by exception (Boies & Howell, 2009). When a leader uses rewards and recognition after a task is completed and successfully accomplished, this is known as contingent reward leadership. Managing by exception (MBE) leadership is divided into passive and active. Passive MBE is when the leader waits until after a problem occurs to create standards and use punishment. In addition, passive avoidant or laissez-faire leaders will not take any action to fix the problem in some situations (Bass et al., 2003). Active MBE is when the leader forms standards in advance, monitors their follower's performance, and responds to problems with punishment. These types of transactional leaders will describe the standards for compliance and what is considered ineffective performance. For instance, if a Sergeant Major has an active MBE style of leadership and is watching a company practice a formation march, they will watch closely to spot errors so that it can be corrected before it turns into a bigger problem. Ultimately, Boies and Howell (2009) found that active MBE in a team setting may cause more negative emotions and more intense pressure due to the leader observing the follower's performance for mistakes, paying close attention to failures to meet protocols, or even not responding to a problem until a follower makes a mistake.

In addition, transactional leaders do not focus on team building but more on following protocols by punishments or rewards (Boies & Howell, 2009). This is not necessarily a negative thing. The importance of transactional leadership style is that the leaders will provide more clarification for their expectations and will be able to give accomplishments recognition which will enhance followers' performance and effort. Although, contingent rewards leadership is a style that falls under transactional leadership and has a positive relationship with followers'

satisfaction, commitment, and performance (Bass et al., 2003); it is also a component of assessing an individual's transformational leadership.

Transformational Leadership

Transformational leadership style has four main elements: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass et al., 2003; Boies & Howell, 2009). An example of when a transformational leader is contributing idealized influence is when the leader is trusted, respected, and admired due to acknowledging the followers' needs and wants over their own. A transformational leader exhibits inspirational motivation when they provide followers challenges and meaningful feedback to motivate followers to envision a successful future. Intellectual stimulation is displayed by transformational leaders when encouraging followers to be more creative, optimistic, and innovative when approaching mistakes and problems. Lastly, an example of transformational leaders presenting individualized consideration is when leaders recognize, support, and attend to each followers' accomplishments and development to reach their optimal potential.

Bass et al. (2003) indicated that transformational leaders will enhance the followers' performance capacity due to establishing higher expectations and willingness to try challenging tasks. Transformational leadership is interchangeable with the term charismatic-transformational leadership. Charismatic-transformational leadership is thought "to reflect social values and to emerge in times of distress" (Bass, 1985, p. 154). Hamad (2015) concluded that it is difficult for transformational leaders to have some charismatic traits. However, leaders in the military should identify the nature of the tasks, how the soldiers are motivated and individually

considered, resources available, and the duration to accomplish the tasks to determine what component of transformational leadership behavior is needed to consider “the mission complete”. Dvir et al. (2002) believed that these characteristics and behaviors of transformational leaders help their followers reach their optimal potential and performance. Transformational leaders allow followers to believe in themselves and the goals of the group. On the individual level, transformational leadership is important because it provides followers with an appropriate guidance to follow thus allowing the leader to be perceived as a positive resource (Pillai & Williams, 2003).

In extension to the four main elements of transformational leadership, researchers have investigated different transformational leadership components from varying frameworks. These frameworks differ depending on the specificity of the researcher. For example, Bass (1985) believed in 4 behaviors of transformational leadership (i.e., idealized influence, intellectual stimulation, individualized consideration, and inspirational motivation) while Podsakoff (1990) believed that there were at least 6 behaviors of transformational leadership (i.e., identifying and articulating a vision, providing an appropriate model, fostering the acceptance of group goals, high performance expectations, providing individualized support, and intellectual stimulation). More recently, Hardy et al. (2010) used a combination of the components and have referred to it as the Differentiated Transformational Leadership Inventory (DTLI) which considers 6 behaviors of transformational leadership and 1 behavior of transactional leadership. The behaviors are measurements of specific behaviors of transformational or transactional leadership that have incorporated different conceptual theories of transformational leadership and transactional behaviors and measurements (Podsakoff et al., 1990; Bass & Avolio, 2000; Callow et al., 2009; Hardy et al, 2010). The 7 behaviors include inspirational motivation, appropriate role modeling,

fostering acceptance of group goals, individual consideration, high performance expectations, intellectual stimulation, and contingent reward. Please refer to Table 1 for a description of each behavior.

Transformational leadership in the military has been found to be effective in predicting follower performance, extra effort, achievement outcomes, well-being, satisfaction, motivation creating comradery, and group cohesion in comparison to transactional leadership (Charbonneau et al., 2001; Bass et al., 2003; Judge & Piccolo, 2004; Rowold, 2006; Callow et al., 2009; Hardy et al., 2010; Arthur et al., 2011; Rozčenkova & Dimdiņš, 2011; Stenling & Tafvelin, 2013; Smith, Arthur, et al., 2013; Cronin, Arthur et al., 2015; Reiley & Jacobs 2016). In Bass et al. (2003), the results revealed that platoon sergeant's active transformational and transactional leadership styles are positively and significantly related to the platoon performance. This is valuable to the current study due to transformational leadership having a significant relationship to performance. There have been studies on transformational leadership in contexts like healthcare, education, business, and sport; however, there have been relatively few studies on ROTC cadets to determine whether transformational leadership is being demonstrated and how effective it is for improving physical performance. Bandura's (2001) research suggests that efficacy is a key variable in improving performance, as individuals with a strong belief in their own abilities are more likely to take on challenging tasks and persevere in the face of obstacles.

Table 1. *Description of the 7 Transformational Leadership Behaviors.*

Transformational Leadership Behaviors	Definitions
Inspirational Motivation MLQ-5X (Bass & Avolio, 2000)	leaders create, express, and motivate others with their future vision
Appropriate Role Modeling TLI (Podsakoff et al., 1990)	leaders model behavior for followers to follow that is compatible with the principles they uphold
Fostering Acceptance of Group Goals TLI (Podsakoff et al., 1990)	leaders encourage followers to cooperate and get them to work together to achieve a common goal
Individual Consideration MLQ-5X (Bass & Avolio, 2000)	leaders demonstrate respect for followers and cares for their needs
High Performance Expectations TLI (Podsakoff et al., 1990)	leaders state that they expect their followers to execute at a high level of excellence, quality, or performance
Intellectual Stimulation TLI (Podsakoff et al., 1990)	leaders push followers to rethink their presumptions about the task and how it can be accomplished
Contingent Reward TLI (Podsakoff et al., 1990)	leaders reward good follower performance and conduct with positive reinforcement

Efficacy

Efficacy is the belief to perform a task to an expected degree of satisfaction. It is the overall confidence within different relationships (i.e., self or others) to perform a task or behavior successfully. There are several types of efficacy beliefs such as self-, other-, and collective efficacy. Based on the tripartite model of relational efficacy beliefs and Habeeb et al.'s (2020) research, there is a comparable predictive relationship of self-, other-, and collective-efficacy with task performance when examined independently of one another. This is important in the current study because in the military there are different job-related tasks that require individuals to work unaccompanied and accompanied. By measuring self-, other-, and collective-efficacy as outcomes of transformational leadership there is an opportunity to better understand how leaders in ROTC instill confidence in their followers at lower ranks.

Self-Efficacy

Self-efficacy is one's belief in oneself to successfully perform a task or behavior (Bandura, 1985). Bandura (1977) argued that there are four sources of self-efficacy. The four sources are performance accomplishments, vicarious experience, verbal persuasion, and physiological states. Performance accomplishment is based on the personal mastery experiences of an individual. So, as one's success rises, the more confident they will be in performing that task again. Vicarious experience is based on observing other individuals perform tasks. Vicarious experience is a less dependable source of self-efficacy due to this source being based on social inferences comparing one's own abilities to the abilities of others (Bandura, 1977). Verbal persuasion is based on a suggestion that allows the individual to believe that they are capable of being successful at a given task. Emotional arousal is being aware of how one's physiological state is responding to stress and can impact self-efficacy both positively and negatively. However, to prepare for situations where similar stressors arise, this response should be taught to be effective. Past experiences based on performance accomplishments are thought to be the "strongest" source of self-efficacy. Overall, self-efficacy has been revealed to be a predictor of physical and mental performance (Feltz et al., 2008). Further, research studies have revealed that high self-efficacy plays a role in one setting more difficult goals for themselves, persisting through challenges and failure in an efficient manner (Jex et al., 2001; Klassen & Usher, 2010).

Lent and Lopez (2002) agreed with Bandura (1977) that past experiences, vicarious experiences, verbal persuasion, and physiological/affective states are the four key intrapersonal sources of self-efficacy. Lent and Lopez also argued that intrapersonal sources will determine how high or low one's self-efficacy is. For example, if a cadet engages in positive self-talk that consists of them being capable of completing and facing the challenges of the combat readiness

course, it can motivate them to believe in their abilities to succeed and result in high self-efficacy. Therefore, others can have some influence on self-efficacy in addition to the four major sources.

Effective leadership involves understanding how to increase followers' self-efficacy, but the most effective strategies can vary depending on the leader's organizational level. Depending on what organizational level a leader is on, it will determine how to best increase followers' self-efficacy. According to Chen and Bliese (2002), lower-level organizational leaders can best increase their followers' self-efficacy by providing adequate socio-emotional support. Conversely, higher-level organization leaders can increase their followers' self-efficacy by clarifying their followers' roles within the organization. However, Bray et al. (2001) study results suggested that proxy efficacy (i.e., other-efficacy) may aid to enhance the effects of self-efficacy in significant behavioral outcomes.

Other-Efficacy

Lent and Lopez (2002) defined other-efficacy as “an individual’s beliefs about his or her significant other’s ability to perform particular behaviors” (p. 264). This is when one perceives another person’s ability to be successful at performing a task or behavior. For example, other-efficacy is when a cadet believes that his unit leader will be successful at completing a mission. Habeeb (2020) conducted a scoping review on 30 studies regarding efficacy beliefs and found common themes such as other-efficacy is a varying factor overtime, is formed based on the connection that is built between oneself and other individuals, has a role in self-fulfilling prophecies and performance, and is impacted by psychological and behavioral factors.

The sources of other-efficacy include experiences with similar others, perceptions of partner's past accomplishments, information that is communicated by outside sources about the partner, stereotypes, and aspects of the perceiver (Habeeb, 2020). For instance, if a soldier gets assigned a new battle buddy (i.e., partner) because their last battle buddy is injured, they may have low other-efficacy with the new battle buddy because the partnership is new. Other-efficacy has many influences on interactions within relationships such as influencing activities between individuals, affecting how effort is expended between individuals influencing valid other self-referential feedback, and believing in other's confidence to provide meaningful responses even though it may affect one's overall satisfaction towards the relationship (Lent & Lopez, 2002). In summary, other-efficacy can be influenced by a variety of factors such as past experiences, perceptions, stereotypes, and individual characteristics, and can have a significant impact on interactions within relationships. Whether it affects activities, effort expended, or the provision of feedback, other-efficacy is an important factor to consider when examining the dynamics of interpersonal relationships.

In a study conducted by Dunlop et al. (2011), the researchers analyzed the effects of self-efficacy and other-efficacy beliefs on individual performance in a cooperative dyadic situation using bogus feedback. The results of this analysis showed that the other-efficacy had a main effect, $F(1,156) = 4.47$, $p = .04$, $d = .35$, with participants doing better in the higher other-efficacy circumstances ($M = 14.75$, $SD = 13.01$) than those in the lower other-efficacy situations ($M = 10.22$, $SD = 13.95$). This study suggests that in cooperative relational circumstances, other-efficacy may outweigh the impacts of self-efficacy in promoting personal performance. Higher other-efficacy beliefs may have positive effects on a person's self-efficacy as well as other interpersonal outcomes like the quality of relationships with significant others that may play a

role in performance outcome. Our current study is needed to gain a better understanding of the interrelationship between cadets because the cadets in ROTC programs are constantly interacting with one another to learn and grow to be better Army leaders.

Collective Efficacy

Bandura (1997) defined collective efficacy as the “group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments” (p. 477). Collective efficacy is a construct that begins with the individual team members and because of team social interactions, mutual tasks, and experiences, the team begins to share these constructs (Kozlowski & Klein, 2000). On the team level, collective efficacy is the conceptualization of the members of the group belief of the group’s ability to perform the tasks. Collective efficacy has been found to be a valuable construct for understanding and improving team performance. This construct is influenced by the individual beliefs of team members, as well as the team's social interactions and shared experiences, and has been shown to mediate the relationship between belief and performance at the individual level.

In a nonmilitary context, Little and Madigan (1997) conducted research on high-performance manufacturing work teams over-time to provide evidence to support the theory of the positive relationship between collective efficacy and team performance. Using repeated measures analysis, the findings showed that based on the group’s collective efficacy scores, there was a significant difference in performance ($F = 9.15, p > .0001$). Meaning that the higher the collective efficacy score was the higher the level of performance the work team produced. Chen and Bliese (2002) conducted a study on approximately 4,000 soldiers of two U.S. Army brigades to explore whether organizational predictors of self- and collective efficacy are similar or

distinct. Based on the results, the researchers suggested that the leadership climate displayed in higher organizational levels has a stronger association with collective efficacy than compared to lower organizational levels' leadership climate. In alignment with this study, the leadership climate of an organization is a significant predictor for group and individual motivation, with a more direct relationship with collective efficacy. This is relevant in the military context because the organization is built on hierarchy related to individual's ranks. As a cadet gets promoted to higher ranks, there are more expectations of their individual leadership and building camaraderie within their followers which has shown to play a role in how well the group performs above the expected degree.

Performance

Performance depends on an action aspect and an outcome aspect. The *action* aspect is the behavior an individual or group engages in that is relevant to the overall goals and can be judged, measured, and evaluated. The *outcome* aspect is what occurs as a result or consequence based on the action or behavior (Sonnentag & Frese, 2002). Performance can be perceived as a multi-dimensional concept and/or a dynamic concept. In alignment with the multi-dimensional concept approach (Borman & Motowild, 1993; 1997), there are two types of performance: task and contextual performance. Task performance refers to the completion of given tasks that contributes to the organization's production. This includes tasks such as planning, supervising, and coordinating to benefit the organization in an effective and efficient manner. Contextual performance refers to the supporting behaviors that create an environment for tasks to be successfully completed in. This includes behaviors such as volunteering, cooperating, innovating, and enthusiasm when completing tasks (Van Dyne & LePine, 1998).

On the other hand, performance can be understood as a dynamic concept that describes the variability of performance over a period. First, performance can change due to long-term adjustments and improving known skills. Secondly, performance can alter due to short-term changes and learning new skills (Sonnentag & Frese, 2002). For example, a higher-ranking soldier may have better performance on land navigation because they have been in the military longer than a lower ranking soldier. Every individual will go through psychological or physiological changes that may affect one's performance on the given task.

In the military organization, coactive and interactive skills are used daily. Coactive skills are used when an individual is performing a task at the same time as another individual, but they do not disrupt one another at completing the task. For example, during the physical fitness test, individuals are completing the events at the same time, but performance is scored individually. Specifically, the organization that oversees the sample population has established task for the cadet to perform such as the Army Combat Fitness Test (ACFT). In this context, the ACFT is a coactive performance measurement.

