

Describing the Relationship Between Perceived Motivational Climate and Readiness for
Psychological Skills Training Amongst NCAA Division II Athletes

By

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Abstract

Sport Psychologists and sport psychology consultants alike face a challenge in receiving acceptable levels of readiness for psychological skills training (PST). The Transtheoretical Model of Behavior Change (TTM) has been identified as a suitable tool to assess levels of readiness for PST. The purpose of this dissertation was to describe NCAA Divisional II athletes' relationships between motivational climate and readiness, willingness and ability to use PST, as measured by the TTM.

Participants (n=181) completed perceived motivational climate, caring climate, stage of change, processes of change, decisional balance, and self-efficacy questionnaires. Canonical correlation analysis revealed that perception of a task-involving motivational climate significantly associates with readiness, and willingness to use PST. A multiple regression model revealed that prior experience and task-involving climates significantly predict ability to use PST. In addition, NCAA Division II athletes were shown to contemplate use of PST at similar rates to those of NCAA Division I athletes.

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Chapter I

Introduction

Psychological skills training (PST) is the systematic integration of mental skills (goal setting, imagery, deep breathing, relaxation, focusing techniques, etc.) to increase performance. Traditionally to increase sport performance, some combination of these skills has been taught by sport psychologists and sport psychology consultants as part of PST programs. Research on elite athletes has suggested that most successful athletes differ from their counterparts because they have more confidence (Zinsser, Bunker, & Williams, 2006), better concentration (Nideffer & Sagal, 2006), lower anxiety/worry (Landers & Arent, 2006), and have more positive thoughts and images (Vealey & Greenleaf, 2001). Many of the aforementioned qualities of elite athletes can be learned or enhanced through PST.

Despite the literature surrounding the benefits of PST, many athletes are still resistant to it (Bull, 1991, 1995; Massey, Meyer, & Hatch, 2011; Ravizza, 2001). Ravizza (2001) contended that as a general guideline for PST, one-third of the team will be excited and ready for the presence of a sport psychology consultant, one-third will be indifferent, and one-third will not be interested. The resistance to PST by athletes has resulted in the utilization of the Transtheoretical Model of Behavior Change (TTM) by researchers to better understand how individuals adapt to PST (Grove, Norton, Van Raalte, & Brewer, 1999; Leffingwell, Rider, & Williams, 2001; Massey, Meyer, & Mullen, 2015; Zizzi & Perna, 2003). The TTM predicts when individuals deliberately change behavior by assessing readiness, willingness and ability to change.

TTM research in mental health (Miller & Rollnick, 2002), exercise (Marcus, Selby, Niaura, & Rossi, 1992), sleep apnea (Aloia, Arnedt, Stepnowsky, Hecht, & Borrelli, 2005), and health promotion (Pinto, Goldstein, Papandonatos, Farrell, Tilkemeier, & Marcus, 2011), indicates that a lack of readiness for intervention may aid in the resistance to long-term behavioral change. Massey (2011) stated that athletes with no prior experience to PST are likely to report low levels of readiness for change. Statements like this and the general resistance to PST found in the aforementioned research demonstrate a need for additional research to identify factors leading to readiness, willingness, and ability to use PST as well as the role that Achievement Goal Theory plays in this process.

Nicholls' Achievement Goal Theory (1984) defined an individual's goal orientation based on how one experiences competence. Those that experience competence through exertion of high effort and performance improvement are task-oriented; whereas, those that experience competence by outperforming or looking more skilled than their peers are said to be ego-oriented. Research has shown that individual goal orientations can be influenced by the motivational climate in achievement settings.

The structure of the social environment and its propensity to influence goal orientation is referred to as motivational climate. Perception of a task-involving climate is associated with increases in perceived competence, self-esteem, objective performance, intrinsic forms of motivational regulation, affective states, practice and competitive strategies, moral attitudes, and the experience of flow. Perceptions of an ego-involving climate are positively associated with extrinsic regulation and amotivation, negative affect, maladaptive strategy use, antisocial moral attitudes and perfectionism, but

negatively associated with positive affect and feelings of autonomy and relatedness (Harwood, Keegan, Smith, & Raine, 2015). Linkages between intrinsic motivation in a task-involving motivational climate and willingness to use PST give credence to a more thorough examination of how motivational climate impacts behavioral change regarding PST.

NCAA Division II student-athletes were utilized as part of this study due to the uniqueness of the sample. Research involving the TTM and PST has been performed at the NCAA Division I level. Stages of change, processes of change, decisional balance and self-efficacy measures were assessed as part of this study, though motivational climate was not included. A comparison of the stages of change measures in each study can give greater understanding to the similarities and differences in readiness to use PST by student-athletes.

Statement of Purpose

The primary purpose of this study was to describe the relationship between perceived motivational climate and readiness for psychological skills training amongst National Collegiate Athletic Association (NCAA) Division II athletes as determined by the transtheoretical model. A secondary purpose of this study was to describe the rate at which this demographic contemplated the use of PST.

Research Questions

The research questions for this study were:

1. At what rate are NCAA Division II athletes contemplating the use of PST?

2. Will prior experience with PST and motivational climate predict scores on the Stages of Change measure?
3. Will prior experience with PST and motivational climate predict scores on the Processes of Change measure?
4. Will prior experience with PST and motivational climate predict scores on the Decisional Balance measure?
5. Will prior experience with PST and motivational climate predict scores on the Self-Efficacy measure?

Significance

According to researchers in the field of sport psychology, readiness for psychological skills training has been somewhat problematic (Bull, 1991, 1995; Massey, Meyer, & Hatch, 2011; Ravizza, 2001). Despite documented success from athletes embracing PST (Greenspan & Feltz, 1989; Vealey, 1994; Weinberg & Comar, 1994) some athletes are still resistant. The results from this study will determine whether or not perceived motivational climate helps to predict readiness for PST. Specifically, if coaches that emphasize a task- or ego- involving motivational climate make individuals on their team more or less likely to be ready, willing, and able to use PST.

Scope of the Study

The delimiting factors to this study were:

1. Participants will be male or female NCAA Division II athletes ages 18-24

2. Participants will be volunteers from a variety of sports offered at Division II schools (baseball, basketball, football, lacrosse, soccer, softball, tennis, track, volleyball, wrestling).
3. Participants will be fluent in the English language.

Assumptions

The assumptions for this study were:

1. Participants will respond honestly and accurately to the items on the questionnaires.
2. Participants will comprehend questionnaire items as intended by the questionnaire developers, thus allowing reliable answers.
3. Participants will understand the stated definition of psychological skills training.

Limitations

The limiting factors for this study were:

1. Due to the research design, causality cannot be implied.
2. Due to a majority of the research being conducted online we are trusting the athletes on many variables that could otherwise be controlled for if it were in-person (ex. presence of a coach during testing, taking the survey with other peer inputs, etc.)
3. The response rate will be unpredictable since athletic departments will not give out their athletes contact information.
4. Some of the scales only have three items. This could hurt the reliability of the scales especially if items need to be removed as part of the reliability analysis.

Definitions

Achievement Behavior – Personal actions directed at developing or demonstrating high rather than low ability.

Decisional Balance – A construct based on Janis and Mann's (1977) conflict model of decision making representing the perceived benefits and detriments (pros and cons) of changing behavior.

Ego-involving Climate- An environment characterized by the leadership encouraging rivalry between participants, valuing/recognizing ability and performance, and viewing mistakes as a major cause for concern.

Mental Toughness – On a general level, the natural or developed psychological edge that enables you to cope better than your opponents with the many demands (competition, training, lifestyle) that sport places on a performer. Specifically, to be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure.

Processes of Change (POC) - Allows researchers to determine *how* shifts in behavior occur. Used to identify the types of activities individuals initiate to modify behavior, cognitions, or affect related to a problem, and have traditionally acted as a strong predictor of change (as frequency of use differs by stage).

Psychological Skills Training – Programs that facilitate goal setting, arousal regulation, mental imagery, and positive self-talk strategies that have been linked with improvements in athletic performance by increasing motivation, optimizing arousal state according to task, facilitating skilled movement and minimizing development of negative thoughts.

Readiness – The attempt to gauge one’s willingness to change, as measured by the Stages of Change construct in the Transtheoretical Model. Pre-contemplation (not ready), Contemplation (Getting Ready), Action (Ready), Maintenance (Ready).

Self-Efficacy - An individual’s belief in his or her ability to successfully perform a particular behavior. It is strongly related to that individual’s actual ability to perform that behavior and will mediate future attempts to perform that task.

Sport Science – An academic discipline that applies scientific principles to exercise and sport by combining biomechanics, physiology and psychology.

Stages of Change (SOC) - A dimension of the TTM that allows researchers to understand *when* one embarks on behavior change (Prochaska, DiClemente, & Norcross, 1992). Precontemplation, Contemplation, Action and Maintenance make up the stages of change for sport psychology use.

Task-involving Climate – An environment characterized by the leadership valuing effort, improvement and cooperation, maintaining that everyone plays an important role, and viewing mistakes as part of the learning process.

Transtheoretical Model of Behavior Change – Hierarchical stages that an individual progresses through in the cessation, modification or adaptation of a new behavior.

Chapter II

Review of the Literature

Introduction

This literature review focuses on performance psychology training in sport settings, Achievement Goal Theory (AGT), and Transtheoretical Model of Behavior Change (TTM) research. For the purposes of this review, manuscripts on AGT and TTM research were reviewed from the formative research to the present.

Sport and Performance Psychology

The field of sport psychology is a subdivision of sport science. The focus of sport psychology is on cognitive factors that influence participation and performance. Primary research draws from topics in motivation, leadership, group dynamics, thoughts and feelings of athletes, along with many others. Within applied sport psychology, the focus hones in on psychological theories and interventions for athletes targeting performance enhancement. Programs in this area have focused on deliberately building performance/mental toughness and are traditionally referred to as psychological skills training (PST) programs.

The term “mental toughness” is widely used in sport psychology context and is highly sought after by those active in sport (though it has been difficult for theorists and practitioners to agree upon one definition).

According to Jones, Hanton, and Connaughton (2002), [on a general level] mental toughness is having the natural or developed psychological edge that enables you to cope better than your opponents with the many demands (competition, training,

lifestyle) that sport places on a performer. Specifically, to be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure (p. 209).

Research has indicated individuals exemplifying mental toughness are able to maintain confidence and focus under pressure, perform true to potential, be self-motivated, and regulate emotional responses (Sheard, Golby, & van Wersch, 2009; Jones, Hanton, & Connaughton, 2002, 2007). Given the benefits of possessing the aforementioned qualities commonly associated with mental toughness, psychological skills training programs largely target these areas.

Traditionally, PST programs facilitate goal setting, arousal regulation, mental imagery, and positive self-talk strategies to athletes. Programs have been linked with improvements in athletic performance by increasing motivation, optimizing arousal state according to task, facilitating skilled movement and minimizing development of negative thoughts (Thelwell & Greenlees, 2003). The benefits of PST seem to extend to stressful environments and competitive situations. The effectiveness of PST programs has been thoroughly studied.

Psychological skills training programs (targeting relaxation, behavioral or cognitive restructuring) are largely effective in improving sport performance (Greenspan & Feltz, 1989). Reviews by Greenspan and Feltz (1989), Vealey (1994), and Weinberg and Comar (1994) on the efficacy of psychological skill interventions found the majority of these programs for athletes led to positive effects on sport performance. The documentation of positive effects due to applied sport psychology training and consultation has led to integration in other realms such as exercise (Barwood, Thelwell,

& Tipton, 2008), military (Zinsser, Perkins, Gervais, & Burbelo, 2004), surgery (Rao, Tait, & Alijani, 2015), and dancing (Raymond, Sajid, Parkinson, & Gruzelier, 2005). Though the research links PST to enhanced performance in sporting contexts, adherence levels to psychological skills routine have been low.

Adherence

Though many of the aforementioned cognitive skills have proven to be advantageous for sport performance, athletes are somewhat reluctant to adhere to the usage of psychological skills long-term, while other athletes do not readily adopt its use at all (Bull, 1991, 1995; Gould, Tammen, Murphy & May, 1989; Ravizza, 2001). The resistance to PST and barriers to effective sport psychology consultation have been thoroughly studied (Linder, Brewer, Van Raalte, & De Lange, 1991; Ravizza, 1988). Scholars have suggested it may be due to the “weakness” stigma placed on those receiving PST or the perception of ineffective training (Zizzi & Perna, 2003; Massey, Meyer, & Hatch, 2011; Ravizza, 1988). The sport the athlete competes in may relate to resistance to PST as well. In a 2005 study, male athletes, younger athletes, and athletes who may have been socialized in sports that involve physical contact assigned a derogatory stigma to sport psychology consulting (Martin, 2005). It has been insinuated by researchers that motivational climate may play a role in predicting readiness for PST, but no formal study examining this exists. While adherence levels generally remain low, efforts to increase them are being made by sport psychologists and sport psychology consultants alike.

Moderators increasing the likelihood of adherence to PST have been researched and identified. Self-motivation has been shown to correlate with adherence to psychological skills usage and, more thoroughly studied in other domains, readiness to engage in an intervention may play a role in maintaining the benefits of PST (Bull, 1991; Miller & Rollnick, 2002). The relationship between adherence and readiness implies a need for a more thorough study of how these relate to PST.

Readiness remains a concern to researchers of behavioral change and spans multiple subject areas such as mental health (Miller & Rollnick, 2002), sleep apnea (Aloia et al., 2005), health promotion (Pinto et al., 2011), exercise (Marcus et al., 1992), and alcoholism (Rollnick, Heather, Gold, & Hall, 1992). In studies where the TTM has been used, individuals that showed higher levels of readiness were more likely to adhere to the new behavior (Aloia et al., 2005; Pinto et al., 2011). This concept is especially important in the field of sport psychology for the purpose of determining factors that contribute to adherence to psychological skill usage.

Transtheoretical Model of Behavior Change

An initial study of the TTM on smoking cessation was conducted by Prochaska and DiClemente (1983). Subjects in this study were found to use various processes of change (cognitive and behavioral) to stop smoking. Since this time, the TTM has been declared an effective tool for use across many behaviors including psychotherapy (McConaughy, Prochaska, & Velicer, 1983), physical activity (Marshall & Biddle, 2001), as well as eating disorders (Wilson & Schlam, 2004). Along with the aforementioned behaviors, the TTM has been adapted for use in sport psychology

(Leffingwell et al., 2001; Massey, Meyer, & Mullen, 2015). The TTM offers a framework to explain the process of initiation, modification, or cessation of behavior (Miller & Rollnick, 2002). This model utilized a central construct, stages of change, to mediate a collection of dependent (i.e., decisional balance and self-efficacy) and independent variables (i.e., processes of change).

Stages of Change

The five stages of change represent a dimension of the TTM that allows researchers to understand *when* one embarks on behavior change (Prochaska, DiClemente, & Norcross, 1992). These stages (precontemplation, contemplation, preparation, action and maintenance) represent various points in the change process. Precontemplation is the initial stage in which the individual is not currently considering change. This may be due to being unaware of the problem behavior or the unwillingness to change it (Miller & Rollnick, 2002). Contemplation is where the individual is evaluating considerations for and against change (considering change in the next six months) (Miller & Rollnick, 2002). Preparation is the stage involving planning and commitment directed toward behavior change (planning to change behavior in the next 30 days). After the achievement of these three preliminary stages, an individual progresses to the action phase which focuses on making the specific behavioral change (currently engaging in the new behavior). Assuming the implementation of the new behavior is successful, the individual then progresses to the maintenance stage in which one attempts to sustain long-term behavior change (Miller & Rollnick, 2002). These studies were essential in establishing the Stages of Change construct.

First, McConaughy, Prochaska, and Velicer's (1983) study devised the Stages of Change Questionnaire, based off the theoretical underpinnings set in place by Prochaska and DiClemente (1982). During the item elimination process, the items for preparation were found to load significantly into the action and preparation stages. Ultimately a 32-item questionnaire was created with eight items measuring each of the four stages. Cronbach's coefficient alphas for each of the four component scales were as follows: Precontemplation, (0.88); Contemplation, (0.88); Action, (0.89); and Maintenance, (0.88). Second, a follow-up to the 1983 study, McConaughy, DiClemente, Prochaska, and Velicer (1989) tested the 32-item structure in a clinical setting ultimately ratifying the use of the Stages of Change construct in psychotherapy.

The stages of change for sport psychology scale consist of precontemplation, contemplation, action and maintenance. Similar to the results from the McConaughy et al., (1983) study, preparation was ultimately dropped after factors loaded significantly on contemplation and action subscales (Leffingwell et al., 2001). Cronbach's alpha for precontemplation (0.79), contemplation (0.73), action (0.84) and maintenance (0.52) were calculated to determine internal consistency for each measure within each sample (Leffingwell et al., 2001). The maintenance subscale has been further adapted by Massey, Meyer, and Mullen in order to achieve higher reliability (0.80) (Massey et al., 2015). The new subscale helps to ensure accuracy of results in future studies.