The ACFT is a fitness performance assessment that cadets complete simultaneously using an age and gender performance normed scoring system (See Appendix C). The ACFT consists of six events (i.e., 3 Repetition Maximum Deadlift, Standing Power Throw, Hand Release Push-up-Arm Extension, Sprint-Drag-Carry, Plank, and Two-Mile Run) that aims to closely link fitness with combat preparedness. Each exercise in the ACFT is related to hypothetical battlefield scenarios or everyday army responsibilities. The Muscular Strength component of a Soldier's fitness is evaluated by the MDL through measuring their strength in the lower body, grip, and core muscles. To perform well on this assessment, cadets need to have strong back and leg muscles, which can also help prevent injuries to the hips, knees, and lower back. To assess

cadet's ability to move both their upper and lower bodies quickly and explosively. Upper body endurance is measured by the Hand Release Push-up – Arm Extension by assessing core and upper body strength. The Sprint-Drag-Carry measures a soldier's capacity to maintain moderate to intense physical effort for a brief period of time. The results are used to evaluate a soldier's muscular endurance, muscular strength, anaerobic power, and anaerobic endurance components of fitness. A cadet's core strength and endurance was assessed using the plank as the measurement. Lastly, the Two Mile Run assessed cadets' aerobic endurance in order to perform repetitive physical tasks for longer periods of time while recovering more rapidly. See Figure 1 for icons of each event.

Figure 1. ACFT Icons

3 Repetition Maximum Deadlift



Standing Power Throw



Hand Release Push-up – Arm Extension



Sprint-Drag-Carry



Plank



Two Mile Run



Investigative Rationale

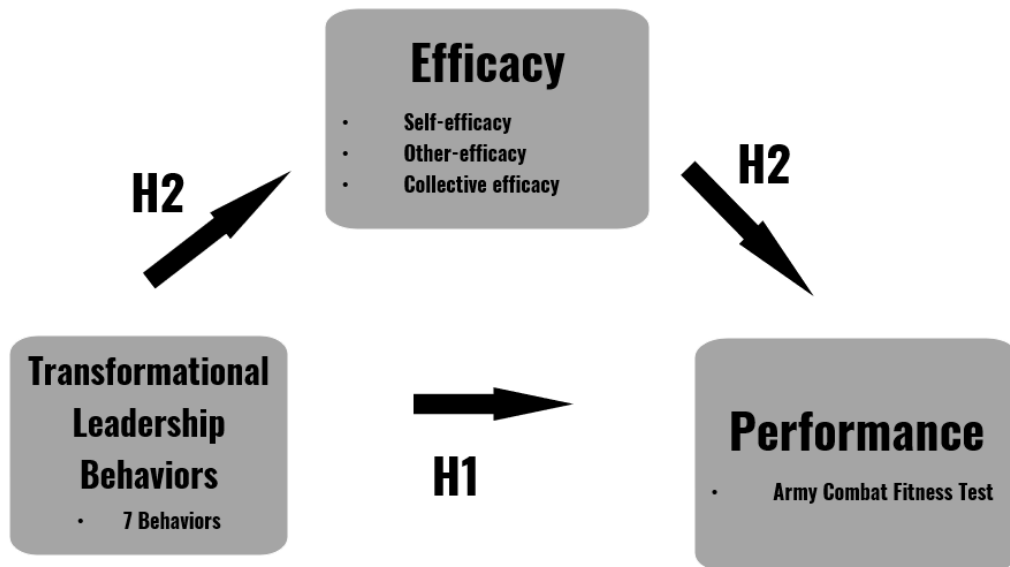
To the researcher's knowledge, no study has examined the association between transformational leadership behaviors, self-, other-, and collective efficacy, and physical performance altogether (i.e., Army Combat Fitness Test). Such an investigation would help the support ROTC's purpose to prepare future military leaders. ROTC is a program that has a curriculum that provides leadership development and military training to cadets to prepare for careers in the Army as officers. Drawing on research in nonmilitary contexts, allows us to propose that self-, other, and collective efficacy are mechanisms explaining how transformational leadership has its influence on positive performance outcomes.

Therefore, the purpose of this study was to (1) examine the direct relationship between transformational leadership behaviors and performance in ROTC cadets; and (2) examine the indirect effects associated with self-, other-, and collective efficacy in the relationship between transformational leadership and performance in ROTC cadets. We hypothesize (1) transformational leadership behaviors will have a direct relationship with performance; and (2) self-efficacy, other-efficacy, and collective efficacy will mediate the relationship between transformational leadership and performance. Please refer to Table 2 for more details.

Table 2. *Research Question, Hypotheses, and Analyses.*

	Research Question	Hypothesis	Analysis
1.	Is there a direct relationship between transformational leadership behaviors and performance in ROTC cadets?	Transformational leadership behaviors will have a direct relationship with performance	Mediation models with the highest three transformational leadership behaviors directly predicting performance
2.	To what extent does efficacy mediate the relationship between transformational leadership behaviors and performance in ROTC cadets?	SE, OE, and CE will mediate the relationship between transformational leadership behaviors and performance	Mediation model with the highest 3 transformational leadership behaviors indirectly predicting performance through SE, OE, and CE

Figure 2. *Hypothesized Mediation Model*

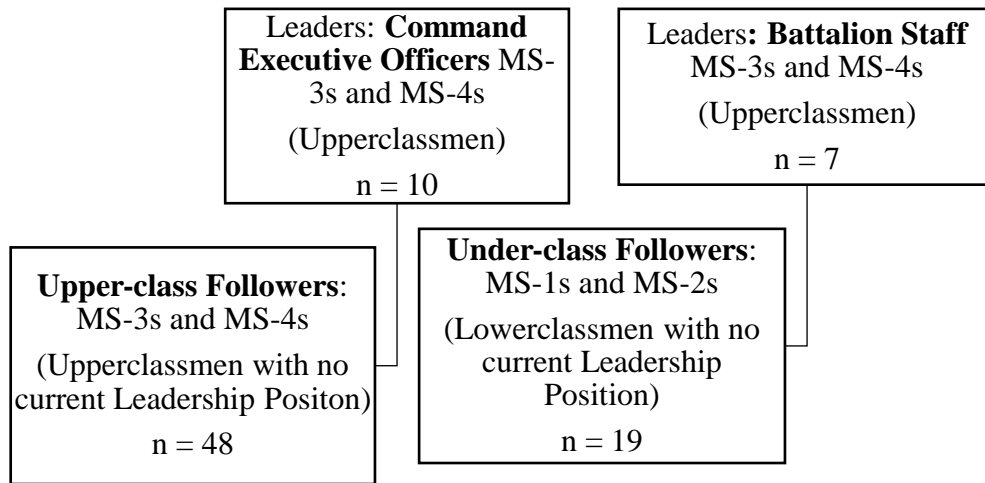


Chapter 3- Methods

Participants

The sample for this study was cadets from a university-level Army ROTC program composed of men and women ($n = 67$). This population is important to study due to the program's aim to educate future men and women who will become future Officer leaders in the U.S. Army Officers. Within the Army ROTC program, the participants are given ranks based on their classification and experience. Within this study, *leaders* are identified as the upperclassmen who are Command Executive Officers and Battalion Staff that have been selected by peers and the cadre. *Upper-class followers* for this study are identified as the Juniors-MS-3s and Seniors-MS-4s/MS-5s that are not in Command Executive Officers and Battalion Staff positions who report directly to the Command Executive Officers. Lastly, *under-class followers* for this study are identified as Freshman-MS-1s and Sophmores-MS-2s that have not attended the mandatory cadet summer training and/or are not in Command Executive Officers and Battalion Staff positions who report direct to the Battalion Staff. See diagram below for a visual breakdown of leader-followers.

Figure 3. *Leader-Follower Breakdown*



Procedures

Prior to University Internal Review Board (IRB) review, the ROTC head faculty member was contacted via email that contained a brief overview of the study and invitation to participate. Once faculty of the program and IRB approved the study (See Appendix A), participants were recruited from an ROTC program. The research team went on-site to conduct the survey. All participants (under-class follower, upper-class follower, and leaders) in this study received a QR Code that linked to the self-report survey. The participants provided their consent to participate in the study before beginning the survey through Qualtrics XM (Seattle, WA), an online program. Based on the cadet's role, they completed the Follower survey. The surveys for the followers included leadership measures, efficacy measures, open-ended questions, and demographics (See Appendix B below). Both under-class and upper-class follower surveys were exactly the same except for the stem sentences for the leadership measurement. For the lower follower survey, the stem sentence was, "My Battalion Staff/Leadership...". Whereas, the higher follower stem sentence stated, "My Command Executive Officers...". The Battalion Staff and

Command Executive Officers were evaluated as a whole and not as individual cadet leaders due to the organizational structure of the ROTC program at the time of data collection. By completing the survey, the participants opted in for their performance data to be accessible to the research team to allow the project to use their historical and present performance data results. Performance data includes their Army Combat Fitness scores.

Measures

Transformational Leadership

Leadership was measured using the Differentiated Transformational Leadership Inventory (DTLI; Hardy et al., 2010). The DTLI is a measure that incorporates select concepts from Podsakoff et al.'s (1990) Transformational Leadership Inventory and Bass and Avolio's (1995) Multifactor Leadership Questionnaire-5X. The DTLI is a 26-item inventory with six transformational leadership behaviors and one transactional leadership behavior. The six transformational behaviors include inspirational motivation with 4 items, appropriate role modeling with 3 items, fostering acceptance of group goals with 4 items, individual consideration with 4 items, high performance expectations with 4 items, intellectual stimulation with 3 items. Example items are available in Appendix B (note some items are copyrighted and cannot be reproduced in this thesis). The one behavior for transactional behavior is contingent reward with 4 items. All items are responded to on a 1 (*not at all*) to 5 (*always*) Likert-type scale. The stem statement of this survey has been modified to fit the common language used by the participants for better understanding and relatedness. For example, in the original inventory used by Hardy et al., the participants were asked to keep in mind their section commander with a stem statement of "My Section Commander...". In the present study, the inventory says, "My

Command Executive Officers...” for Higher Followers and “My Battalion Staff...” for Lower Followers. In Hardy et al. (2010), confirmatory factor analyses (CFA) were used to test the factor structure of the scale. The findings showed that the scale displayed an acceptable factor structure (CFI = 0.98). For each of the item’s specific factors, all of the standardized factor loadings were more than 0.43. The researchers decided to keep the full differentiated model. The Cronbach’s alpha coefficients (including Study 1 and Study 2, Hardy et. al., 2010) ranged from 0.62 to 0.92, with only two alpha coefficients lower than the conventional value of .70 (i.e., high performance expectations ($\alpha = .66$); and inspirational motivation ($\alpha = .62$)). However, these two subscales were both satisfactory on the single factor CFA (high performance expectations (CFI = 0.99) and inspirational motivation (CFI = 0.99)). These two subscales are recommended to interpret with caution due to the mixed validity values. Within the current study, the alpha coefficients ranged from 0.82 to 0.93. See below in Table 3 for Cronbach’s alpha table for each of the leadership subscales. The total transformational leadership score was calculated from the computed average from the 3 or 4 items per inventory depending on the subscale. Please refer to Appendix B for the transformational leadership survey.

Table 3. *Transformational Leadership Subscale Cronbach's Alpha*

Transformational Leadership Subscales	Cronbach's alpha (α)
Inspirational Motivation	.91
Appropriate Role Modeling	.90
Fostering Acceptance of Group Goals	.88
Individual Consideration	.84
High Performance Expectations	.84
Intellectual Stimulation	.86
Contingent Reward	.93

Self-efficacy

The follower's self-efficacy was measured using Hardy et. al.'s (2010) self-confidence measure. To fit the purpose of this study, the wording used in this measurement was tailored to the population. The original stem sentence was "compared to the most confident recruit you know; how would you rate your confidence in your ability to...". The stem sentence was adapted to say, "To what extent are you confident in YOUR ability to..." because it reflects the nature of the item more appropriately in the ROTC context. In addition, some items were adjusted based on suggestions from the ROTC faculty. Specifically, the second item in this measurement was adapted to say, "physical tasks" instead of "technical tasks" to adapt the item to the activities the cadets focus on in their specific ROTC program. Further, the examples used in the previous study to explain the tasks (i.e., technical or field tasks) were altered to fit the physical and field tasks the organization incorporates into the cadet's training. An example item is, "Meet the challenges of training." All items were responded to on a 1 (*not confident at all*) to 5 (*completely confident*) Likert-type scale. In Hardy et al., the previous internal consistency for the self-efficacy scale was above conventional guidelines ($\alpha = .83$). Hardy et al. (2010), revealed that

self-efficacy has significant correlations to the seven behaviors of transformational leadership measured using the DTLI ($r = .14 - .32$). In addition, fostering acceptance of group goals had the highest correlation with self-efficacy with a significant moderate correlation ($r = .32$). Whereas intellectual stimulation had a significant but small correlation with self-efficacy ($r = .14$). See Table 4 below for Cronbach's alphas for the current study. A total self-efficacy score was calculated from the computed average from all 5 items. Please refer to Appendix B for the self-efficacy survey.

Other-efficacy

The follower's other-efficacy has been adapted from the self-confidence measure from Hardy et al. (2010). First, the same adaptations were made as described in the self-efficacy measure. Second, the stem sentence needed another adjustment to orient the participants to consider the type of efficacy. The adapted stem sentence was, "To what extent are you confident in your [Command Executive Officers or My Battalion Staff] abilities to...". The other-efficacy survey is identical to the 5-item scale used for the self-efficacy measurement. All items are responded to on a 1 (*not confident at all*) to 5 (*completely confident*) Likert-type scale. See Table 4 below for Cronbach's alphas for the current study. A total other-efficacy score was calculated from the computed average from all 5 items. Please refer to Appendix B for the other-efficacy survey.

Collective efficacy

Similar to other-efficacy, the follower's collective efficacy was adapted from the Self-Confidence measure in Hardy et. al. (2010). The stem sentence was, "To what extent are you confident in the GROUP's collective abilities to...". The collective efficacy survey was identical

to the 5-item survey used for self- and other-efficacy. All items were responded to on a 1 (*not confident at all*) to 5 (*completely confident*) Likert-type scale. See Table 4 below for Cronbach’s alphas for the current study. A total collective efficacy score was calculated from the computed average from all 5 items. Please refer to Appendix B for the collective efficacy survey.

Table 4. *Efficacy Cronbach’s Alpha*

Efficacy	Cronbach’s alpha (α)
Self-Efficacy	.90
Other-Efficacy	.92
Collective Efficacy	.93

Performance

The participants completed the Army Combat Fitness Test (ACFT) within the Fall testing period for measurements. The ACFT is a physical readiness measurement that assesses the cadet’s movement lethality and physical ability to perform combat-related tasks by consisting of six test events. The six events are the 3 Repetition Maximum Deadlift (MDL), the Standing Power Throw (SPT), the Hand-Release Push-Up (HRP), the Sprint-Drag-Carry (SDC), the Plank (PLK) and the 2-Mile Run (2MR). The testing is completed on three different days due to splitting the cadets up by their rank and assuring that the graders are consistent. The graders consist of the ROTC cadre that have proper training and experience with grading the ACFT. Each grader is assigned to one specific testing group for the entirety of the ACFT. According to Army Techniques Publications (Department of the Army Headquarters,

2020), overall, the ACFT reassures that the cadet's and unit's physical readiness training is up to par, and it demonstrates how effective and efficient the training is.

Each of the six events is scored 0 -100 points based on the personal completion of the event and the participant's age and gender. For example, for the 3 Repetition Maximum Deadlift, if a 21-year-old female performed the 3 Maximum Deadlift with 150 pounds, she would score 78 points for this event (Please refer to Appendix C). The ACFT is scored as a pass or fail based on the final scores for each event. A passing score for all the events is 60 points. If a cadet fails one event (i.e., does not receive 60 points on an event), they fail the entire ACFT. The outcome score for the current study for the ACFT performance measurement will be the ACFT grading score to examine if leadership played a role in the scores. The ACFT grading score is the number of points the cadet gained from completing each of the given events. See Appendix C for grading rubric. Event scores were analyzed separately, and the overall score was calculated from the computed average from all 6 events.

Demographics and Open-Ended Questions

Within this section all participants that are followers were asked to provide general background information that included race, ethnicity, gender, ROTC rank, and duration with current ROTC program. Please refer to Appendix B for the demographics survey and open-ended questions.

Data Analysis

All analyses were conducted in the Statistical Package for the Social Sciences Version 28.0.0.0 (SPSS) software (SPSS Inc., Armonk, NY). Alpha was set at *a priori a p = 0.05*, this indicates that the likelihood of mistakenly rejecting the null hypothesis is up to 5%. Categorical

variables (i.e., sex, classification/military science level, and race) were all reported as counts and percentages. Summary statistics for continuous variables (i.e., age and time with ROTC program) were means and standard deviations. Prior to conducting hypotheses testing, Pearson correlation coefficients were calculated to examine the bi-variate relationships between the seven transformational leadership behaviors, three efficacy beliefs, and the overall performance score. For weak (.10-.30), moderate (.30-.50), and strong (.50-.70) correlations, Cohen's (1988) recommendations were utilized to interpret the strength of the correlations.

Mediation models using Hayes Process Macro version 4.2 beta were performed to test the hypotheses. To test the first hypothesis, a regression analysis between the highest three transformational leadership behaviors and overall performance score were conducted. To test the second hypothesis, a Sobel test was performed and PROCESS Macro in SPSS to measure the mediation effects between transformational leadership behaviors (predictor variable) and overall performance (response variable) through efficacy (mediator). To test the hypotheses for mediation, 5000 bootstrap samples and 95% bias-corrected confidence intervals were estimated for indirect effect parameters. If the values of zero was out of range of the estimated confidence interval (CI), an indirect effect was deemed significant.

Chapter 4- Results

Data Correction

Due to an unknown error in the Qualtrics program, the under-class follower surveys had an incorrect scaling of 0-100 for the Efficacy items. In order to rescale and get all measurements into the same Likert scale of 1 to 5, the data for the Lower Followers had to go through a percent of maximum scoring transformation before being recoded to different variables given the range in Table 3. This range of numbers was determined by how Qualtrics rounds values to Likert Scales This transformation was needed because to compare any change on the instrument, the scores on the measures must be on an equivalent metric (Little, 2013).

Table 5. *Data Correction Range Scale*

Range (Old Value)	Likert Scale Value (New Value)
0 – 1.499	1
1.5 – 2.499	2
2.5 – 3.499	3
3.5 – 4.99	4
4.5 – 5	5

Sample Characteristics

Out of the potential sample size of 150, a total of 93 participants (41 under-class followers, 52 upper-class followers) started the survey. A total of 8 participants had to be removed due to the following reasons: 4 under-class followers and 3 upper-class followers due to less than or equal to 40% completion of the surveys, 1 unidentifiable participant having an invalid survey duration in seconds (17.00 seconds). Total participants that had a valid survey was

n = 85. Next, the 85 survey responses were matched to 67 participant pre-performance data. The final sample was comprised of 67 participants due to a completed survey and performance measurement.

The sample consisted of 55 males (82.1%) and 12 females (17.9%) between the ages of 18 and 33 ($M = 21.09$, $SD = 2.45$). Participants self-identified as White (68.7%), Black/African American (9.0%), Asian/Asian American (7.5%), Two or more Races (7.5%), and Other (3.0%). The gender and race data of the current study are similar to the gender (i.e., Males = 84.3% and Females 15.7%) and race (i.e., White = 53.6%) demographics of the U.S. Army as of 30 June 2022 (U.S. Army, 2022). The most frequent classification was Juniors (37.3%) followed by Sophomores (29.9%), Seniors (26.9%), and Freshmen (3.0%). The most frequent Military Science (MS) class follows a similar pattern as the classifications with MS-3s (38.8%) followed by MS-4s (26.9%), MS-2s (3.9%), MS-5s (7.5%), and MS-1s (3.0%). For Army ROTC cadets to be competitive for a commission as an Army officer during their senior year of college, Cadet Summer Training (CST) is a crucial training event. Cadets are tested on their ability to complete demanding tasks and make crucial decisions under pressure. Of the sample, 29.9% participants reported that they had attended Cadet Summer Training. Of 67 participants, 6.0% are in the Green to Gold program which provides enlisted soldiers (i.e., soldiers that have taken an oath of U.S. military service and gone through the process to become a service member) a chance to pursue an army officer commission. Participating in the ROTC leadership program allows soldiers to pursue either an undergraduate or graduate degree. Lastly, participants reported time with the ROTC program between 1 month to 4.5 years ($M = 2.19$ years, $SD = 1.26$).

Main Variable Descriptive Statistics

Means were examined before the main analyses. Means and standard deviations for leadership, efficacy, and performance were computed. When separated into the 6 Army Combat Fitness Test (ACFT) events, the Hand Release Push-Up with Arm Extension had the highest score average of 85.85 (SD = 9.64) and the Plank had the lowest score average of 77.52 (SD = 15.67). Additionally, the overall score average for all 6 events was 82.58 (SD = 8.28). These scores are all higher than the minimum passing score of 60 for the ACFT. For efficacy, self-efficacy had the highest average of 4.28 (SD = 0.77) and collective efficacy had the lowest average of 3.95 (SD = 0.76). For transformational leadership behaviors, high performance expectations had the highest average of 3.91 (SD = 0.90), followed by Fostering Acceptance of Group Goal (M = 3.82; SD = 0.88) and Inspirational Motivation (M = 3.80; SD = 0.99). These three behaviors were therefore used in the hypothesis testing. Contingent reward had the lowest average of 3.14 (SD = 1.06). Table 3 presents more detailed information of the main variables. Overall, the participants scored high on the performance test, moderately on the transformational leadership behaviors measurement, and high on efficacy measurement.

Table 6. Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
MDLScore	64	100	82.99	11.70
SPTScore	60	97	80.01	11.48
HRPScore	68	100	85.85	9.64
SDCScore	61	100	83.73	11.56
PLKScore	60	100	77.52	15.67
MRScore	64	100	85.40	11.84
Overall Performance Score	65.33	99.17	82.58	8.28
Inspirational Motivation	1.00	5.00	3.80	0.99
Appropriate Role Modeling	1.00	5.00	3.68	0.98
Fostering Acceptance of Group Goal	2.00	5.00	3.82	0.88
Individual Consideration	1.25	5.00	3.39	0.98
High Performance Expectations	1.00	5.00	3.91	0.90
Intellectual Stimulation	1.00	5.00	3.34	1.07
Contingent Reward	1.00	5.00	3.14	1.06
TotalTL	1.71	5.00	3.58	0.79
SE	2.00	5.00	4.28	0.72
OE	2.00	5.00	4.12	0.77
CE	1.80	5.00	3.95	0.76

*Note. Range for performance scores (MDL, SPT, HRP, SDC, PLK, MR) was 0 to 100 with 60 the minimum passing score. Overall Performance Score included all 6 events total. Range for efficacy measurements (SE, OE, CE) was 1 (No confidence at all) to 5 (Complete confidence). Range for transformational leadership (TL) behaviors was 1 (Not at all) to 5 (All of the time). **Bolded** words are the highest three Transformational Leadership Subscales that will be used for data analyses.*

Correlations

Pearson correlations for all the main variables are in Table 7 displayed below. For leadership behaviors, the significant moderate positive to strong correlations among one another ranged from $r = .45, p < .001$ (i.e., between high performance expectations and inspirational motivation) to $r = .88, p < .001$ (i.e., between total transformational leadership score and individual consideration). Self-efficacy had a significant strong positive association with other-efficacy ($r = .66, p < .001$). This means as self-efficacy increases so does other-efficacy. Additionally, other-efficacy had a significant strong positive correlation with collective efficacy ($r = .57, p < .001$). In other words, as other-efficacy increases, so does collective efficacy. For performance measurements, the events had positive weak to large correlations among one another. This means for large correlations, a participant scored well on one performance event then they likely scored well on the other performance events. For the performance outcomes, Standing Power Throw had a significant moderate association with Maximum Deadlift ($r = .46, p < 0.001$) and Sprint-Drag-Carry ($r = .45, p < 0.001$). In addition, Sprint-Drag-Carry had a significant moderate correlation with Hand-release Push-up ($r = .47, p < 0.001$). Plank had a significant strong correlation with Hand-release Push-up ($r = .58, p < 0.001$). Two-Mile Run had a significant moderate association with Hand-release Push-up ($r = .49, p < 0.001$), Sprint-Drag-Carry ($r = .50, p < 0.001$), and Plank ($r = .61, p < 0.001$).

For the transformational leadership behaviors, the behaviors generally had insignificant weak negative associations with performance scores. In other words, if a leader had high transformational leadership behaviors, their follower's performance scores lowered. Surprisingly, collective efficacy had a significant moderate negative relationship with Maximum Deadlift ($r = -.32, p < .001$), meaning, cadets with higher collective efficacy scores tended to

perform worse on the Maximum Deadlift. Please refer to Table 4 for the scatterplot depicting the negative correlation between collective efficacy and Maximum Deadlift. Additionally, transformational leadership behaviors had significant moderate to strong positive associations with efficacy scores, essentially meaning higher transformational leadership behaviors correlate to higher efficacy levels. Inspirational motivation also had a significant moderate correlation with self-efficacy ($r = .45, p < .001$) and other-efficacy ($r = .45, p < .001$). Other-efficacy had a significant strong relationship with High Performance Expectations ($r = .50, p < .001$) and Fostering Acceptance of Group Goals ($r = .59, p < .001$). Lastly, Acceptance of Group Goals also had a significant moderate association with self-efficacy ($r = .43, p < .001$) and collective efficacy ($r = .44, p < .001$).

Hypothesis Testing (Mediation) PROCESS macro

According to the descriptive statistics, the highest three subscales used for mediations are High Performance Expectations, Fostering Acceptance of Group Goals, and Inspirational Motivation. Standardized indirect and direct values were used to examine the mediation models. Based on the correlations, it seems that while transformational leadership behaviors (TL) were not related to Performance, TL did have a significant relationship with efficacy (i.e., self-, other, and collective), and CE has a significant relationship with performance, specifically maximum deadlift. The predictor variables were each of the highest three leadership behaviors, the mediator variable was collective efficacy, and the response variable was maximum deadlift due to that specific performance outcome being the only significantly associated outcome to the mediator variable. The regression scatterplots' visual inspection revealed that homoscedasticity had been obtained. Examining the sample's p-p plots showed that the linearity presumptions were satisfied. The VIF values, which were fewer than 10 and larger than 1, showed that the

level of collinearity was acceptable. For hypothesis testing, assumptions were tested. First, skewness and kurtosis were calculated. According to Kline (2016), the cutoff values for skewness and kurtosis should be below 3 and 10, respectively. The data deviates from normal slightly, but not to the degree it is deemed problematic.

Mediation model 1: High Performance Expectations to MDL through Collective Efficacy

As shown in Figure 5, High Performance Expectations was not observed to have significant direct effects on Maximum Deadlift ($B = -.21$, $SE = 1.68$, $p = .90$). High Performance Expectation was observed to have significant indirect effects on Maximum Deadlift through Collective Efficacy ($B = -.12$, $SE = .06$, 95% CI $[-.24, -.02]$) indicating that cadets scoring high on PE behavior performed better on the Maximum Deadlift event on the ACFT. These findings partially supported our hypotheses.

Mediation model 2: Fostering Acceptance of Group Goals to MDL through Collective Efficacy

As shown in Figure 6, Fostering Acceptance of Group Goals was shown to not significantly relate to Maximum Deadlift directly ($B = 1.36$, $SE = 1.76$, $p = .44$). Additionally, it was observed with bias-corrected bootstrapped testing of indirect effects, collective efficacy was a significant mediator in the relationship between Fostering Acceptance of Group Goals (GG) and Maximum Deadlift (MDL) ($B = -.16$, 95% CI $[-.28, -.05]$). These results were partially in line with our hypotheses.

Mediation model 3: Inspirational Motivation to MDL through Collective Efficacy

As shown in Figure 7, the direct effect from Inspirational Motivation (IM) to Maximum Deadlift (MDL) is insignificant ($B = 1.14$, $SE = 1.46$, $p = .44$). Also, in the current study, a negative significant indirect effect was observed between Inspirational Motivation and

Maximum Deadlift ($B = -.10$, $SE = .05$, 95% CI $[-.22, -.02]$) through collective efficacy. Our hypotheses were partially supported by these results.