The stages of change represent varying degrees of readiness for change, whereas, decisional balance, self-efficacy, and processes of change help transition to new stages (Prochaska et al., 1992). The determination in when one embarks on behavior change is

important, but more information must be attained in order to fully understand the process of change.

Indicators of Change

The following aspects of the TTM aim to predict when individuals are moving in between the stages of change. Processes of change, decisional balance, and self-efficacy are addressed here, each giving more information about contemplation of change at the individual level.

Processes of Change

The processes of change (POC) represent a second major dimension of the TTM, ultimately allowing researchers to determine *how* shifts in behavior occur (Prochaska et al., 1992). The POC is used to identify the types of activities individuals initiate to modify behavior, cognitions, or affect related to a problem, and have traditionally acted as a strong predictor of change (as frequency of use differs by stage) (Prochaska et al., 1992). Prochaska, Velicer, DiClemente, and Fava's (1988) study was essential in establishing the original ten processes of change. These (ten) processes are consciousness raising, dramatic relief, self-liberation, social liberation, counterconditioning, stimulus control, self-reevaluation, environmental reevaluation, reinforcement management, and helping relationships (Prochaska et al., 1988). Prochaska and DiClemente (1983) found processes of change varied in frequency as well as type dependent on stage. Findings from this study concluded that precontemplators use change processes the least and individuals in the action stage utilized them most. Finding ways to adapt the climate to foster change process is of primary concern to

applied sport psychology consultants.

The original POC scale has been adapted for sport psychology use and consists of seven processes; consciousness raising, self-reevaluation, self-liberation, counterconditioning, stimulus control, reinforcement management, helping relationships, dramatic relief, environmental reevaluation, and social liberation (Massey et al., 2015). The scores on the POC questionnaire may provide guidance as to how motivational climate affects contemplation of change.

Decisional Balance

The decisional balance construct is based on Janis and Mann's (1977) conflict model of decision making. Four main categories appear in the model, (a) gains and losses for self; (b) gains and losses for others; (c) self-approval or self-disapproval, and (d) approval and disapproval from significant others. Upon further study by Velicer (1985) and colleagues, a simpler model presented itself, namely just the pros and cons of changing behavior. Internal consistency coefficients were 0.90 for the cons scale and 0.87 for the pros scale, ultimately making this a suitable construct for future use.

Further relationships between the stages of change measure and decisional balance were also confirmed across five negative behaviors (smoking cessation, quitting cocaine, weight control, high-fat diets, and adolescent delinquent behaviors) and seven positive behaviors (safer sex, condom use, sunscreen use, radon gas exposure, exercise acquisition, mammography screening, and physicians' preventative practices with smokers) (Prochaska et al., 1994). The results from this study showed that individuals in the precontemplation stage (attempting in the cessation of problem behavior) to judge the

pros of the problem behavior to outweigh the cons. In the action and maintenance stages, the opposite pattern occurred, as the cons of behavior change outweighed the pros. In the process of successful behavior change, the reported pros should increase (and cons decrease) as the individual progresses through the SOC.

Self-efficacy

The self-efficacy construct of the TTM was modeled after Bandura's self-efficacy theory (1977). Bandura stated that in self-efficacy theory "an individual's belief in his or her ability to successfully perform a particular behavior is strongly related to that individual's actual ability to perform that behavior and will mediate future attempts to perform that task" (Bandura, 1977, 1982). According to Bandura, there are four sources of self-efficacy: performance accomplishments, the most influential, based on prior experiences; vicarious experiences, depends on observing performance from an outside source; verbal persuasion, often defined as the utilization of positive self-talk; and emotional arousal, the view that anxiety is helping performance. The sources of self-efficacy can shed light on how confident individuals are in being able to adapt a positive behavior or cessation in a negative behavior.

DiClemente, Prochaska and Gibertini (1985) examined self-efficacy in its relation to smoking cessation and ability to predict behavior. A confidence scale (how confident the individual is in avoiding smoking on a situational basis) and temptation scale (how tempted the individual would be to smoke, also on a situational basis) were utilized as part of this study. Over the two year period of the study, confidence scores were found to negatively correlate with temptation scores, number of cigarettes smoked, years spent

smoking, problems quitting, and pros of smoking (as described through the decisional balance measure). Confidence scores positively correlated with the cons of smoking, educational levels, and length of time spent abstaining from smoking during last cessation attempt. Higher self-efficacy was associated with greater use of the processes of change. This study validated the use of self-efficacy in the TTM for smoking cessation, and was later shown to be beneficial in predicting behavior for other activities.

Self-efficacy construct and theory has been applied to a variety of realms, such as sport performance (Moritz, Feltz, Fahrbach, & Mack, 2000), military performance (Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991), exercise (Marcus, Selby, Niaura, & Rossi, 1992) & weight control (Clark, Abrams, Niaura, Eaton, & Rossi, 1991). Previous TTM research has shown self-efficacy to increase across stages of change. Prior evidence demonstrates the self-efficacy construct to be an effective way to measure and predict behavioral change, ultimately giving researchers more insight on how to adapt a psychological skills routine.

Transtheoretical Model in Sport Psychology

Though researchers have determined the validity of TTM use in psychological skills training, research utilizing the TTM in sport psychology has been quite sparse. In the first reported study utilizing the TTM for sport psychology, Grove, Norton, Van Raalte, and Brewer (1999) concluded that a six-week PST intervention for youth baseball players increased action and maintenance sub scale scores in comparison to a control group not receiving a PST intervention. Interpretation of findings is limited as stage of change was the only TTM measure described in the study.

Leffingwell et al. (2001) attempted to validate stages of change, decisional balance, and self-efficacy constructs for use in sport psychology. As part of this study, college athletes were significantly more likely to seek sport psychology information (i.e., read a book) or consult with a sport psychologist in the contemplation, action, and maintenance stages of change than athletes in the precontemplation stage. Along with these findings, a year after initial assessment, a higher percentage of college athletes in the contemplation and action stages of change consulted with a sport psychologist than athletes in the precontemplation and maintenance stages. Leffingwell's study was the most complete theoretical examination of the TTM to date in the sport psychology literature, even though the processes of change construct of the TTM were excluded.

Athletes from 14 college teams discussed application of PST to sport performance as part of Zizzi and Perna's (2003) study. The workshop proved to be successful in raising awareness of the benefits of PST, as contemplation scores ultimately increased and precontemplation scores decreased after the workshop. Limitations of this study include the absence of processes of change and self-efficacy measures in the study design. This study showed how PST encouraged shifts between the SOC, demonstrating a need to describe the role that motivational climate plays.

Massey, Meyer, and Hatch (2011) evaluated the use of the TTM in an athletic population that reported no prior experience with a sport psychologist/sport psychology consultant. Stages of change, decisional balance and self-efficacy measures were collected from the participants of the study. Stages of change breakdowns were 66% in precontemplation and 34% in contemplation. This study concluded that: (1) individuals without prior sport psychology experience may ultimately not be ready for an action-

oriented program and (2) the TTM remains a proper guide for PST process in collegiate level athletics. This study further demonstrated a need to address motivational climate and factors contributing to readiness amongst NCAA athletes.

Massey, Meyer, and Mullen (2015) provided the first documented attempt at validating a process of change measure specific for PST. Results of this study provided validity evidence for a seven-factor process of change measure and significant differences in process of change use across stage of change was reported for all seven processes. This ultimately gave credence to the POC being viable for the use of sport psychology professionals. Other conclusions from this study included athletes' use of processes of change were significantly less in individuals in the precontemplation stage as opposed to individuals in the contemplation, action, or maintenance stage of change. Analyses also showed use of the behavioral processes of change were significantly greater in action and maintenance than in pre-action (i.e., precontemplation and contemplation) stages of change. This study further supports the stage approach to PST in athletes.

Massey, Gnacinski, and Meyer (2015) was the first study of its kind to utilize all aspects of the TTM simultaneously in relation to PST. Supporting previous findings, data from the precontemplation demographic in the study concluded that a large portion of athletes may not be ready to actively engage in PST programs (37% of athletes). Precontemplators also used cognitive and behavioral processes of change less, reported fewer benefits/more costs of PST and had lower levels of self-efficacy. Athletes in the contemplation stage (28% of the sample) used cognitive and behavioral processes of change more than in precontemplation (and less than in maintenance for behavioral).