Table 7. Correlations

	MDL	SPT	HRP	SDC	PLK	MR	OPScore	IM	RM	GG	IC	PE	IS	CR	TotalTL	SE	OE	CE
MDL	--																	
SPT	.46 ^{***}	--																
HRP	.37 ^{**}	.28 [*]	--															
SDC	.34 ^{**}	.45 ^{***}	.47 ^{***}	--														
PLK	.24	.17	.58 ^{***}	.34 ^{**}	--													
MR	.17	.10	.49 ^{***}	.50 ^{***}	.61 ^{***}	--												
OPScore	.61 ^{***}	.58 ^{***}	.76 ^{***}	.74 ^{***}	.75 ^{***}	.71 ^{***}	--											
IM	-.01	-.05	.12	-.13	.03	.06	.00	--										
RM	-.13	-.10	-.12	-.07	-.11	.04	-.12	.58 ^{***}	--									
GG	-.06	-.15	-.05	-.10	.08	.09	-.04	.59 ^{***}	.67 ^{***}	--								
IC	-.01	-.14	-.11	-.08	.04	.07	-.04	.64 ^{***}	.60 ^{***}	.67 ^{***}	--							
PE	-.14	-.09	-.06	-.13	.05	-.04	-.09	.45 ^{***}	.51 ^{***}	.65 ^{***}	.58 ^{***}	--						
IS	-.03	-.10	-.13	-.07	-.02	.08	-.06	.52 ^{***}	.55 ^{***}	.60 ^{***}	.81 ^{***}	.49 ^{***}	--					
CR	.03	-.05	.03	.15	.01	.18	.08	.46 ^{***}	.60 ^{***}	.49 ^{***}	.64 ^{***}	.48 ^{***}	.64 ^{***}	--				
TotalTL	-.06	-.12	-.05	-.07	.01	.09	-.04	.76 ^{***}	.80 ^{***}	.82 ^{***}	.88 ^{***}	.73 ^{***}	.83 ^{***}	.78 ^{***}	--			
SE	.08	.00	.12	.04	.05	.00	.06	.45 ^{***}	.30 [*]	.43 ^{***}	.20	.25 [*]	.32 ^{**}	.15	.37 ^{**}	--		
OE	-.06	-.06	.13	-.03	-.12	-.02	-.06	.45 ^{***}	.37 ^{**}	.59 ^{***}	.28 [*]	.50 ^{***}	.37 ^{**}	.29 [*]	.50 ^{***}	.66 ^{***}	--	
CE	-.32 ^{**}	-.13	-.04	-.06	-.06	-.02	-.15	.30 [*]	.22	.44 ^{***}	.33 ^{**}	.40 ^{**}	.37 ^{**}	.34 ^{**}	.43 ^{***}	.32 ^{**}	.57 ^{***}	--

***. Correlation is significant at the 0.001 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Figure 4. Scatterplot Showing the Correlation Between Collective Efficacy and MDL Scores

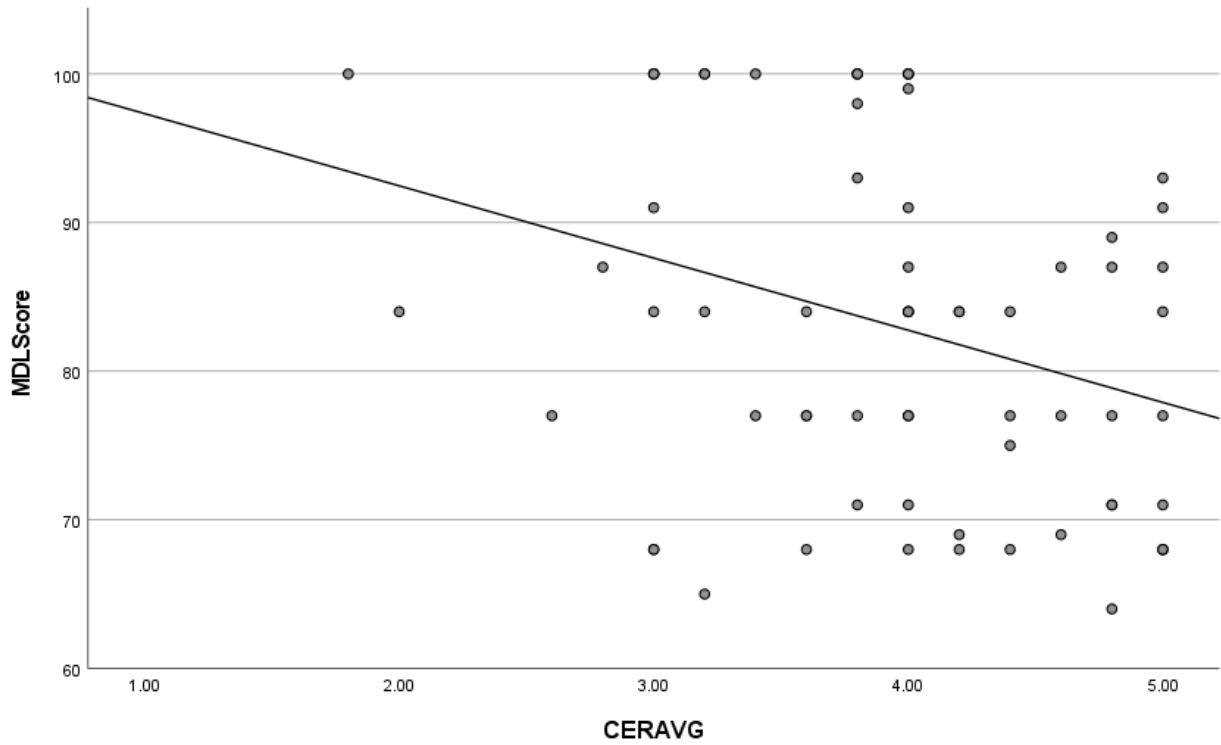


Figure 5. High Performance Expectations to MDL through Collective Efficacy Mediation Model

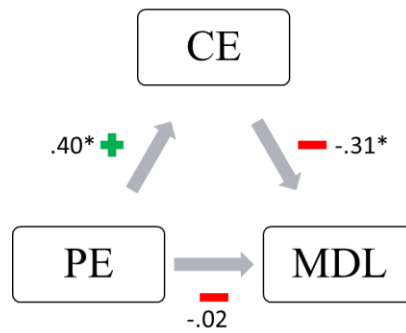


Figure 6. *Fostering Acceptance of Group Goals to MDL through Collective Efficacy Mediation Model*

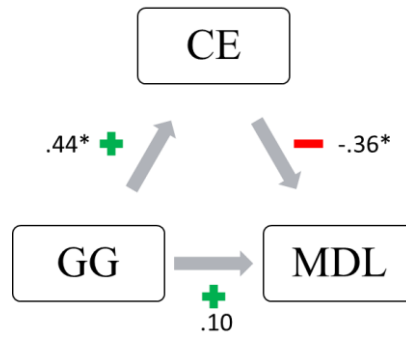
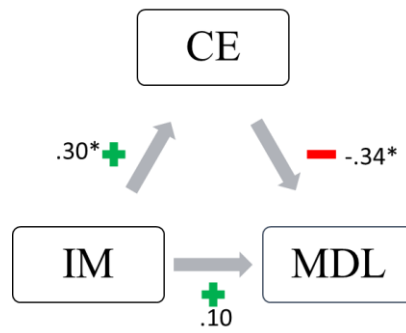


Figure 7. *Inspirational Motivation to MDL through Collective Efficacy Mediation Model*



Chapter 5- Discussion

The study's purposes were to (1) examine the direct relationship between transformational leadership behaviors and performance in ROTC cadets; and (2) examine whether efficacy mediates the relationship between transformational leadership and performance in ROTC cadets.

Theoretically and empirically, transformational leadership predicts follower performance, accomplishment outcomes, building camaraderie, and fostering group cohesiveness (Hardy et al., 2010; Rozčenkova & Dimdiňš, 2011; Reiley & Jacobs, 2016). Additionally, according to Habeeb (2020) research and the tripartite model of relational efficacy beliefs, when self-, other-, and collective efficacy are considered independently of one another, there is a comparable predictive association with task performance. We hypothesize (1) transformational leadership behaviors will have a direct relationship with performance; and (2) self-efficacy, other-efficacy, and collective efficacy will mediate the relationship between transformational leadership and performance.

Hypothesis 1 was not supported by the results due to insignificant direct relationships. Based on the significant negative indirect associations between the highest three transformational leadership behaviors and Maximum Deadlift as the performance outcome through collective efficacy as the mediator, Hypothesis 2 was not supported. The results are discussed in the order of strengths, limitations, applications, future research, and conclusions in the following sections.

Key Findings

The first hypothesis, which focused on the direct relationship between transformational leadership behaviors and performance, was not supported. Based on the correlation table, the variables were not significantly related to another, essentially meaning there was no relationship between any of the transformational leadership behaviors and the six performance events. Aligning with the nonsignificant correlations, the main analysis revealed that transformational leadership behaviors did not have a significant direct relationship with performance. These results do not

correspond to the theory and previous findings of transformational leadership predicting individual performance. In previous research, compared to contingent reward leadership (i.e., transactional leadership), transformational leadership has been associated with greater levels of performance (Avolio, 1999). However, Hamad (2015) believed that transformational leadership behaviors might be more successful in long-term circumstances where leaders and soldiers must cooperate to complete a task, such as military battle and tactical maneuvering. Transactional leadership, according to Hamad, would be more effective in the current study's performance task because it involved short-term, non-repetitive events.

The second hypothesis focused on the indirect relationship between transformational leadership behaviors and performance through efficacy. Although this hypothesis was not supported, it was not expected to be an opposing mediation where the signs associated with the indirect effect are not the same. Avolio (1999) theorized that leaders who are more transformational affect positively the efficacy levels of those who report to them. In response, their higher levels of efficacy have led to higher individual performance. In the current study, the indirect relationship was significantly negative. This means, aligning with Avolio (1999), more transformational leaders have a positive impact on their follower's efficacy. However, the higher efficacy resulted in the follower's performing worse or had no association.

Based on past research in sport, self-efficacy has a moderate significant positive correlation to performance ($r = .38$) (Moritz et al., 2000). In the current study, the correlations between efficacy and performance were not significant. This could have occurred because different performance tasks have demonstrated to have different effects on the strength of correlations, with task-specific measures correlating more strongly when compared to other evaluation methods like domain-specific or single-item measures. Additionally, depending on the

performance measure (i.e., objective, subjective, self-report), subjective performance assessments had stronger correlations when assessed as a moderator ($r = .47$) (Moritz et al., 2000). In summary, while past research in sports has shown a moderate positive correlation between self-efficacy and performance, the present study did not find a significant correlation between efficacy and performance. This may be due to the differences in performance tasks, as task-specific measures tend to have stronger correlations compared to other evaluation methods, and subjective assessments can also play a role in the strength of correlations when assessed as a moderator. Further research is needed to explore the potential moderators and mediators of the relationship between self-efficacy and performance.

Although, the effects of idealized influence (i.e., Appropriate role model) can occasionally be overestimated (Avolio et al., 1999), as they are highly dependent on individual beliefs and perceptions and are subject to followers' attribution biases (Shamir, House, & Arthur, 1993). In the current study, appropriate role model was not the most common leadership behavior within this population. High performance expectations were the most prevalent behavior, followed by encouraging acceptance of group goals and inspirational motivation, all of which had a significant impact on efficacy. In the study conducted by Djourova et al. (2020), inspirational motivation was the only transformational leadership behavior that was positively associated to self-efficacy. This could be because when a subordinate fully comprehends what is expected of them, it can make the subordinate feel more in charge of their success, which is essentially the meaning of self-efficacy. In contrast to the current study, Djourova et al. (2020) suggested that the individualized consideration component of transformational leadership behaviors may have a negative association on followers' self-efficacy which are in alignment of other past studies (Kark, Shamir, & Chen, 2003). As research on transformational leadership

behaviors is limited, it is possible that they will have unfavorable and inconsequential effects on some groups in particular circumstances.

Strengths, Limitations, and Delimitations

Using path analysis in the present study is considered a strength because it provides a more comprehensive and nuanced understanding of the relationships among multiple variables. Path analysis allows researchers to examine both direct and indirect effects of independent variables on dependent variables, taking into account the potential mediating or moderating effects of other variables in the model. This method can provide a more accurate understanding of the complex relationships among the variables being studied. By using path analysis, the present study was able to examine how transformational leadership behaviors relate to multiple types of efficacies (self-, other-, and collective) and performance, which can contribute to a more complete understanding of the mechanisms underlying effective leadership. Overall, the use of path analysis in the present study strengthens the rigor and comprehensiveness of the research findings.

A second strength of the current study is that we used validated and reliable measures for leadership, efficacy, and performance. Using validated and reliable measures for leadership, efficacy, and performance is considered a strength in research because it enhances the validity and reliability of the findings. Validated measures are those that have been tested and found to accurately measure the constructs they are intended to measure, while reliable measures are those that consistently yield the same results when administered repeatedly under the same conditions. By using such measures, researchers can be more confident in the accuracy and consistency of their findings, making the results more credible and increasing the confidence in the study's conclusions.

Lastly, a strength of this study was utilizing an objective performance measurement that was meaningful and relevant to the population. Firstly, objective measurements are less prone to biases and errors compared to subjective measures, such as self-report or observer ratings. Therefore, they provide a more accurate and reliable representation of the performance being assessed. Secondly, using a measurement that is meaningful and relevant to the population being studied ensures that the results are applicable and useful to that population. This increases the practical significance and real-world applicability of the study findings. Furthermore, using an objective performance measurement that is relevant to the population being studied can enhance the external validity of the study, as it increases the generalizability of the findings to similar populations or contexts. Overall, utilizing an objective performance measurement that is meaningful and relevant to the population is considered a strength of a study because it enhances the accuracy, applicability, and generalizability of the findings.

This study had some limitations as well. Due to the cross-sectional structure of the study, it was not possible to examine long-term trends or determine if the findings were causal. Additionally, the sample size was small due to this study only included one university level Army ROTC program. Future research should recruit and test multiple Army ROTC cadet programs to test the generalizability of our results. Lastly, although the Efficacy measurements were adapted to include relevant physical and field tasks to the ROTC program, it was not specific to each of the performance response variables. For future research, instead of “Perform the physical tasks necessary to be successful (e.g., during physical fitness drills and tests)”, it should possibly say something along the lines of “Perform the physical tasks necessary to be successful on the ACFT (e.g., MDL, SPT, HRP, SDC, PLK, 2MR)”. This could potentially allow for stronger correlations between efficacy and performance as we would expect.

With the strengths and limitations of this study, there are some delimitations. One delimitation of this study is that the inclusion criteria included only active Army ROTC members who had to complete the survey and the ACFT within the data collection period. This was an a priori decision because those cadets that are active and complete the ROTC program, they are commissioned into the U.S. Army as Second Lieutenants leading 16 to 44 soldiers in a platoon. This means that cadets in university level ROTC programs will one day be the future leaders of the U.S. Army, justifying research specific to active ROTC cadets. Data was only collected at one Southeastern university ROTC which is a delimitation because the study was conducted at only one university ROTC program, which limits the generalizability of the findings to other ROTC programs or military contexts. The findings may not be applicable to other populations or settings due to potential differences in organizational culture, leadership styles, and other factors that can affect the relationship between leadership, efficacy, and performance. Therefore, the study's results should be interpreted within the context of the specific sample used in the study. Lastly, adapting only the efficacy items that referred to performance (i.e., physical tasks and field tasks), may have resulted in the significant indirect negative effects between efficacy and performances.

Application

The findings from this study are most relevant to ROTC programs at a university level. If the faculty of the ROTC program are trying to find better ways to implement leadership into their programs and adjust their curriculum to best fit the needs of their cadets to be successful leaders, it would be necessary for the faculty to understand that their upperclassmen cadets in designated leadership positions present moderate levels of transformational leadership behaviors to their underclassmen cadets in non-designated leadership positions. In addition, the majority of cadets

have a high level of confidence in their own, others', and the group's success. This would allow for the faculty members to gain a better understanding on who to put in the designated leadership positions and how their actions will affect program's success. This can be done by increasing the instruction in classrooms to highlight the subscales in the DTLI such as how to show inspirational motivation, appropriate role modeling, fostering acceptance of group goals, individual consideration, high performance expectations, intellectual stimulation, and contingent reward.

According to Hamad (2015), depending on the duration (i.e., short or long term) and the repetitiveness of the task, the cadets may need to be more transactional which is why some follower cadets may describe their leaders as micromanagers and not macro-managers. It may be useful for the faculty members to adjust and focus more on how to assist their upperclassmen cadets to meet the challenge and vision set for them through their different roles and duties without needed excessive supervision and control. For example, the faculty members can teach their cadets how to lead during stressful and non-stressful times by creating a scenario-based learning activity focused on leadership and stress management. Based on their roles in the program, the faculty can divide the cadets into groups and assign each group a scenario in which they all have to work together to create a plan of action. Throughout the activity, the faculty member can provide guidance on effective leadership techniques, such as delegation, problem-solving, and communication. Also, faculty can incorporate mindfulness exercises and other techniques to stay calm during stressful times. At the end of the activity, the cadets can present their plan of action, and the faculty member could facilitate a discussion on the different leadership behaviors and stress management techniques that were used. This would allow for the cadets to reflect on their own strengths and areas for growth as leaders and build their confidence

in their ability to lead others during stressful times. These two applications can easily be implemented into the ROTC program's curriculum by continuing to teach cadets how to be successful effective and efficient leaders that instill confidence in their followers.

Future Research

As this study suggests, further investigation is required to determine whether this is a cause-and-effect relationship between the variables by using a longitudinal study design. A longitudinal study design is necessary because it will allow the proper statistical testing to be used to analyze the change over time for the group as a whole and/or for specific individuals (Caruana et. al., 2015). Currently, the study shows that there is an opposing indirect effect between transformational leadership behaviors (i.e., High Performance Expectations, Fostering Acceptance of Group Goals, and Inspirational Motivation) and performance (i.e., Maximum Deadlift) through efficacy (i.e., collective efficacy). However, from the current study's design, it cannot be determined if the relationship is causal and if this is the correct mediation pathway to analyze the interaction between the variables. Future research should examine efficacy as the predictor and not the mediator. This theory would mean as an individual is more confident, they become better equipped to lead others through transformational leadership, which can enhance the performance of their followers.

Next, future research should aim to further explore the relationship between transformational leadership behaviors and performance outcomes variables, specifically with populations that are in high-stress and tactical environments. This study utilized participants that were training for high-stress and tactical environments. Future research should utilize real-world groups that are in high-stress and tactical environments to see if transformational leadership behaviors play a role in how well they perform to given physical performance. Additionally, this

study only measured physical performance on the Army Combat Fitness Test, researchers should also measure performance on cognitive performance because cognitive processes are necessary for one's success in their physical performance (Tabbarah, Crimmins, & Seeman, 2002).

Lastly, this research focused on performance as the outcome associated with leadership and efficacy, yet other components such as resilience, mental toughness, motivation, and extra effort can also be significant positive outcomes (Kane & Tremble, 2009), Murray et al., 2020), and Djourova et al., 2020). Future research should measure the relationship transformational leadership has on followers' resilience, mental toughness, motivation, and extra effort and if efficacy plays a mediating role. By including other variables in the research will begin to close the literature gap in the research and expand our understanding of how transformational leadership behaviors affects efficacy and other positive outcomes.

Additionally, this study only included one type of military branch ROTC program (i.e., Army) and the results are specific to this participant population. Some ways to increase generalizability is by recruiting more programs of the same and/or different military branches, different trends over time can be examined. The current study's population was majority white and males. Although the demographic statistics are similar to the demographic statistics of the U.S. Army, it is still important for leaders to know how to lead many different people whether that is based on gender or race. This suggests that investigating the important differences between race and gender in ROTC programs may provide a clearer insight into the best ways for leaders to use transformational leadership behaviors and to instill confidence in their followers in hopes to have a positive effect on performance.

Conclusion

To further understand how leadership behaviors might eventually affect a soldier's or cadet's performance and confidence in a mentally and physically demanding setting, more performance psychology-based studies within the military population is necessary. Overall, efficacy and performance are known to be positively correlated (Moritz et al., 2000), and transformational leadership is recognized to increase organizational effectiveness, empowerment, group cohesion, and perceived group effectiveness (Bass et al., 2003; Chen & Bliese, 2002; Jung & Sosik, 2002; Xenikou, 2017). However, the findings of this research do not quite align with past research and indicates that a leader's transformational leadership style does not have a direct relationship with performance, at least in ROTC settings. As well as there is an opposing indirect association between the transformational leadership subscales of High Performance Expectations, Fostering Acceptance of Group Goals, and Inspirational Motivation with Maximum Deadlift through collective efficacy.

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Appendix A: IRB Approval Letter



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building- Mail Stop 682
600 Moye Boulevard - Greenville, NC 27834
Office 252-744-2914 • Fax 252-744-2284
rede.ecu.edu/umcirb/

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Ajala Baker](#)
CC: [Christine Habeeb](#)
Date: 11/4/2022
Re: [UMCIRB 22-001959](#)
Leadership, Performance, and Efficacy in ROTC

I am pleased to inform you that your research submission has been certified as exempt on 11/4/2022. This study is eligible for Exempt Certification under category # 2ab.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Army ROTC Approval (0.01)	Additional Items
Data Steward(0.01)	Additional Items
Follower Survey(0.01)	Surveys and Questionnaires
Follower Survey(0.01)	Interview/Focus Group Scripts/Questions
Follower Survey(0.01)	Data Collection Sheet
Follower Survey Consent Army ROTC.docx(0.01)	Consent Forms
Leader Consent Form.docx(0.01)	Consent Forms
Leader Survey(0.01)	Interview/Focus Group Scripts/Questions
Leader Survey(0.01)	Surveys and Questionnaires
Recruitment Script (0.01)	Recruitment Documents/Scripts
Study Protocol(0.01)	Study Protocol or Grant Application
Tuchmayer Approval Email(0.01)	Dataset Use Approval/Permission

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.
The Chairperson (or designee) does not have a potential for conflict of interest on this study.

Appendix B: Follower Survey

Adapted DTLI
(Hardy et al., 2010)

The following questions concern the way your **CURRENT LEADER** typically behaves most of the time with you.

	Not at all	Once in a while	Sometimes	Fairly Often	All of the time
My Battalion Staff/Leadership...					
My Command Executive Officer...					
<i>Inspirational motivation</i>					
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
<i>Appropriate role model</i>					
Are good role models for me to follow	1	2	3	4	5
Leads by example	1	2	3	4	5
Leads by “doing” rather than simply “telling	1	2	3	4	5
<i>Fosters acceptance of group goals</i>					
Encourage cadets to be team players	1	2	3	4	5
Get cadets to work together for the same goal	1	2	3	4	5
Develop a team attitude and spirit amongst cadets	1	2	3	4	5
Believe each individual is crucial to the success of the group team attitude and spirit	1	2	3	4	5
<i>Individual consideration</i>					
	1	2	3	4	5
	1	2	3	4	5
Consider that I have different needs, abilities, and aspirations from others	1	2	3	4	5
	1	2	3	4	5
<i>High performance expectations</i>					
Insist on only the best performance	1	2	3	4	5
Will not settle for second best	1	2	3	4	5
Show us that they expect a lot from us	1	2	3	4	5
Emphasize trying your best	1	2	3	4	5
<i>Intellectual stimulation</i>					

Seek differing perspectives when solving problems	1	2	3	4	5
Get me to look at problems from many different angles	1	2	3	4	5
Suggest new ways of looking at how to complete assignments	1	2	3	4	5
<i>Contingent reward</i>					
Give me special recognition when I do very good work	1	2	3	4	5
Give praise when cadets improve work	1	2	3	4	5
Give me positive feedback when I perform well	1	2	3	4	5
Personally praise me when I do outstanding work	1	2	3	4	5

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Self-confidence

The following questions concern what you think about **YOURSELF**.

	Not confident at all		Moderate Confidence		Completely confident
To what extent are you confident in YOUR ability to...					
Meet the challenges of training	1	2	3	4	5
Perform the physical tasks necessary to be successful (e.g., during physical fitness drills and tests)	1	2	3	4	5
Perform the field tasks necessary to be successful (e.g., land navigation, small unit tactics, ruck march, weapons qualifications etc.)	1	2	3	4	5
To concentrate well enough to be successful	1	2	3	4	5
Perform under physical and mental pressure	1	2	3	4	5

Other-Confidence

The following questions concern what you think about your LEADER.

To what extent are you confident in your Battalion Staff/Leadership abilities to...	Not confident at all	2	Moderate Confidence	4	Completely confident
To what extent are you confident in your Command Executive Officer abilities to...					
... ..					
Meet the challenges of training	1	2	3	4	5
Perform the physical tasks necessary to be successful (e.g., during physical fitness drills and tests)	1	2	3	4	5
Perform the field tasks necessary to be successful (e.g., land navigation, small unit tactics, ruck march, weapons qualifications etc.)	1	2	3	4	5
Concentrate well enough to be successful	1	2	3	4	5
Perform under physical and mental pressure	1	2	3	4	5

Collective Confidence

The following questions concern what you think of the WHOLE GROUP (including yourself)

To what extent are you confident in the GROUP's collective abilities to...	Not confident at all	2	Moderate Confidence	4	Completely confident
Meet the challenges of training	1	2	3	4	5
Perform the physical tasks necessary to be successful (e.g., during physical fitness drills and tests)	1	2	3	4	5
Perform the field tasks necessary to be successful (e.g., land navigation, small unit tactics, ruck march, weapons qualifications etc.)	1	2	3	4	5
To concentrate well enough to be successful	1	2	3	4	5
Perform under physical and mental pressure	1	2	3	4	5

Open Ended Questions

What leadership strategies have you seen being used that have been effective?

What leadership strategies have you seen being used that have NOT been effective?

What can cadre do to support you as a cadet/student?

Demographic information

Birth Year: _____

Gender:

Male Female Transgender Non-Binary Gender Fluid

I identify as: Prefer not to answer

What is your race? (Check that apply)

_____ Hispanic/Latinx
_____ Not Hispanic/Latinx
Prefer not to answer _____

What is your race? (Check all that apply)

_____ Black/African American
_____ Asian/Asian American
_____ White/European American
_____ Arab/Middle Eastern
_____ Native Hawaiian/ Other Pacific Islander
Other (Please specify) _____
Prefer not to answer _____

Have you attended Cadet Summer Training? Yes/No

Are you currently a Green to Gold Cadet in the ROTC program? Yes/No

If yes, what was your rank? _____ MOS? _____

Current ROTC Rank:

_____ 100
_____ 200
_____ 300
_____ 400
_____ Other

ECU Classification:

_____ Freshman
_____ Sophomore
_____ Junior
_____ Senior

Time with ECU ROTC:

Months _____ years _____

Thank you for participating!

Standing Power Throw (SPT) (Distance - meters and centimeters)																					
Points	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
100	12.6	8.4	13.0	8.5	13.1	8.7	12.9	8.6	12.8	8.2	12.3	8.1	11.6	7.8	10.6	7.4	9.9	6.6	9.0	6.6	100
99	12.4	8.2	12.9	8.4	12.9	8.5	12.6	8.4	12.6	8.0	12.1	7.9	11.4	7.6	10.4	7.1	9.7	6.4	8.8	6.4	99
98	12.0	7.7	12.5	7.9	12.6	8.2	12.4	8.0	12.2	7.5	11.7	7.4	11.0	7.1	10.2	6.6	9.5	6.3	---	6.3	98
97	11.7	7.5	12.2	7.7	12.4	8.0	12.2	7.8	12.0	7.3	11.4	7.2	10.7	6.8	10.0	6.5	9.4	6.2	8.7	6.2	97
96	11.5	7.3	12.0	7.5	12.2	7.7	12.0	7.6	11.8	7.2	11.3	7.1	10.6	6.5	9.8	6.3	9.3	6.1	---	6.1	96
95	11.3	7.2	11.8	7.4	12.0	7.5	11.8	7.4	11.6	7.0	11.1	6.9	10.4	6.4	9.6	6.2	9.1	6.0	8.6	6.0	95
94	11.0	7.0	11.5	7.2	11.7	7.3	11.6	7.3	11.4	6.8	10.8	6.8	10.2	6.2	9.5	6.1	9.0	5.9	8.5	5.9	94
93	10.9	6.9	11.4	7.1	11.6	7.2	11.4	7.1	11.2	6.7	10.7	6.7	10.1	---	9.3	6.0	8.9	5.8	8.3	5.8	93
92	10.7	6.8	11.3	7.0	11.4	7.1	11.3	7.0	11.1	---	10.6	6.6	10.0	---	9.2	5.9	8.8	5.7	8.2	5.7	92
91	10.6	6.6	11.1	6.9	11.3	7.0	11.2	6.9	10.9	6.6	10.5	6.5	9.9	6.1	9.1	5.8	8.7	5.6	8.1	5.6	91
90	10.5	6.5	11.0	6.8	11.1	6.9	11.0	6.8	10.7	6.4	10.4	6.4	9.7	6.0	9.0	5.7	8.5	5.5	8.0	5.5	90
89	10.4	---	10.7	6.7	11.0	6.8	10.8	6.7	10.6	---	10.3	6.3	9.6	5.9	8.9	5.6	---	5.4	---	---	89
88	10.3	6.4	10.6	6.6	10.9	6.7	10.7	6.5	10.5	6.3	10.1	6.2	9.5	---	8.8	---	8.4	---	7.9	5.4	88
87	10.0	6.3	10.4	6.5	10.7	6.6	10.5	6.4	10.4	6.2	9.9	6.1	9.4	5.8	8.7	5.5	8.3	5.3	---	---	87
86	9.9	6.2	10.3	6.4	10.6	6.5	10.4	---	10.3	6.1	9.8	6.0	9.3	5.7	8.6	---	8.2	---	7.8	5.3	86
85	9.8	6.1	10.2	6.3	10.5	---	10.3	6.3	10.2	---	9.7	---	9.2	5.6	---	5.4	8.1	---	---	---	85
84	9.7	---	10.1	6.2	10.4	6.4	10.2	---	10.1	6.0	9.6	5.9	9.1	---	8.5	---	---	5.2	7.7	---	84
83	9.6	6.0	10.0	6.1	10.2	6.3	10.1	6.2	9.9	5.9	9.5	5.8	9.0	5.5	8.4	5.3	8.0	---	7.6	5.2	83
82	9.5	---	9.9	---	10.1	---	10.0	6.1	9.8	5.8	9.4	---	8.9	---	8.3	5.2	7.9	---	---	---	82
81	9.4	5.9	9.8	6.0	10.0	6.2	9.9	6.0	9.7	---	9.3	---	8.8	5.4	8.2	---	7.8	---	7.5	---	81
80	9.3	5.8	9.7	5.9	9.8	6.1	9.8	5.9	9.6	5.7	9.2	5.7	8.7	5.3	8.1	---	7.7	5.1	---	5.1	80
79	9.2	---	9.6	5.8	---	5.9	9.7	---	9.5	---	9.1	5.6	---	---	---	5.1	7.6	---	7.4	---	79
78	9.1	5.7	9.5	---	9.7	---	9.6	5.8	9.4	5.6	9.0	---	8.6	5.2	8.0	---	7.5	---	---	---	78
77	9.0	---	9.4	---	9.6	5.8	9.5	---	9.3	---	8.9	5.5	8.5	---	7.9	5.0	---	5.0	7.3	5.0	77
76	8.9	5.6	9.3	5.7	9.4	5.7	9.4	5.7	9.2	5.5	8.8	5.4	8.4	---	7.8	---	7.4	---	7.2	---	76
75	8.8	5.5	9.2	5.6	9.3	---	9.3	---	9.1	5.4	8.7	---	8.3	5.1	---	4.9	7.3	4.9	---	4.9	75
74	8.6	5.4	9.1	5.5	---	5.6	9.2	5.6	9.0	---	---	5.3	8.2	---	7.7	---	7.2	---	7.1	---	74
73	8.5	---	9.0	---	9.2	---	9.1	5.5	8.9	5.3	8.6	---	---	5.0	7.6	4.8	7.1	---	7.0	4.8	73
72	8.4	5.3	8.9	5.4	9.0	5.5	8.9	---	8.8	5.2	8.4	5.2	8.1	---	7.5	4.7	7.0	4.8	6.8	4.7	72
71	8.3	5.2	8.8	5.3	8.9	5.4	8.8	5.4	8.7	---	8.3	---	8.0	4.9	7.4	---	---	4.6	6.7	4.6	71
70	8.2	---	8.6	---	8.8	5.3	8.7	5.3	8.6	---	8.2	5.1	7.9	---	7.3	4.6	6.9	---	6.6	---	70
69	8.1	5.1	8.5	5.2	8.6	---	8.6	---	8.5	5.1	8.1	5.1	7.7	4.8	7.1	---	6.8	4.5	6.4	4.5	69
68	8.0	5.0	8.3	---	8.5	5.2	8.5	5.2	8.3	5.0	8.0	5.0	7.6	4.7	7.0	4.5	6.7	4.4	6.2	4.4	68
67	7.9	---	8.2	5.1	8.4	---	8.3	---	8.2	4.9	7.9	4.9	7.5	4.6	---	4.4	6.6	4.3	---	4.3	67
66	7.7	4.9	8.1	5.0	8.3	5.1	8.2	5.1	8.1	---	7.8	4.8	7.4	---	6.9	---	6.5	4.2	6.1	4.2	66
65	7.5	4.8	7.8	4.9	8.1	5.0	8.1	5.0	7.8	4.8	7.6	4.7	7.2	---	6.7	4.3	6.3	4.1	---	4.1	65
64	7.4	---	7.7	4.8	7.9	4.9	7.9	4.9	7.7	4.7	7.4	---	7.1	4.5	6.6	4.2	6.2	4.0	5.9	---	64
63	7.2	4.7	7.5	4.7	7.7	4.8	7.6	4.8	7.5	4.6	7.3	4.6	6.9	4.4	6.4	---	6.1	3.9	5.7	4.0	63
62	6.9	4.6	7.3	4.6	7.5	4.7	7.4	4.7	7.3	4.5	7.1	4.5	6.7	4.2	6.2	4.1	6.0	3.8	5.4	3.9	62
61	6.6	4.4	6.9	4.4	7.1	4.6	7.1	4.5	7.0	4.4	6.7	4.2	6.4	4.1	6.0	3.9	5.7	3.6	5.1	3.6	61
60	6.0	3.9	6.3	4.0	6.5	4.2	6.5	4.1	6.4	4.1	6.2	3.9	6.0	3.7	5.7	3.5	5.3	3.4	4.9	3.4	60