Athletes in action or maintenance made up 35% of the sample. As expected from previous TTM research, levels of self-efficacy were higher towards PST than athletes in other stages and behavioral processes of change were utilized more than individuals in pre-action stages.

Achievement Goal Theory

Achievement Goal Theory (AGT) falls under the broader spectrum of achievement motivation, a field to which many have contributed theory (Ames & Archer, 1988; Dweck, 1986; Nicholls, 1984). Nicholls (1984, p.328) defined achievement behavior as “behavior directed at developing or demonstrating high rather than low ability” and assumes that individuals’ goal perspectives are the primary influence of thoughts, feelings and actions in achievement situations. The three components of AGT focus on cognitive development, goal orientation, and motivational climate. This section will focus on the history of achievement motivation, goal orientation and motivational climate as described through Nicholls’ research.

History

Formative research in Achievement Goal Theory described motivational processes in the learning environment (Ames & Archer, 1988; Dweck, 1986; Nicholls, 1984). Many similarities exist between the ways researchers describe and define motivational processes. Ames and Archer use the terms “mastery” and “ability” while discussing differences in goal orientation, whereas Dweck uses “learning” and “performance”. Nicholls insists the term “ego” has a seasoned history in the field of

psychology and most new researchers seek new names for the phenomena they study. It would be advantageous to maintain links to formative research. For this reason Nicholls' research utilized the terms "task" and "ego" to describe goal orientations.

Nicholls (1984) contended that the concept of ability can be judged in two ways: (1) Ability judged in the reference of prior performance or knowledge, or (2) ability judged relative to the performance of one's peers. Individuals perceiving ability akin to the first example will ultimately feel competent when they progress, whereas those in example two will feel successful when they achieve more with equal or less effort than others for equal performance. "Task orientation" and "ego orientation" are terms used to emphasize proneness to the two types of involvement (task or ego), "task involvement" and "ego involvement" refer to the states that people experience in a given situation.

Dweck's (1986) early research focused on the maladaptive and adaptive motivational patterns present in children. Competence based goals falling into two classes are apparent: (1) learning goals in which individuals seek to increase competence, to understand or master something new, and (2) performance goals where individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence. Motivational influences on gender differences in mathematical achievement are discussed and examined. Findings have concluded that sex differences in mathematical achievement are great, especially amongst the brightest students and sex differences in motivational patterns/behavior appear to be greatest amongst brightest students as well. Research from this study suggested that there is a need for motivational intervention amongst young, bright girls to form adaptive motivational patterns.

Ames and Archer (1988) detailed mastery and performance goals in junior high/high school classroom settings. Findings of this study concluded that the emphasis of mastery goals in a classroom environment may facilitate maintenance of adaptive motivation patterns. Individuals perceiving emphasis on mastery goals in the classroom preferred challenging tasks, had a more positive attitude toward class, and held a stronger belief that success stems from one's effort. Individuals perceiving emphasis on performance goals focused on their own ability, evaluated their ability negatively and attributed failure to lack of ability.

Duda and Nicholls (1992) tailored the knowledge gained from observations in a classroom environment to a sporting context. Findings from this study revealed two goal-belief dimensions. Having an ego-involved personal goal (ex. superiority) was associated with the belief that success requires high ability, and having a more task-involving goal (ex. gaining knowledge) was associated with the belief that success requires interest, effort and collaboration with peers. These goal-belief dimensions were found to be similar between participants in schoolwork and sport.

Goal Orientation

Goal orientation provides the framework in understanding how individuals define competence. Formative research on Goal Perspective theory has shown that individuals fall between two types of orientations (task, ego) while developing skill (Nicholls, 1984). Nicholls maintained that all individuals are motivated to experience competence, yet for some, feelings of competence arise from favorable social comparison (i.e. ego-oriented). For others, competence is referenced through self-reflection (i.e. task-oriented).

Individuals that are primarily task-oriented during achievement situations base their concern with mastering new tasks or skill improvement. Success is ultimately defined by self-reference (i.e. personal improvement and learning). When the individual adopts a task-orientation they feel they have the ability to learn and get better through practice if they exert the proper amount of effort, therefore they do not measure their own competence through societal comparison. To counter this, individuals exhibiting predominantly ego-orientation base success and failure on social comparison and performing to a standard. Through this orientation, winning is essential in order to maintain high perceived ability. Improvement and task mastery are only seen as a means to demonstrate competence over ones peers.

Individuals that are primarily task-oriented are more likely to exemplify intrinsic motivation toward the activity and will register low on fear of failure measures. Success is not necessarily measured by achievement during the task, rather by one's effort to achieve mastery. Ego-oriented individuals perform tasks simply to boost their own ego for praise, or to boost their self-concept. Failure can be very discouraging to ego-oriented individuals because it challenges their self-concept.

Duda's (1989) research involving high-school athletes has shown task and ego orientations to be orthogonal in nature. Four clusters describing individuals combinations of goal orientations have become apparent (scoring high in both orientations, high in one and low in the other, high in one and moderate in the other) (Duda & Nicholls, 1992).

A longitudinal study on physical education showed mastery goals measured early in the school-year predicted increases over the school-year in intrinsic motivation, perceived competence, physical education behavior, and positive attitudes (Halvari,

Skjesol, & Bagoien, 2011). A major component of athletics is physical training, fostering intrinsic motivation, competence and positive attitudes toward this will aid in the development of better athletes.

The interaction between goal orientation and stages of change has been examined on exercise behavior in college students (Zizzi, Keeler, & Watson II, 2006). Task scores were shown to increase across precontemplation, contemplation, preparation, action and maintenance stages, whereas ego scores decreased slightly (from contemplation to maintenance). Results of this study indicated that individuals viewing exercise in a task-oriented fashion are more likely to exercise than those that take on an ego-oriented disposition. This study seems to support the idea that task-oriented beliefs aid in behavior modification.

Motivational Climate

Early research in AGT consisted of two motivational climate constructs which were task- and ego-involving. Unlike goal orientations, motivational climates do not exist orthogonally. Research has indicated the climates to be negatively correlated (Newton, Duda, & Yin, 2000; Seifriz, Duda, & Chi, 1992; Walling, Duda, & Chi, 1993). Researchers also suggested that the motivational climate created by significant others (ie. teachers, coaches, parents) can impact the probability of whether an athlete will be task- or ego-involved during sport participation.

An ego-involving climate is characterized by the leadership encouraging rivalry between participants, valuing/recognizing ability and performance, and viewing mistakes as a major cause for concern. To contrast these ideals, the perception of a task-involving

climate is characterized by leadership valuing effort, improvement and cooperation, maintaining that everyone plays an important role, and viewing mistakes as part of the learning process. A common misconception amongst those unfamiliar with achievement goal theory is that it isn't possible to cultivate competition in a task-involving climate. Athletes value winning in a task-involving environment, but not at the expense of other outcomes. Therefore, competition in a task-involving environment remains entirely plausible.

Recent research with motivational climate has transferred the ideology to the sport/exercise realm (Huddleston, Fry, & Brown, 2012; Standage & Treasure, 2002). In a 2014 study, Brown reported that individuals' perceptions of a task-involving climate were associated with greater commitment to exercise, and life satisfaction (Brown & Fry, 2014). The association between a task-involving climate and commitment to behavior is of primary importance to coaches of athletic teams.

Kristiansen, Halvari, and Roberts (2012) conducted a study on the role achievement goal theory played in organizational and media stress among 82 football players. Results of the study revealed perception of a mastery climate to be directly and negatively associated with coach-athlete stress whereas performance climate was directly and positively associated with coach-athlete stress. There was also an indirect and positive relationship between media stress (when athletes feel the presence of journalists as intrusive, and the belief that media reports are not always factual) and performance climate when described through ego orientation. Key findings from this article are consistent with prior AGTP research, highlighting how mastery climates reduce

perceptions of stress among athletes, with the inverse being true for performance climates.

Isoard-Gauthier and colleagues (2010) studied the role that motivational climate plays in burnout amongst 309 handball players. Findings of the study indicated that young athletes perceiving an ego-involving climate (emphasizing mastery avoidance goals at the beginning of the season) had a higher risk of experiencing burnout symptoms at the season's end. To contrast this, players perceiving a high task-involving climate, emphasizing mastery approach goals at the beginning of the season, had lower burnout scores when the season concluded. Burnout remains an issue of concern for sport teams and programs, in order to keep performance at high levels task-involving climates must be emphasized.