TABLE CONTINUES NEXT PAGE

Standing Power Throw (SPT) (Distance - meters and centimeters)																					
17-21	22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points		
Points	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Points		
60	6.0	3.9	6.3	4.0	6.5	4.2	6.5	4.1	6.4	4.1	6.2	3.9	6.0	3.7	5.7	3.5	5.3	3.4	4.9	3.4	60
59	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	59
58	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	58
57	5.9	---	6.2	---	6.4	4.1	6.4	---	6.3	---	6.1	---	5.9	---	5.6	---	---	---	---	---	57
56	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	56
55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	55
54	---	3.8	---	3.9	---	---	---	4.0	---	4.0	---	3.8	---	3.6	---	3.4	5.2	---	4.8	---	54
53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	53
52	5.8	---	6.1	---	6.3	4.0	6.3	---	6.2	---	6.0	---	5.8	---	5.5	---	---	---	---	---	52
51	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	51
50	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	50
49	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	49
48	---	---	---	6.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	48
47	5.7	---	---	---	---	---	6.2	---	6.1	---	---	3.7	5.7	---	5.4	---	5.1	---	---	---	47
46	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	46
45	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	45
44	---	3.7	6.0	3.8	6.1	3.9	---	3.9	---	3.9	5.9	---	---	3.5	---	3.3	---	3.3	4.7	3.3	44
43	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	43
42	5.6	---	---	---	---	---	6.1	---	6.0	---	---	3.6	5.6	---	5.3	---	5.0	---	---	---	42
41	---	---	---	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	41
40	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	40
39	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	39
38	5.5	---	5.9	---	---	---	---	---	---	---	5.8	---	---	---	5.2	---	---	---	---	---	38
37	---	3.6	---	---	5.9	---	6.0	---	5.9	3.8	---	---	5.5	---	---	3.2	---	---	4.6	---	37
36	---	---	5.8	---	---	---	---	---	---	---	5.7	---	---	---	---	---	---	---	---	---	36
35	---	---	3.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	35
34	5.4	---	---	---	---	3.8	---	3.8	---	---	---	3.5	---	3.4	5.1	---	---	3.2	---	3.2	34
33	---	---	5.7	---	---	---	---	---	---	---	---	5.6	---	---	---	---	---	---	---	---	33
32	---	3.5	---	---	5.8	---	5.9	---	5.8	3.7	---	---	5.4	---	---	3.1	---	---	4.5	---	32
31	5.3	---	5.6	---	---	---	---	---	---	---	---	5.5	---	---	5.0	---	---	---	---	---	31
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	30
29	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	29
28	5.2	---	5.5	---	5.7	---	5.8	---	5.7	---	5.4	---	5.3	3.3	---	---	---	---	---	---	28
27	---	---	---	3.6	---	3.7	---	3.7	---	---	---	3.4	---	---	---	---	---	---	---	---	27
26	---	---	5.4	---	5.6	---	5.7	---	5.6	---	5.3	---	5.2	---	---	---	---	---	---	---	26
25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	25
24	5.1	3.4	---	---	---	---	5.6	---	---	3.6	---	---	---	3.2	4.9	3.0	4.9	3.1	4.4	3.1	24
23	---	---	5.3	---	5.5	---	---	---	5.5	---	5.2	---	5.1	---	---	---	---	---	---	---	23
22	---	---	---	3.5	---	3.6	5.5	3.6	---	---	---	3.3	---	---	---	---	---	---	---	---	22
21	5.0	---	5.2	---	5.4	---	---	---	5.4	---	5.1	---	5.0	3.1	---	---	---	---	---	---	21
20	---	---	---	---	---	---	5.4	---	---	---	---	---	---	---	---	---	---	---	---	---	20
19	---	---	---	5.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	19
18	4.9	3.3	5.1	3.4	---	3.5	5.3	3.5	5.3	3.5	5.0	3.2	4.9	3.0	4.8	---	4.8	3.0	---	3.0	18
17	---	---	---	5.2	---	---	---	---	---	---	---	---	---	---	---	2.9	---	---	4.3	---	17
16	4.8	---	5.0	---	---	---	5.2	---	5.2	---	---	---	4.8	---	4.7	---	4.7	---	---	---	16
15	---	---	---	5.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	15
14	4.7	3.2	4.9	3.3	5.0	3.4	5.1	3.4	5.1	3.4	4.9	3.1	---	2.9	---	---	---	2.9	---	2.9	14
13	---	---	---	---	---	---	---	---	---	---	---	---	4.7	---	4.6	---	4.6	---	---	---	13
12	4.6	---	4.8	---	4.9	---	5.0	---	5.0	---	---	---	---	---	---	2.8	---	---	4.2	---	12
11	---	3.1	---	3.2	---	3.3	---	3.3	---	3.3	4.8	3.0	4.6	2.8	4.5	---	4.5	2.8	---	2.8	11
10	4.5	---	4.7	---	4.8	---	4.9	---	4.9	---	---	---	---	---	---	---	---	---	---	---	10
9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9
8	4.4	3.0	4.6	3.1	4.7	3.2	4.8	3.2	4.8	3.2	4.7	2.9	4.5	2.7	4.4	2.7	4.4	2.7	4.1	2.7	8
7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	7
6	4.3	2.9	4.5	3.0	4.6	3.1	4.7	3.1	4.7	3.1	4.6	2.8	4.4	2.6	4.3	2.6	4.3	2.6	4.0	2.6	6
5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5
4	4.2	2.8	4.4	2.9	4.5	3.0	4.6	3.0	4.6	3.0	4.5	2.7	4.3	2.5	4.2	2.5	4.2	2.5	3.9	2.5	4
3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3
2	4.1	2.7	4.3	2.8	4.4	2.9	4.5	2.9	4.5	2.9	4.4	2.6	4.2	2.4	4.1	2.4	4.1	2.4	3.8	2.4	2
1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
0	4.0	2.6	4.2	2.7	4.3	2.8	4.4	2.8	4.4	2.8	4.3	2.5	4.1	2.3	4.0	2.3	4.0	2.3	3.7	2.3	0

Hand-release Push-up (HRP) (number of correctly performed repetitions in 2 minutes)

Points	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
100	57	53	61	50	62	48	60	47	59	41	56	36	55	35	51	30	46	24	43	24	100	
99	56	50	60	49	59	45	59	46	57	39	55	34	53	34	48	28	43	23	41	23	99	
98	54	47	57	46	56	42	56	43	54	36	53	31	50	31	45	26	40	22	39	22	98	
97	53	45	54	43	55	39	54	40	53	34	50	30	47	30	43	25	38	21	37	21	97	
96	51	43	53	42	53	38	53	37	51	33	48	28	44	27	40	24	37	20	35	20	96	
95	50	42	52	39	52	36	52	36	48	31	46	26	42	25	38	23	35	19	34	19	95	
94	49	39	50	37	51	35	50	35	46	28	44	24	41	24	35	22	34	18	33	18	94	
93	48	38	49	36	49	34	48	34	45	27	43	23	39	23	34	20	33	17	31	17	93	
92	47	37	48	35	48	33	47	32	44	26	42	22	38	22	33	19	31	16	30	16	92	
91	46	36	47	34	47	32	45	31	43	23	41	21	36	21	32	18	30	15	29	15	91	
90	45	35	46	33	46	30	44	30	42	22	38	20	34	20	31	17	29	14	26	14	90	
89	44	35	45	32	45	28	43	28	41	21	37	19	33	19	30	16	26	14	24	14	89	
88	43	34	44	31	44	27	42	26	39	20	36	18	31	18	28	15	25	13	23	13	88	
87	42	33	43	30	43	26	41	25	38	19	34	17	32	17	27	14	24	12	22	12	87	
86	41	32	42	28	42	25	40	24	37	18	33	16	31	16	26	13	23	11	21	11	86	
85	40	31	41	27	41	24	39	23	34	17	32	15	30	15	25	12	22	10	20	10	85	
84	40	30	40	26	40	23	38	22	33	16	31	14	29	14	24	11	21	9	19	9	84	
83	39	29	38	25	38	22	36	19	32	15	31	13	28	13	23	10	20	8	18	8	83	
82	38	28	37	24	37	21	34	18	31	14	30	12	27	12	22	9	19	7	17	7	82	
81	37	27	36	23	36	20	33	17	30	13	29	11	26	11	21	8	18	6	16	6	81	
80	36	26	35	22	35	19	32	16	29	12	28	10	25	10	20	7	17	5	15	5	80	
79	36	26	34	23	34	20	32	18	29	15	27	13	22	11	20	11	16	12	14	12	79	
78	35	25	33	22	33	19	31	17	28	14	26	12	21	10	19	10	15	11	13	11	78	
77	34	24	32	21	32	18	31	17	27	13	25	11	21	9	18	9	14	10	12	10	77	
76	33	23	31	19	31	17	30	16	26	12	23	10	20	8	17	8	13	9	11	9	76	
75	32	22	30	18	30	16	29	15	25	11	22	9	20	7	16	7	12	8	10	8	75	
74	31	21	29	17	29	15	28	14	24	10	21	8	19	6	15	6	11	7	9	7	74	
73	31	20	29	16	29	14	28	13	23	9	20	7	18	5	14	5	10	6	8	6	73	
72	30	19	27	15	27	14	24	12	22	8	19	6	17	4	13	4	9	5	7	5	72	
71	29	18	26	14	26	13	23	11	21	7	18	5	16	3	12	3	8	4	6	4	71	
70	28	17	25	13	25	12	22	10	20	6	17	4	15	2	11	2	7	3	5	3	70	
69	27	17	22	14	21	13	21	11	19	5	16	3	14	1	10	1	6	2	4	2	69	
68	25	16	21	13	20	12	20	10	17	4	15	2	13	1	9	1	5	1	3	1	68	
67	24	15	20	12	19	11	19	9	16	3	14	1	12	0	8	0	4	0	2	0	67	
66	23	14	20	11	20	10	17	8	15	2	13	0	11	0	7	0	3	0	1	0	66	
65	22	13	17	10	18	9	16	7	14	1	12	0	10	0	6	0	2	0	0	0	65	
64	20	12	16	9	16	8	14	6	13	0	11	0	9	0	5	0	1	0	0	0	64	
63	17	11	14	8	14	7	13	5	12	0	10	0	8	0	4	0	0	0	0	0	63	
62	16	10	13	7	12	6	12	4	11	0	9	0	7	0	3	0	0	0	0	0	62	
61	13	9	12	6	11	5	11	3	10	0	8	0	6	0	2	0	0	0	0	0	61	
60	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	60
50	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	50
40	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	40
30	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	30
20	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	20
10	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0