To further substantiate motivational climate research, a meta-analysis was conducted by Harwood, Keegan, Smith and Raine (2015). The research included a sample of 34,156 individuals and showed perception of a task-involving climate to be associated with perceived competence, self-esteem, objective performance, intrinsic forms of motivational regulation, affective states, practice and competitive strategies, moral attitudes, and the experience of flow. Perceptions of an ego-involving climate were positively associated with extrinsic regulation and amotivation, negative affect, maladaptive strategy use, antisocial moral attitudes, perfectionism, but negatively associated to positive affect and feelings of autonomy and relatedness (Harwood et al., 2015). The benefits of emphasizing a task-involving climate are numerous for sport.

Researchers have proposed a third construct to fit into the AGT framework, caring climate. This construct also draws its roots from the field of education with

Noddings' (1995) philosophical writings on teaching themes of care making up the conceptual framework. Caring climate can be defined as “the extent to which individuals perceive a particular setting to be interpersonally inviting, safe, supportive and capable of providing the experience of being valued and respected” (Newton et al., 2007, p. 70).

This climate has been shown to significantly correlate with high enjoyment in sport, positive attitude towards coaches/teammates, commitment to sport, and engagement in caring behavior and is considered to be the psychological climate fundamental to positive development (Fry & Gano-Overway, 2010; Iwasaki & Fry, 2013; Newton et al., 2007).

Gano-Overway and colleagues (2009) examined the relationship between caring climate, efficacy-related beliefs and social behaviors. Findings from the study indicated that perceptions of a caring climate are positively correlated with the one's self-efficacy to control positive and negative emotion and to empathize with others. Prosocial and antisocial behavior were affected by the perception of a caring climate as well. The Gano-Overway et al., (2009) study adds merit to the claim that perception of a caring climate can help build and foster relationships which is essential to long term behavioral change and maintenance.

Achievement Goal Theory Measures

Task or Ego Orientation in Sport Questionnaire (TEOSQ)

Nicholls, Patashnick, and Nolen (1985) developed a measure of task and ego orientation for the academic setting, which Duda (1989) then modified for athletics. Factor analysis for the Task and Ego Orientation in Sport Questionnaire (TEOSQ) revealed two distinctly independent subscales (task and ego) (Duda, 1989). Initial

analysis of the TEOSQ revealed Cronbach's alpha for the task- and ego-orientation scales to respectively be 0.62 and 0.85.

Duda and Nicholls (1992) worked to enhance the TEOSQ measurement capabilities. The analysis of the new scale showed internal reliability for task and ego orientation consistency to be 0.89 and 0.89. The TEOSQ is the most widely utilized tool for describing goal orientation in athletes (Duda and Nicholls, 1992; Steinberg, Frederick, Grieve, & Glass, 2002) and has been validated for cross-cultural use (FuZhong, Harmer, Acock, Vongjaturapat, & Boonverabut, 1997).

Perception of Success Questionnaire (POSQ)

Roberts, Treasure, and Balague (1998) attempted to create a measure in order to determine individual achievement goals in sport. The Perception of Success Questionnaire (POSQ) consists of 12 questions, 6 evaluating the task orientation and 6 evaluating ego orientation. An adult version and child's version of the scale have been created and validated. Internal consistency of the subscales as determined by Cronbach's alpha were 0.84 for ego orientation and 0.87 for task orientation for the child's scale and 0.88, 0.88 for task orientation for the adult scale, ultimately making this a suitable questionnaire to describe goal orientation.

Perceived Motivational Climate in Sport Questionnaire (PMCSQ)

In order to describe task- and ego-involving climates in sport, Seifriz (1992) and colleagues built the Perceived Motivational Climate in Sport Questionnaire (PMCSQ). Ames and Archer (1988) utilized 105 high school basketball players and reworded items from the Classroom Achievement Goals Questionnaire. Exploratory factor analysis revealed two major constructs of the motivational climate, a performance (ego-involving)

climate and mastery (task-involving) climate. The performance and mastery subscales demonstrated acceptable internal consistency (0.84 and 0.80 respectively). Findings from the study revealed ego-involving motivational climates to be associated with punishment for mistakes, recognition of better players by the coach, and rivalry between teammates. The task-involving climate was associated with trying hard and improvement being valued from the coaches, and that every member of the team had an important role. The PMCSQ has been supported from a psychometric and concurrent validity standpoint, but Seifriz (1992) and Walling et al., (1993) reported that the measure could be improved, ultimately leading to the development of the PMCSQ-2.

Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2)

In order to improve upon the original measure, the PMCSQ-2 looks at task- and ego-involving climates as higher order constructs, each with three subscales (Task: Cooperative Learning, Effort/ Improvement, Important Role; Ego: Intra-Team Member Rivalry, Unequal Recognition, Punishment for Mistakes). Internal reliability for task- (0.88) and ego-involving (0.87) was acceptable for each. Task-involving subscales, cooperative learning (0.74), important role (0.79) and effort/improvement (0.77) were also found to be internally consistent. Ego involving subscales for unequal recognition (0.86) and punishment for mistakes (0.86) were internally consistent but intra-team member rivalry exhibited low internal consistency (0.54). According to the meta-analysis by Harwood et al. (2015), the PMCSQ-2 is the most widely used motivational climate measure.

Caring Climate Scale

In order to measure the perception of a caring climate, Newton and colleagues developed the Caring Climate Scale. Exploratory factor analysis found all Caring Climate Scale items to load significantly onto a single construct with strong internal reliability (.92) (Newton et al., 2007). Caring climate was found to be inversely correlated with perceptions of an ego-involving climate ($r=-.19$) (Newton et al., 2007). This observation has been confirmed throughout several studies involving caring, task, and ego-involving climates (Newton et al., 2007; Iwasaki & Fry, 2013; Hogue, Fry, Fry, & Pressman, 2013; Brown & Fry, 2014). Findings from the Newton (2007) study also helped validate the theory that caring climate remains a distinct, yet significantly related construct to task-involving climate.

Summary

To better understand the relationship between motivational climate and readiness for psychological skills training, a critical review of Achievement Goal Theory and Transtheoretical Model use in PST transpired. Transtheoretical Model studies as part of the literature review revealed that individuals are not traditionally ready for PST. In the few studies that have employed the use of the TTM for PST, many of the students are placed in the precontemplation stage of the TTM. Other applied sport psychology practitioners have mentioned the problem of readiness for PST as well. While individual factors have been addressed in what makes up the stigma around PST, team dynamics have not yet been addressed.

Overall, the research indicated multiple supporting factors for future research between Achievement Goal Theory and readiness for PST. Studies as part of this

literature review showed perceptions of a task-involving climate to be associated with perceived competence, self-esteem, intrinsic forms of motivation, practice and competitive strategies, moral attitudes, and the experience of flow. Intrinsic forms of motivation have previously been shown to correlate highly with adherence to PST. Perceived competence and self-efficacy share many similar traits which may help progression through the stages of change.

Perceptions of an ego-involving climate were positively associated with extrinsic regulation and amotivation, antisocial moral attitudes, but negatively associated to positive affect and feelings of autonomy and relatedness. Perception of a caring climate was associated with many relationship building factors, as well as enjoyment and commitment to sport. In theory, many of the aforementioned qualities associated with ego-involving climates are deleterious to adherence.

Chapter III

Methods

Purpose

The primary purpose of this study was to describe the relationship between perceived motivational climate and readiness for psychological skills training amongst National Collegiate Athletic Association (NCAA) Division II athletes as determined by the transtheoretical model. A secondary purpose of this study was to describe the rate at which this demographic contemplated the use of PST.

Research Design

This correlational study was designed to use self-reported, survey data and utilized canonical analysis. This research design was appropriate as it provided ease of obtaining survey-based data from a large number of participants to examine the relationship between many important variables. Canonical correlation analysis was used in this study because of the large amount of variables, and the amount of independent and dependent variables to be measured at the interval level. Strength of relationship between predictor variables and criterion variables were provided by the analysis.

In order to determine the relationship between perceived motivational climate and readiness for psychological skills training, data was collected for six scales. The motivational climate aspect of Achievement Goal Theory was measured and compared to all aspects of the TTM (stages of change, processes of change, self-efficacy, decisional balance).

Participants

The participants in this study were: (a) currently practicing for or participating in an NCAA Division II sanctioned sport; (b) over the age of 18 years old; and (c) fluent in speaking and writing English. Participants were excluded from the study if: (a) they did not meet all three eligibility criteria, or (b) they were unable or unwilling to give their informed consent to participate in the study.

Instrumentation

Perceived Motivational Climate in Sport Questionnaire-1. A 21-item Perceived Motivational Climate in Sport Questionnaire was completed by each athlete to describe the motivational climate of their team (Seifriz et al., 1992). The performance and mastery subscales demonstrated acceptable internal consistency (.84 and .80 respectively). This scale was utilized as part of this study to describe task- and ego-involving climates due to the high internal consistency and lower amount of questions in comparison to the PMCSQ-2.

Items were measured on a 5-point Likert scale ranging from strongly disagree to strongly agree, with scores being calculated for each subscale measuring task-involving (ex. “Players try to learn new skills”, “Trying hard is rewarded”, “All players have an important role”, etc.) or ego-involving (ex. “Players feel good when they do better than teammates”, “Out-performing teammates is important”, “Only the top players ‘get noticed’, etc.) The questionnaire was utilized with the prefix “On this team.”

Caring Climate Scale. A 13-item Caring Climate Scale was utilized to measure athlete's perceptions of the climate (Newton et al., 2007). The caring climate scale has repeatedly been shown to have extremely high internal consistency (.92, Gano-Overway, Newton, Magyar, Fry, Kim, & Guivernau, 2009; .91, Fry, & Gano-Overway 2010; .955, Gould, Flett, & Lauer, 2012; .94, Magyar, Guivernau, Gano-Overway, Newton, Kim, Watson, & Fry 2007) and is the only scale to date that describes the construct. For this reason the Caring Climate Scale was utilized in this study.

Items were measured on a 5-point Likert scale ranging from strongly disagree to strongly agree (ex. "The players are treated with respect", "The coaches respect the players", "Players feel that they are treated fairly," etc.). The questions on the Caring Climate Scale utilized the prefix of "On my team..."

University of Rhode Island Change Assessment (URICA). The original URICA found four well-defined stages: precontemplation, contemplation, action and maintenance. The fifth theoretical stage, decision making (or preparation), being dropped, since every item designed to measure this stage also had high loadings on Contemplation and Action (McConnaughy, Prochaska, & Velicer, 1983). A 12-item modified version of the original URICA measures stage of change as it relates to PST in sport (Leffingwell et al., 2001). Confirmatory factor analysis revealed excellent model fit for the precontemplation, contemplation and action subscales. Internal reliability for the subscales were, precontemplation ($r=.79$), contemplation ($r=.73$), action ($r=.84$), maintenance ($r=.80$). The maintenance subscale was further adapted by Massey, Meyer and Mullen (2015) and found to achieve better model fit, therefore the modified maintenance subscale was utilized in this study. This version of the stages of change

construct is considered the standard for determining readiness for PST through the TTM, and gave credence for use in this study.

Items were measured on a 5-point Likert scale ranging from strongly disagree to strongly agree, with scores being calculated for each subscale. Participants were placed into stages based on scores from the precontemplation (ex. “Mental skills may help me perform, but I don’t think so”, etc.), contemplation (ex. “It might be worthwhile to work on my mental skills”, etc.), action (ex. “I am really working hard to improve my mental skills”, etc.) and maintenance subscales (ex. “I have been successful working on my mental skills for at least the last six months”, etc.) Raw scores were calculated from the aforementioned scales and converted to standardized scores.

Processes of Change in Psychological Skills Training Questionnaire (PCPSTQ). The 27-item PCPSTQ was used to measure athletes use of the processes of change as they relate to PST (Massey et al., 2015). Items were measured on a 5-point Likert scale ranging from strongly disagree to strongly agree, with scores being calculated for each subscale (consciousness raising, dramatic relief, counter conditioning, reinforcement management, stimulus control, helping relationships, self-liberation). Participants were asked to rate...

- consciousness raising (ex. “I read about mental skills training in an attempt to learn more about it”)
- dramatic relief (ex. “I get upset when I consider I am not living up to the athletic standards I have for myself”)
- counter conditioning (ex. “Like physical training, I am committed to doing mental skills training consistently to maximize my potential as an athlete”)

- reinforcement management (ex. “Rather than viewing mental training as a chore, I now see that it is helpful in achieving my goals”)
- stimulus control (ex. “Performing better than my teammates that used to beat me in competition is a reward I receive from working on my mental skills”)
- helping relationships (ex. “I can be open with at least one person about the struggles I am having”)
- self-liberation (ex. “I keep things in the program facilities to remind me to work on my mental game”)

This has been the most widely used processes of change scale for PST to date. Initial validation of the scale took place with an NCAA athlete demographic and reported adequate internal reliability using McDonalds omega coefficient (consciousness raising, 0.796; dramatic relief, 0.700; counter-conditioning, 0.829; helping relationships, 0.827; reinforcement management, 0.723; self-liberation, 0.671; stimulus control, 0.652). For this reason, the scale was included as part of this study.

Decisional Balance Questionnaire. A 20-item decisional balance questionnaire was used to measure perceived benefits and costs of PST for athletic performance (Leffingwell et al., 2001). Items were measured on a 5-point Likert scale ranging from “Not at all important” to “Extremely important” for the “Pro” and “Con” subscales. This questionnaire asked athletes to rate their belief of the benefits of psychological skills training in relation to athletic performance (ex. “my self-confidence would increase”, “my ability to concentrate would improve”, “I would be more likely to reach my goals”, etc.) and the costs of working on their psychological skills for athletic performance (ex. “it might hurt my performance”, “my teammates would think I have an interpersonal

problem with them”, “my teammates would think I am weak”, etc.) The decisional balance questionnaire utilized an “If I participated in a mental skills training program” prefix. This scale was used because it is the most widely known decisional balance scale for PST.

Self-Efficacy Questionnaire. A 5-item self-efficacy questionnaire was utilized to measure athlete’s confidence in ability to work on and improve psychological skills for performance (Leffingwell et al., 2001). Items were measured on a 5-point Likert scale ranging from “Not at all Confident” to “Very Confident” and utilize the prefix “I am confident in my ability to work on my mental skills” (ex. ‘even when I have limited time in my schedule,’ ‘even if people around me don’t think its useful,’ ‘even when I don’t see immediate benefits,’ etc.) This scale was used because it is the most widely known self-efficacy scale for PST.

Additional Measures. A demographic questionnaire was completed by each participant that consisted of (a) gender, (b) age in years, (c) sport played, (d) length of time in sport, (e) psychological skills training experience (f) University represented, (g) fluency of the English language (h) year in school.

Procedure

Prior to data collection, study approval was attained by the Institutional Review Board at the University of Kansas (see Appendix A). Initial emails (Appendix B) were sent to athletic directors at all NCAA Division II Universities (n=317) in an effort to gauge interest. After consent was given for participation in the study by the athletic director, a member of the athletic department was then contacted by the researcher to set

up survey dissemination. This person sent out a link to the online survey to the student-athletes, the information statement (Appendix C), and a prompt from the researcher (Appendix D). Coaching staffs were then contacted by the researcher in order to emphasize involvement in the study, as well as to provide opportunity to acquire team-based data (Appendix E). Teams were instructed to take the survey without aid of other individuals. Participation was made voluntary to the athletes. A copy of the testing instrument is included in Appendix F.

This study utilized an online survey platform (Qualtrics). After collection, surveys were assessed for completion and IP addresses were scanned to make sure individuals were not taking the survey as part of a team. Teams within a 75 mile radius were given the option of filling out paper/pencil surveys to aid in response rate. Athletic directors were somewhat tentative to volunteer time for research, so no surveys were collected with paper/pencil response. Teams outside of a 75 mile radius were provided a link on Qualtrics and a time period of seven days to take the survey.

The methods for each research question were:

Research Question One. To determine the level of readiness amongst NCAA Division II athletes, scores from each of the Stages of Change subscales were collected (Pre-contemplation, Contemplation, Action, Maintenance). Scores were then standardized, and individuals were placed into the stage with the highest standardized score.

Research Question Two. To determine if prior PST experience and Motivational Climate predict level of readiness according to the stages of change, canonical correlations were calculated utilizing scores from prior PST involvement, Task-

Involving, Ego-involving, Caring and the Precontemplation, Contemplation, Action and Maintenance subscales from the Stages of Change measure.

Research Question Three. To determine if prior PST experience and Motivational Climate predict use of processes of change, canonical correlations were computed between prior PST experience, Task-Involving, Ego-Involving and Caring climates and each of the processes of change (consciousness raising (CR), dramatic relief (DR), counter conditioning (CC), reinforcement management (RM), stimulus control (SC), helping relationships (HR) and self-liberation (SL).

Research Question Four. To determine if prior PST experience and Motivational Climate predict Decisional Balance scores, canonical correlations were calculated between prior experience to PST, Task-involving, Ego-involving, and Caring climate measures and the Pros and Cons subscales of the Decisional Balance measure.