Sprint / Drag / Carry (SDC) (Overall Time: minutes and seconds)																					
Points	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
100	01:29	01:55	01:30	01:55	01:30	01:55	01:33	01:59	01:36	02:02	01:40	02:09	01:45	02:11	01:52	02:18	01:58	02:26	02:09	02:26	100
99	01:31	01:59	01:32	01:56	01:31	01:57	01:34	02:01	01:37	02:04	01:42	02:10	01:46	02:13	01:55	02:21	02:02	02:28	02:12	02:28	99
98	01:34	02:02	01:33	02:00	01:34	02:01	01:37	02:05	01:40	02:10	01:44	02:15	01:50	02:22	01:57	02:28	02:03	02:34	---	02:34	98
97	01:35	02:05	01:34	02:02	01:35	02:04	01:38	02:08	01:42	02:11	01:46	02:17	01:52	02:24	02:00	02:30	02:06	02:39	02:13	02:39	97
96	01:36	02:06	01:36	02:05	01:37	02:06	01:40	02:10	01:43	02:14	01:48	02:18	01:54	02:26	02:01	02:32	02:08	02:41	---	02:41	96
95	01:37	02:08	01:37	02:06	01:38	02:08	01:41	02:11	01:45	02:15	01:49	02:20	01:55	02:28	02:03	02:35	02:09	02:44	02:14	02:44	95
94	01:39	02:10	01:39	02:09	01:40	02:10	01:43	02:14	01:47	02:18	01:51	02:23	01:57	02:30	02:05	02:38	02:11	02:45	02:15	02:45	94
93	01:40	02:12	01:40	02:10	01:41	02:12	01:44	02:15	01:48	02:20	01:52	02:25	01:59	02:31	02:06	02:40	02:13	02:46	02:16	02:46	93
92	01:41	02:13	01:41	02:12	01:42	02:13	01:45	02:17	01:49	02:21	01:53	02:27	02:00	02:33	02:07	02:41	02:15	02:48	---	02:48	92
91	01:42	02:14	01:42	02:13	01:43	02:15	01:46	02:18	01:50	02:23	01:54	02:28	02:01	02:35	02:09	02:42	02:16	02:52	---	02:52	91
90	01:43	02:16	01:43	02:15	01:45	02:16	01:48	02:20	01:52	02:25	01:56	02:30	02:02	02:37	02:10	02:44	02:17	02:54	---	02:54	90
89	01:44	02:17	01:44	02:16	01:46	02:18	01:49	02:21	01:53	02:26	01:57	02:31	02:03	02:38	02:11	02:45	02:19	02:55	02:17	02:55	89
88	01:45	02:18	01:45	02:18	01:47	02:19	01:50	02:23	01:54	02:27	01:58	02:33	02:05	02:40	02:13	02:46	02:20	02:57	02:18	02:57	88
87	01:46	02:20	01:46	02:20	01:48	02:20	01:51	02:24	01:55	02:29	01:59	02:35	02:06	02:41	02:14	02:48	02:21	02:58	02:19	02:58	87
86	01:47	02:21	01:47	02:21	01:49	02:22	01:52	02:26	01:56	02:30	02:00	02:36	02:07	02:42	02:15	02:50	02:22	02:59	02:20	02:59	86
85	01:48	02:22	01:48	02:22	01:50	02:23	01:53	02:27	01:57	02:31	02:01	02:37	02:08	02:44	02:16	02:51	02:23	03:00	02:21	03:00	85
84	01:49	02:23	01:49	02:23	01:51	02:24	01:54	02:28	01:58	02:32	02:02	02:38	02:09	02:45	02:17	02:52	02:24	03:01	02:22	03:01	84
83	01:50	02:24	01:50	02:25	01:52	02:26	01:55	02:30	01:59	02:34	02:04	02:40	02:10	02:46	02:19	02:54	02:26	03:02	02:23	03:02	83
82	01:51	02:25	01:51	02:26	01:53	02:27	01:56	02:31	02:00	02:35	02:05	02:41	02:12	02:47	02:20	02:55	02:27	03:03	02:24	03:03	82
81	01:52	02:26	01:52	02:27	01:54	02:28	01:57	02:32	02:01	02:36	02:06	02:42	02:13	02:48	02:21	02:57	02:28	03:04	02:27	03:04	81
80	01:53	02:28	01:53	02:29	01:55	02:29	01:58	02:34	02:02	02:38	02:07	02:44	02:14	02:50	02:23	02:58	02:29	03:07	02:32	03:07	80
79	01:54	02:29	01:54	02:30	01:56	02:30	01:59	02:35	02:03	02:39	02:08	02:45	02:15	02:51	02:23	02:59	02:30	03:08	02:33	03:08	79
78	01:55	02:30	01:55	02:31	01:57	02:31	02:00	02:36	02:04	02:40	02:09	02:46	02:16	02:52	02:25	03:00	02:31	03:09	02:35	03:09	78
77	01:56	02:31	01:56	02:32	01:58	02:32	02:01	02:37	02:05	02:42	02:10	02:47	02:17	02:54	02:26	03:02	02:33	03:11	02:36	03:11	77
76	01:57	02:33	01:58	02:34	01:59	02:34	02:02	02:39	02:07	02:43	02:12	02:49	02:19	02:56	02:28	03:05	02:35	03:17	02:38	03:17	76
75	01:58	02:34	01:59	02:35	02:00	02:36	02:03	02:40	02:08	02:45	02:13	02:50	02:20	02:57	02:29	03:07	02:36	03:21	02:41	03:21	75
74	01:59	02:35	02:00	02:37	02:01	02:37	02:04	02:41	02:09	02:46	02:14	02:52	02:21	02:58	02:30	03:09	02:37	03:25	02:43	03:25	74
73	02:00	02:37	02:01	02:38	02:02	02:38	02:05	02:43	02:10	02:47	02:15	02:53	02:23	02:59	02:31	03:10	02:38	03:32	02:44	03:32	73
72	02:01	02:39	02:02	02:40	02:04	02:40	02:07	02:45	02:12	02:49	02:17	02:55	02:25	03:00	02:32	03:13	02:40	03:34	02:46	03:34	72
71	02:02	02:40	02:03	02:42	02:05	02:41	02:08	02:46	02:13	02:50	02:18	02:56	02:26	03:02	02:34	03:16	02:42	03:35	02:47	03:35	71
70	02:03	02:41	02:05	02:43	02:06	02:43	02:10	02:47	02:14	02:52	02:20	02:58	02:27	03:05	02:35	03:19	02:43	03:36	02:49	03:36	70
69	02:04	02:44	02:07	02:45	02:08	02:45	02:11	02:50	02:16	02:55	02:22	03:00	02:29	03:08	02:37	03:25	02:45	03:40	02:52	03:40	69
68	02:06	02:45	02:08	02:47	02:10	02:47	02:13	02:51	02:18	02:56	02:23	03:01	02:30	03:10	02:38	03:27	02:47	03:41	02:56	03:41	68
67	02:07	02:47	02:10	02:49	02:11	02:49	02:15	02:53	02:20	02:58	02:25	03:02	02:32	03:14	02:40	03:29	02:48	03:43	02:57	03:43	67
66	02:08	02:49	02:11	02:51	02:13	02:51	02:16	02:55	02:21	03:00	02:26	03:06	02:34	03:16	02:41	03:33	02:50	03:46	03:00	03:46	66
65	02:11	02:53	02:14	02:54	02:15	02:54	02:19	02:58	02:24	03:02	02:29	03:10	02:37	03:21	02:44	03:38	02:53	03:54	03:03	03:54	65
64	02:13	02:55	02:16	02:57	02:17	02:56	02:21	03:00	02:26	03:05	02:31	03:12	02:39	03:24	02:46	03:42	02:55	04:00	03:09	04:00	64
63	02:15	02:58	02:18	02:59	02:20	02:59	02:24	03:02	02:28	03:09	02:33	03:17	02:41	03:29	02:48	03:45	02:57	04:08	03:11	04:08	63
62	02:17	03:00	02:21	03:01	02:22	03:00	02:26	03:06	02:31	03:13	02:36	03:21	02:44	03:32	02:50	03:50	02:59	04:16	03:12	04:16	62
61	02:22	03:08	02:26	03:09	02:28	03:07	02:31	03:15	02:36	03:21	02:41	03:31	02:48	03:42	02:57	03:58	03:04	04:21	03:14	04:21	61
60	02:28	03:15	02:31	03:15	02:32	03:15	02:36	03:22	02:41	03:27	02:45	03:42	02:53	03:51	03:00	04:03	03:12	04:48	03:16	04:48	60

TABLE CONTINUES NEXT PAGE

Sprint / Drag / Carry (SDC) (Overall Time: minutes and seconds)																					
	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points
Points	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Points
60	02:28	03:15	02:31	03:15	02:32	03:15	02:36	03:22	02:41	03:27	02:45	03:42	02:53	03:51	03:00	04:03	03:12	04:48	03:16	04:48	60
59	02:29	03:16	02:32	03:16	02:33	03:16	02:37	03:23	02:42	03:28	02:46	03:43	02:54	03:52	03:01	04:04	03:13	04:49	03:17	04:49	59
58	02:30	03:17	02:33	03:17	02:34	03:17	02:38	03:24	02:43	03:29	02:47	03:44	02:55	03:53	03:02	04:05	03:14	04:50	03:18	04:50	58
57	02:31	03:18	02:34	03:18	02:35	03:18	02:39	03:25	02:44	03:30	02:48	03:45	02:56	03:54	03:03	04:06	03:15	04:51	03:19	04:51	57
56	02:32	03:19	02:35	03:19	02:36	03:19	02:40	03:26	02:45	03:31	02:49	03:46	02:57	03:55	03:04	04:07	03:16	04:52	03:20	04:52	56
55	02:33	03:20	02:36	03:20	02:37	03:20	02:41	03:27	02:46	03:32	02:50	03:47	02:58	03:56	03:05	04:08	03:17	04:53	03:21	04:53	55
54	02:34	03:21	02:37	03:21	02:38	03:21	02:42	03:28	02:47	03:33	02:51	03:48	02:59	03:57	03:06	04:09	03:18	04:54	03:22	04:54	54
53	02:35	03:22	02:38	03:22	02:39	03:22	02:43	03:29	02:48	03:34	02:52	03:49	03:00	03:58	03:07	04:10	03:19	04:55	03:23	04:55	53
52	02:36	03:23	02:39	03:23	02:40	03:23	02:44	03:30	02:49	03:35	02:53	03:50	03:01	03:59	03:08	04:11	03:20	04:56	03:24	04:56	52
51	02:37	03:24	02:40	03:24	02:41	03:24	02:45	03:31	02:50	03:36	02:54	03:51	03:02	04:00	03:09	04:12	03:21	04:57	03:25	04:57	51
50	02:38	03:25	02:41	03:25	02:42	03:25	02:46	03:32	02:51	03:37	02:55	03:52	03:03	04:01	03:10	04:13	03:22	04:58	03:26	04:58	50
49	02:39	03:26	02:42	03:26	02:43	03:26	02:47	03:33	02:52	03:38	02:56	03:53	03:04	04:02	03:11	04:14	03:23	04:59	03:27	04:59	49
48	02:40	03:27	02:43	03:27	02:44	03:27	02:48	03:34	02:53	03:39	02:57	03:54	03:05	04:03	03:12	04:15	03:24	05:00	03:28	05:00	48
47	02:41	03:28	02:44	03:28	02:45	03:28	02:49	03:35	02:54	03:40	02:58	03:55	03:06	04:04	03:13	04:16	03:25	05:01	03:29	05:01	47
46	02:42	03:29	02:45	03:29	02:46	03:29	02:50	03:36	02:55	03:41	02:59	03:56	03:07	04:05	03:14	04:17	03:26	05:02	03:30	05:02	46
45	02:43	03:30	02:46	03:30	02:47	03:30	02:51	03:37	02:56	03:42	03:00	03:57	03:08	04:06	03:15	04:18	03:27	05:03	03:31	05:03	45
44	02:44	03:31	02:47	03:31	02:48	03:31	02:52	03:38	02:57	03:43	03:01	03:58	03:09	04:07	03:16	04:19	03:28	05:04	03:32	05:04	44
43	02:45	03:32	02:48	03:32	02:49	03:32	02:53	03:39	02:58	03:44	03:02	03:59	03:10	04:08	03:17	04:20	03:29	05:05	03:33	05:05	43
42	02:46	03:33	02:49	03:33	02:50	03:33	02:54	03:40	02:59	03:45	03:03	04:00	03:11	04:09	03:18	04:21	03:30	05:06	03:34	05:06	42
41	02:47	03:34	02:50	03:34	02:51	03:34	02:55	03:41	03:00	03:46	03:04	04:01	03:12	04:10	03:19	04:22	03:31	05:07	03:35	05:07	41
40	02:48	03:35	02:51	03:35	02:52	03:35	02:56	03:42	03:01	03:47	03:05	04:02	03:13	04:11	03:20	04:23	03:32	05:08	03:36	05:08	40
39	02:49	03:36	02:52	03:36	02:53	03:36	02:57	03:43	03:02	03:48	03:06	04:03	03:14	04:12	03:21	04:24	03:33	05:09	03:37	05:09	39
38	02:50	03:37	02:53	03:37	02:54	03:37	02:58	03:44	03:03	03:49	03:07	04:04	03:15	04:13	03:22	04:25	03:34	05:10	03:38	05:10	38
37	02:51	03:38	02:54	03:38	02:55	03:38	02:59	03:45	03:04	03:50	03:08	04:05	03:16	04:14	03:23	04:26	03:35	05:11	03:39	05:11	37
36	02:52	03:39	02:55	03:39	02:56	03:39	03:00	03:46	03:05	03:51	03:09	04:06	03:17	04:15	03:24	04:27	03:36	05:12	03:40	05:12	36
35	02:53	03:40	02:56	03:40	02:57	03:40	03:01	03:47	03:06	03:52	03:10	04:07	03:18	04:16	03:25	04:28	03:37	05:13	03:41	05:13	35
34	02:54	03:41	02:57	03:41	02:58	03:41	03:02	03:48	03:07	03:53	03:11	04:08	03:19	04:17	03:26	04:29	03:38	05:14	03:42	05:14	34
33	02:55	03:42	02:58	03:42	02:59	03:42	03:03	03:49	03:08	03:54	03:12	04:09	03:20	04:18	03:27	04:30	03:39	05:15	03:43	05:15	33
32	02:56	03:43	02:59	03:43	03:00	03:43	03:04	03:50	03:09	03:55	03:13	04:10	03:21	04:19	03:28	04:31	03:40	05:16	03:44	05:16	32
31	02:57	03:44	03:00	03:44	03:01	03:44	03:05	03:51	03:10	03:56	03:14	04:11	03:22	04:20	03:29	04:32	03:41	05:17	03:45	05:17	31
30	02:58	03:45	03:01	03:45	03:02	03:45	03:06	03:52	03:11	03:57	03:15	04:12	03:23	04:21	03:30	04:33	03:42	05:18	03:46	05:18	30
29	02:59	03:46	03:02	03:46	03:03	03:46	03:07	03:53	03:12	03:58	03:16	04:13	03:24	04:22	03:31	04:34	03:43	05:19	03:47	05:19	29
28	03:00	03:47	03:03	03:47	03:04	03:47	03:08	03:54	03:13	03:59	03:17	04:14	03:25	04:23	03:32	04:35	03:44	05:20	03:48	05:20	28
27	03:01	03:48	03:04	03:48	03:05	03:48	03:09	03:55	03:14	04:00	03:18	04:15	03:26	04:24	03:33	04:36	03:45	05:21	03:49	05:21	27
26	03:02	03:49	03:05	03:49	03:06	03:49	03:10	03:56	03:15	04:01	03:19	04:16	03:27	04:25	03:34	04:37	03:46	05:22	03:50	05:22	26
25	03:03	03:50	03:06	03:50	03:07	03:50	03:11	03:57	03:16	04:02	03:20	04:17	03:28	04:26	03:35	04:38	03:47	05:23	03:51	05:23	25
24	03:04	03:51	03:07	03:51	03:08	03:51	03:12	03:58	03:17	04:03	03:21	04:18	03:29	04:27	03:36	04:39	03:48	05:24	03:52	05:24	24
23	03:05	03:52	03:08	03:52	03:09	03:52	03:13	03:59	03:18	04:04	03:22	04:19	03:30	04:28	03:37	04:40	03:49	05:25	03:53	05:25	23
22	03:06	03:53	03:09	03:53	03:10	03:53	03:14	04:00	03:19	04:05	03:23	04:20	03:31	04:29	03:38	04:41	03:50	05:26	03:54	05:26	22
21	03:07	03:54	03:10	03:54	03:11	03:54	03:15	04:01	03:20	04:06	03:24	04:21	03:32	04:30	03:39	04:42	03:51	05:27	03:55	05:27	21
20	03:08	03:55	03:11	03:55	03:12	03:55	03:16	04:02	03:21	04:07	03:25	04:22	03:33	04:31	03:40	04:43	03:52	05:28	03:56	05:28	20
19	03:09	03:56	03:12	03:56	03:13	03:56	03:17	04:03	03:22	04:08	03:26	04:23	03:34	04:32	03:41	04:44	03:53	05:29	03:57	05:29	19
18	03:10	03:57	03:13	03:57	03:14	03:57	03:18	04:04	03:23	04:09	03:27	04:24	03:35	04:33	03:42	04:45	03:54	05:30	03:58	05:30	18
17	03:11	03:58	03:14	03:58	03:15	03:58	03:19	04:05	03:24	04:10	03:28	04:25	03:36	04:34	03:43	04:46	03:55	05:31	03:59	05:31	17
16	03:12	03:59	03:15	03:59	03:16	03:59	03:20	04:06	03:25	04:11	03:29	04:26	03:37	04:35	03:44	04:47	03:56	05:32	04:00	05:32	16
15	03:13	04:00	03:16	04:00	03:17	04:00	03:21	04:07	03:26	04:12	03:30	04:27	03:38	04:36	03:45	04:48	03:57	05:33	04:01	05:33	15
14	03:14	04:01	03:17	04:01	03:18	04:01	03:22	04:08	03:27	04:13	03:31	04:28	03:39	04:37	03:46	04:49	03:58	05:34	04:02	05:34	14
13	03:15	04:02	03:18	04:02	03:19	04:02	03:23	04:09	03:28	04:14	03:32	04:29	03:40	04:38	03:47	04:50	03:59	05:35	04:03	05:35	13
12	03:16	04:03	03:19	04:03	03:20	04:03	03:24	04:10	03:29	04:15	03:33	04:30	03:41	04:39	03:48	04:51	04:00	05:36	04:04	05:36	12
11	03:17	04:04	03:20	04:04	03:21	04:04	03:25	04:11	03:30	04:16	03:34	04:31	03:42	04:40	03:49	04:52	04:01	05:37	04:05	05:37	11
10	03:18	04:05	03:21	04:05	03:22	04:05	03:26	04:12	03:31	04:17	03:35	04:32	03:43	04:41	03:50	04:53	04:02	05:38	04:06	05:38	10
9	03:19	04:06	03:22	04:06	03:23	04:06	03:27	04:13	03:32	04:18	03:36	04:33	03:44	04:42	03:51	04:54	04:03	05:39	04:07	05:39	9
8	03:20	04:07	03:23	04:07	03:24	04:07	03:28	04:14	03:33	04:19	03:37	04:34	03:45	04:43	03:52	04:55	04:04	05:40	04:08	05:40	8
7	03:21	04:08	03:24	04:08	03:25	04:08	03:29	04:15	03:34	04:20	03:38	04:35	03:46	04:44	03:53	04:56	04:05	05:41	04:09	05:41	7
6	03:22	04:09	03:25	04:09	03:26	04:09	03:30	04:16	03:35	04:21	03:39	04:36	03:47	04:45	03:54	04:57	04:06	05:42	04:10		