Research Question Five. To determine if prior PST experience and Motivational Climate predict Self-Efficacy, a multiple regression model was utilized between prior PST experience, Task-involving, Ego-involving and Caring climates and Self-Efficacy.

Data Analysis

Data from Qualtrics was collected online and assessed in the study design spreadsheet as well. The Statistical Package for Social Sciences (SPSS) version 23 (Chicago, IL) was used to analyze all data obtained in order to address the proposed research questions.

A reliability analysis was conducted to determine reliability of the measures. After observation of the measures, the reliability of each measure was deemed at the

appropriate level for data analysis. Some of the scales had a small number of questions which served as a limitation for the study.

Results from this study regarding perceptions of motivational climate for sport teams were made available to the respective athletic directors and coaches to promote the cultivation of task-involving climates. Stages of change data were also made available to athletic directors to encourage PST sessions, if the teams reported high levels of readiness toward it.

Chapter IV

Results

Purpose

The primary purpose of this study was to describe the relationship between perceived motivational climate and readiness for psychological skills training amongst National Collegiate Athletic Association (NCAA) Division II athletes as determined by the transtheoretical model. A secondary purpose of this study was to describe the rate at which this demographic contemplated the use of PST.

Sample Demographics

The subjects included in this study were male or female student-athletes fluent in English and currently participating in an NCAA Division II sanctioned sport (n=168). After a nationwide solicitation, 16 schools chose to participate in the data collection. The participants in this study consisted of 39.9% (n=67) male and 60.1% (n=101) female participants with a mean age of 20.13 years (SD = 1.63 years). The sample demographic was largely unaware of sport psychology consultation prior to this survey, as 130 of the subjects reported never taking a class offered by a sport psychology consultant, or consulting with a sport psychologist. Class breakdowns were 28.6% (n=48) Freshman, 23.2% (n=39) Sophomore, 25.6% (n=43) Junior, 18.5% (n=31) Senior. Survey participants were from a variety of sports such as baseball (n=14), men's cross country (n=4), women's cross country (n=5) football (n=19), men's basketball (n=4), women's basketball (n=14), men's golf (n=3), women's golf (n=11), men's lacrosse (n=3), women's lacrosse (n=2), men's soccer (n=5), women's soccer (n=17), men's tennis (n=1), women's tennis (n=6), softball (n=25), men's track and field (n=10), women's

track and field (n=11), volleyball (n=10), and wrestling (n=4). Cronbach's reliability coefficients and mean scale scores were calculated for each of the scales, and Pearson correlations were calculated to examine the relationships between the variables (results are presented in Table 1).

Table 1: Descriptive Statistics
Pearson Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Caring	1.00																		
2. Task	.72**	1.00																	
3. Ego	-.03**	-.031**	1.00																
4. Decisional Balance (Con)	0.01	-.004	0.08	1.00															
5. Decisional Balance (Pro)	0.15	.34**	.16*	-.23**	1.00														
6. Precontemplation	0.07	0.02	-.001	.37**	-.16*	1.00													
7. Contemplation	0.06	.25**	.17*	-.21**	.65**	-.14	1.00												
8. Action	0.09	.23**	.16*	-.08	.45**	-.16*	.44**	1.00											
9. Maintenance	0.09	.18*	0.12	-.03	.30**	-.12	.27**	.84**	1.00										
10. Consciousness Raising	-.002	0.03	0.15	-.12	.38**	-.18*	.39**	.54**	.44**	1.00									
11. Self-Liberation	0.05	.24**	.19*	-.16*	.58**	-.26**	.54**	.66**	.53**	.60**	1.00								
12. Dramatic Relief	-.003	0.07	.32**	0.00	.47**	0.06	.45**	0.06	-.16*	.25**	.19*	1.00							
13. Helping Relationships	-.005	0.10	-.04	-.28**	0.13	-.28**	.19*	.18*	.22**	0.14	.20*	-.02	1.00						
14. Counter Conditioning	0.20*	.27**	.19*	-.17*	.50**	-.26**	.41**	.76**	.71**	.60**	.79**	0.05	.19*	1.00					
15. Reinforcement Management	0.11	.21**	0.12	-.11	.54**	-.21**	.42**	.52**	.49**	.36**	.54**	.24**	.27**	.55**	1.00				
16. Stimulus Control	0.06	0.05	.17*	0.14	0.05	0.11	-.03	.25**	.325**	.26**	.26**	0.01	-.05	.36**	.22**	1.00			
17. Self-Efficacy	0.19*	.26**	0.05	-.010	.33**	-.24**	-.19*	.47**	.46**	.31**	.54**	0.01	-.02	.61**	.38**	.40**	1.00		
18. Experience	-.087	-.001	0.15	.181*	0.14	0.01	0.07	.185*	.210**	.24**	.157*	0.08	-.076	.23**	0.12	.185*	.23**	1.00	
Mean	3.75	3.67	3.47	2.27	4.14	2.07	3.86	3.37	3.19	2.95	3.64	3.45	4.10	3.41	3.88	2.37	3.46	0.23	
SD	0.85	0.77	0.78	0.98	0.77	0.73	0.79	0.93	1.01	0.85	0.88	0.86	0.83	0.79	0.92	0.86	1.02	0.42	
Min-Max	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	1 - 5	0-1	
Alpha	0.95	0.87	0.88	0.96	0.94	0.63	0.80	0.90	0.93	0.84	0.91	0.85	0.90	0.92	0.93	0.86	0.93		X

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

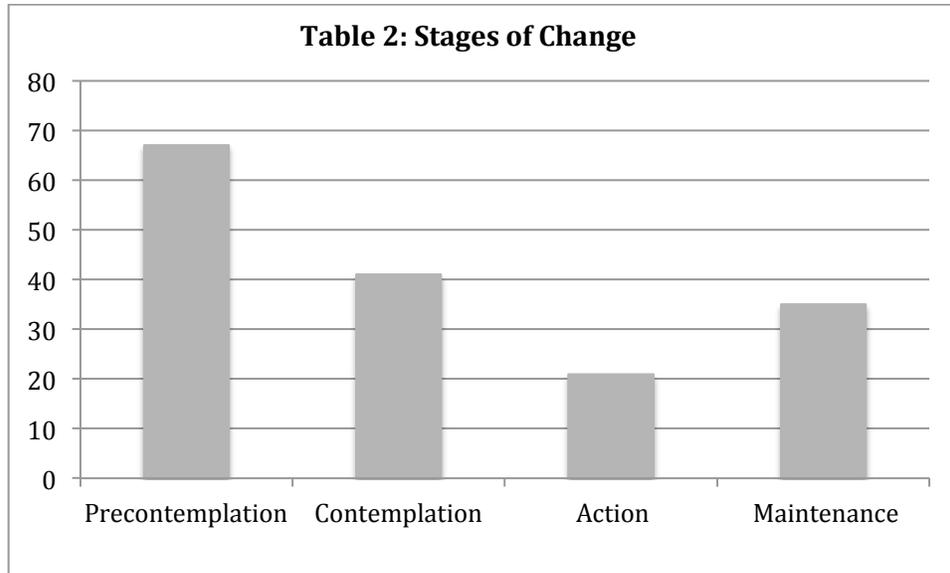
The reliability coefficients all proved to be satisfactory (.80 - .95), with the exception of the precontemplation scale (.63). This scale consists of 3 items, any of which that are deleted would not result in a significant increase of the alpha value. Among the many significant correlations, Pearson correlation analyses revealed perceptions of a task-involving and caring climate to be strongly associated with each other, but negatively associated with ego. This is evident in the achievement goal theory literature as well (Newton et al., 2007; Iwasaki & Fry, 2013; Hogue, Fry, Fry, & Pressman, 2013; Brown & Fry, 2014).

Three separate canonical correlation analyses were conducted to examine the relationships between climate measures (task-involving, ego-involving and caring climate) and prior experience with PST, to the stages of change measures (precontemplation, contemplation, action and maintenance), processes of change (consciousness raising, self-liberation, dramatic relief, helping relationships, counter-conditioning, reinforcement management, stimulus control), and decisional balance (perceived benefits to detriments). Standardized canonical coefficients were collected and placed into the corresponding charts for each research question.

Research Question One

To determine the level of readiness amongst NCAA Division II student-athletes, scores from each of the Stages of Change subscales were collected (Precontemplation, Contemplation, Action, Maintenance). Scores were then standardized, and individuals were placed into the stage with the highest standardized score. Stages of change breakdowns were as follows, 39.9% (n=67) Precontemplation, 24.4% (n=41)

Contemplation, 12.5% (n=21) Action, 20.8% (n=35) Maintenance. A graph showing the differences in stage breakdown is in Table 2.