Plank (PLK) (maintain proper straightline position (Time: minutes and seconds))																					
Points	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
100	03:40	03:40	03:35	03:35	03:30	03:30	03:25	03:25	03:20	03:20	03:20	03:20	03:20	03:20	03:20	03:20	03:20	03:20	03:20	03:20	100
99	03:37	03:37	03:32	03:32	03:27	03:27	03:22	03:22	03:17	03:17	03:17	03:17	03:17	03:17	03:17	03:17	03:17	03:17	03:17	03:17	99
98	03:34	03:34	03:29	03:29	03:24	03:24	03:19	03:19	03:14	03:14	03:14	03:14	03:14	03:14	03:14	03:14	03:14	03:14	03:14	03:14	98
97	03:30	03:30	03:25	03:25	03:20	03:20	03:15	03:15	03:10	03:10	03:10	03:10	03:10	03:10	03:10	03:10	03:10	03:10	03:10	03:10	97
96	03:27	03:27	03:22	03:22	03:17	03:17	03:12	03:12	03:07	03:07	03:07	03:07	03:07	03:07	03:07	03:07	03:07	03:07	03:07	03:07	96
95	03:24	03:24	03:19	03:19	03:14	03:14	03:09	03:09	03:04	03:04	03:04	03:04	03:04	03:04	03:04	03:04	03:04	03:04	03:04	03:04	95
94	03:21	03:21	03:16	03:16	03:11	03:11	03:06	03:06	03:01	03:01	03:01	03:01	03:01	03:01	03:01	03:01	03:01	03:01	03:01	03:01	94
93	03:17	03:17	03:12	03:12	03:07	03:07	03:02	03:02	02:57	02:57	02:57	02:57	02:57	02:57	02:57	02:57	02:57	02:57	02:57	02:57	93
92	03:14	03:14	03:09	03:09	03:04	03:04	02:59	02:59	02:54	02:54	02:54	02:54	02:54	02:54	02:54	02:54	02:54	02:54	02:54	02:54	92
91	03:11	03:11	03:06	03:06	03:01	03:01	02:56	02:56	02:51	02:51	02:51	02:51	02:51	02:51	02:51	02:51	02:51	02:51	02:51	02:51	91
90	03:08	03:08	03:03	03:03	02:58	02:58	02:53	02:53	02:47	02:47	02:47	02:47	02:47	02:47	02:47	02:47	02:47	02:47	02:47	02:47	90
89	03:04	03:04	02:59	02:59	02:54	02:54	02:49	02:49	02:44	02:44	02:44	02:44	02:44	02:44	02:44	02:44	02:44	02:44	02:44	02:44	89
88	03:01	03:01	02:56	02:56	02:51	02:51	02:46	02:46	02:41	02:41	02:41	02:41	02:41	02:41	02:41	02:41	02:41	02:41	02:41	02:41	88
87	02:58	02:58	02:53	02:53	02:48	02:48	02:43	02:43	02:38	02:38	02:38	02:38	02:38	02:38	02:38	02:38	02:38	02:38	02:38	02:38	87
86	02:55	02:55	02:50	02:50	02:45	02:45	02:40	02:40	02:35	02:35	02:35	02:35	02:35	02:35	02:35	02:35	02:35	02:35	02:35	02:35	86
85	02:51	02:51	02:46	02:46	02:41	02:41	02:36	02:36	02:31	02:31	02:31	02:31	02:31	02:31	02:31	02:31	02:31	02:31	02:31	02:31	85
84	02:48	02:48	02:43	02:43	02:38	02:38	02:33	02:33	02:28	02:28	02:28	02:28	02:28	02:28	02:28	02:28	02:28	02:28	02:28	02:28	84
83	02:45	02:45	02:40	02:40	02:35	02:35	02:30	02:30	02:25	02:25	02:25	02:25	02:25	02:25	02:25	02:25	02:25	02:25	02:25	02:25	83
82	02:41	02:41	02:37	02:37	02:31	02:31	02:27	02:27	02:22	02:22	02:22	02:22	02:22	02:22	02:22	02:22	02:22	02:22	02:22	02:22	82
81	02:38	02:38	02:33	02:33	02:28	02:28	02:23	02:23	02:18	02:18	02:18	02:18	02:18	02:18	02:18	02:18	02:18	02:18	02:18	02:18	81
80	02:35	02:35	02:30	02:30	02:25	02:25	02:20	02:20	02:15	02:15	02:15	02:15	02:15	02:15	02:15	02:15	02:15	02:15	02:15	02:15	80
79	02:32	02:32	02:27	02:27	02:22	02:22	02:17	02:17	02:12	02:12	02:12	02:12	02:12	02:12	02:12	02:12	02:12	02:12	02:12	02:12	79
78	02:29	02:29	02:23	02:23	02:18	02:18	02:13	02:13	02:08	02:08	02:08	02:08	02:08	02:08	02:08	02:08	02:08	02:08	02:08	02:08	78
77	02:25	02:25	02:20	02:20	02:15	02:15	02:10	02:10	02:05	02:05	02:05	02:05	02:05	02:05	02:05	02:05	02:05	02:05	02:05	02:05	77
76	02:22	02:22	02:17	02:17	02:12	02:12	02:07	02:07	02:02	02:02	02:02	02:02	02:02	02:02	02:02	02:02	02:02	02:02	02:02	02:02	76
75	02:19	02:19	02:14	02:14	02:09	02:09	02:04	02:04	01:59	01:59	01:59	01:59	01:59	01:59	01:59	01:59	01:59	01:59	01:59	01:59	75
74	02:15	02:15	02:10	02:10	02:06	02:06	02:00	02:00	01:56	01:56	01:56	01:56	01:56	01:56	01:56	01:56	01:56	01:56	01:56	01:56	74
73	02:12	02:12	02:07	02:07	02:02	02:02	01:57	01:57	01:52	01:52	01:52	01:52	01:52	01:52	01:52	01:52	01:52	01:52	01:52	01:52	73
72	02:09	02:09	02:04	02:04	01:59	01:59	01:54	01:54	01:49	01:49	01:49	01:49	01:49	01:49	01:49	01:49	01:49	01:49	01:49	01:49	72
71	02:06	02:06	02:01	02:01	01:56	01:56	01:51	01:51	01:46	01:46	01:46	01:46	01:46	01:46	01:46	01:46	01:46	01:46	01:46	01:46	71
70	02:02	02:02	01:58	01:58	01:52	01:52	01:47	01:47	01:42	01:42	01:42	01:42	01:42	01:42	01:42	01:42	01:42	01:42	01:42	01:42	70
69	01:59	01:59	01:54	01:54	01:49	01:49	01:44	01:44	01:39	01:39	01:39	01:39	01:39	01:39	01:39	01:39	01:39	01:39	01:39	01:39	69
68	01:56	01:56	01:51	01:51	01:46	01:46	01:41	01:41	01:36	01:36	01:36	01:36	01:36	01:36	01:36	01:36	01:36	01:36	01:36	01:36	68
67	01:53	01:53	01:48	01:48	01:43	01:43	01:38	01:38	01:33	01:33	01:33	01:33	01:33	01:33	01:33	01:33	01:33	01:33	01:33	01:33	67
66	01:49	01:49	01:45	01:45	01:39	01:39	01:35	01:35	01:30	01:30	01:30	01:30	01:30	01:30	01:30	01:30	01:30	01:30	01:30	01:30	66
65	01:46	01:46	01:41	01:41	01:36	01:36	01:31	01:31	01:26	01:26	01:26	01:26	01:26	01:26	01:26	01:26	01:26	01:26	01:26	01:26	65
64	01:43	01:43	01:38	01:38	01:33	01:33	01:28	01:28	01:23	01:23	01:23	01:23	01:23	01:23	01:23	01:23	01:23	01:23	01:23	01:23	64
63	01:40	01:40	01:35	01:35	01:30	01:30	01:25	01:25	01:20	01:20	01:20	01:20	01:20	01:20	01:20	01:20	01:20	01:20	01:20	01:20	63
62	01:37	01:37	01:32	01:32	01:26	01:26	01:22	01:22	01:16	01:16	01:16	01:16	01:16	01:16	01:16	01:16	01:16	01:16	01:16	01:16	62
61	01:33	01:33	01:28	01:28	01:23	01:23	01:18	01:18	01:13	01:13	01:13	01:13	01:13	01:13	01:13	01:13	01:13	01:13	01:13	01:13	61
60	01:30	01:30	01:25	01:25	01:20	01:20	01:15	01:15	01:10	01:10	01:10	01:10	01:10	01:10	01:10	01:10	01:10	01:10	01:10	01:10	60

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Two-Mile Run (2MR) (Overall time - minutes and seconds)																					
Points	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Over 62		Points
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
100	13:22	15:29	13:27	15:00	13:31	15:00	13:42	15:18	13:58	15:30	14:05	15:49	14:30	15:58	15:09	16:29	15:28	17:18	15:28	17:18	100
99	13:42	15:55	13:50	15:30	13:58	15:30	14:06	15:46	14:20	15:56	14:29	16:12	14:54	16:14	15:34	17:01	15:55	17:47	15:55	17:47	99
98	14:00	16:16	14:08	15:51	14:15	15:53	14:25	16:07	14:37	16:18	14:48	16:35	15:14	16:36	15:55	17:22	16:22	17:56	16:22	17:56	98
97	14:15	16:34	14:25	16:09	14:31	16:10	14:40	16:28	14:53	16:36	15:04	16:50	15:32	16:56	16:14	17:38	16:44	18:00	16:44	18:00	97
96	14:28	16:48	14:38	16:26	14:45	16:26	14:54	16:43	15:06	16:51	15:20	17:07	15:48	17:15	16:28	17:50	16:58	18:25	16:58	18:25	96
95	14:40	17:01	14:50	16:39	14:57	16:40	15:06	16:57	15:19	17:04	15:33	17:24	16:02	17:28	16:42	18:00	17:14	18:31	17:14	18:31	95
94	14:51	17:14	15:01	16:52	15:07	16:54	15:18	17:08	15:30	17:18	15:45	17:35	16:15	17:39	16:55	18:13	17:27	18:36	17:27	18:36	94
93	15:00	17:27	15:13	17:04	15:19	17:05	15:30	17:20	15:41	17:30	15:56	17:47	16:27	17:53	17:06	18:20	17:45	18:46	17:45	18:46	93
92	15:11	17:37	15:23	17:16	15:30	17:17	15:39	17:30	15:51	17:41	16:06	17:56	16:36	18:00	17:16	18:30	17:57	18:48	17:57	18:48	92
91	15:20	17:47	15:32	17:28	15:39	17:27	15:49	17:41	16:00	17:52	16:18	18:06	16:46	18:12	17:26	18:40	18:07	18:56	18:07	18:56	91
90	15:30	17:56	15:43	17:37	15:48	17:35	15:58	17:50	16:10	18:00	16:28	18:16	16:57	18:24	17:36	18:53	18:17	18:59	18:17	18:59	90
89	15:39	18:04	15:53	17:47	15:58	17:46	16:07	18:00	16:20	18:10	16:38	18:26	17:07	18:34	17:48	19:02	18:25	19:04	18:25	19:04	89
88	15:48	18:13	16:01	17:57	16:05	17:55	16:16	18:09	16:30	18:20	16:47	18:35	17:16	18:44	17:57	19:14	18:36	19:14	18:36	19:14	88
87	15:57	18:22	16:10	18:04	16:15	18:02	16:25	18:18	16:38	18:30	16:55	18:44	17:26	18:55	18:04	19:29	18:45	19:29	18:45	19:29	87
86	16:05	18:30	16:20	18:13	16:24	18:12	16:32	18:27	16:46	18:36	17:04	18:53	17:34	19:04	18:15	19:36	18:53	19:41	18:53	19:41	86
85	16:14	18:39	16:29	18:23	16:32	18:21	16:41	18:36	16:55	18:45	17:12	19:01	17:43	19:13	18:24	19:45	19:00	19:45	19:00	19:45	85
84	16:22	18:46	16:37	18:30	16:41	18:30	16:49	18:45	17:03	18:52	17:21	19:10	17:51	19:22	18:32	19:58	19:07	19:58	19:07	19:58	84
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