Research Question Two

To determine if prior PST experience and Motivational Climate predict level of readiness according to the stages of change, canonical correlations were calculated utilizing scores four predictor variables, (prior PST involvement, Task-Involving, Ego-involving and Caring climate) and four criterion variables (Precontemplation, Contemplation, Action and Maintenance subscales from the Stages of Change measure). The analysis yielded 4 functions with squared canonical correlations (R^2_C) of .184, .018, .006, .00001 for each successive function. The full model across all functions was statistically significant [$L=.80$, $F(16, 449.73) = 2.16$ ($p < .01$)]. Wilks' Lambda represents the unexplained variance of the model. For the set of 4 canonical functions, the r^2 effect size was .20, indicating that the full model explained about 20% of the variance shared between variable sets. The loadings revealed that the task-involving climates variable

was the sole significant contributor to the synthetic predictor variable and that there is a positive relationship between perception of task-involving climates and scores reported on the contemplation and action subscales (as shown on Figure 1).

In order to test the hierarchical arrangement of functions for statistical significance, dimension reduction analysis was utilized. As noted previously, the full model (Functions 1 to 4) was significant. Functions 2 to 4, 3 to 4 and 4 were not statistically significant.

The standardized canonical function coefficients and structure coefficients for Function 1 are presented in Table 3. Squared structure coefficients are also given for each variable across the function. By using the squared structure coefficients and looking at the table, relevant criterion variables were primarily contemplation and action with maintenance making secondary contributions to the synthetic criterion variable. These stages of change also tended to have larger standardized coefficients, though the coefficient for maintenance was quite small. This result was due to the multicollinearity that this variable had with the other criterion variables. By examining the structure coefficients, all of the significant variables were positively related (task-involving climate, contemplation, action and maintenance).

The only relevant predictor variable was task-involving climate after the other variables were not found to be significant. Task-involving climate was positively related to contemplation, action and maintenance on the stages of change.

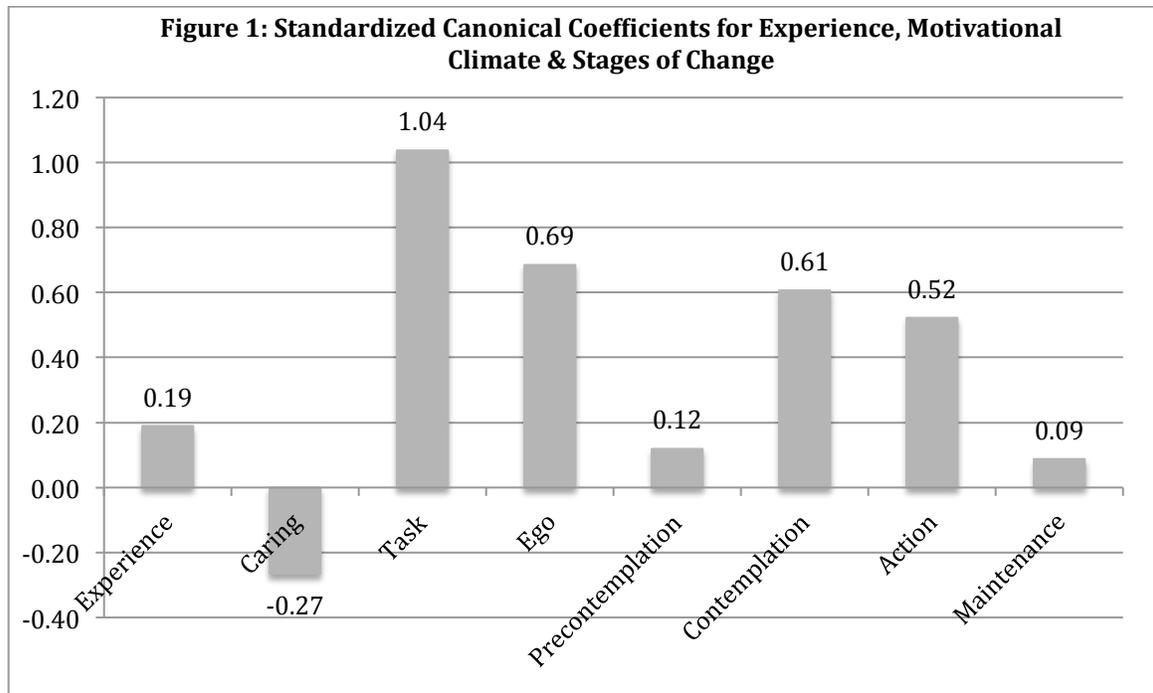


Table 3: Canonical Solution for Experience & Motivational Climate Predicting Stages of Change

Variable	Function 1			
	Coef	p-value	r_s	r_s^2 (%)
Experience	0.19	0.31	0.29	8.66%
Caring	-0.27	0.75	0.23	5.26%
Task	1.04	0.02	<u>0.64</u>	41.16%
Ego	0.69	0.13	<u>0.50</u>	24.60%
R_c^2				18.36%
Precontemplation	0.12		-0.08	0.59%
Contemplation	0.61		<u>0.84</u>	71.36%
Action	0.52		<u>0.84</u>	70.52%
Maintenance	0.09		<u>0.66</u>	44.14%

Note. Structure coefficients (r_s) greater than $|\cdot45|$ are underlined.
 Coef= standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient

Research Question Three

To determine if prior PST experience and Motivational Climate predict use of processes of change, canonical correlations were computed using scores from four predictor variables (prior PST experience, Task-Involving, Ego-Involving and Caring climates) and seven criterion variables [each of the processes of change (consciousness raising (CR), dramatic relief (DR), counter conditioning (CC), reinforcement management (RM), stimulus control (SC), helping relationships (HR) and self-liberation

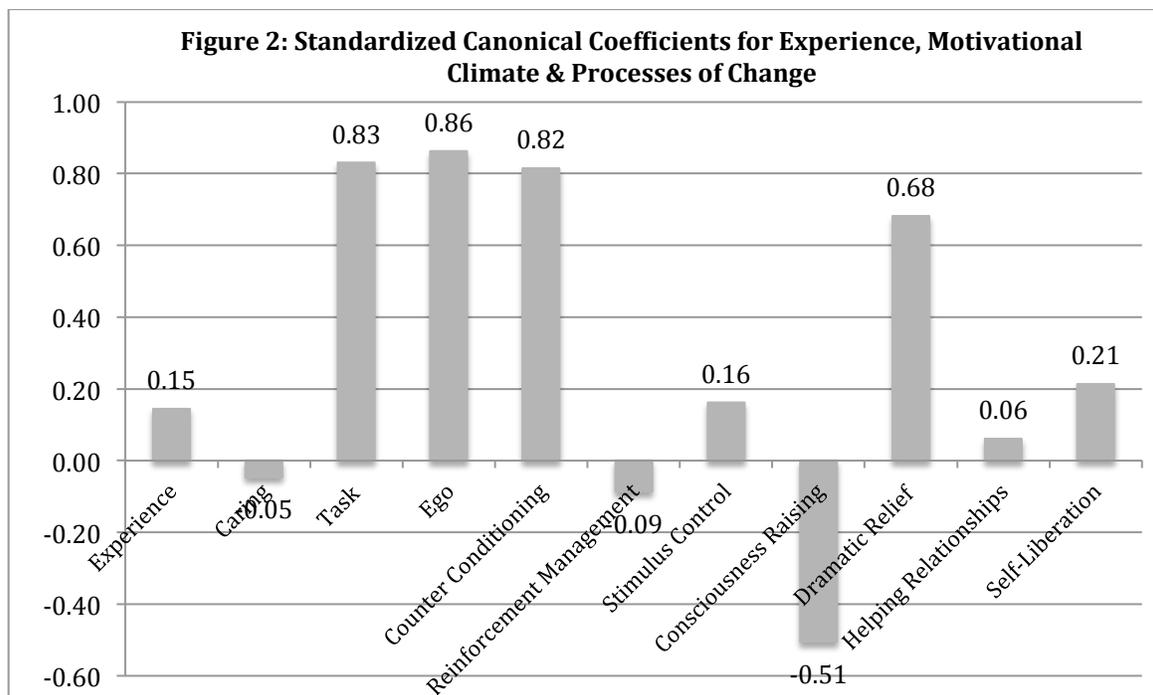
(SL)]. The analysis yielded four functions with squared canonical correlations (R^2_C) of .33, .14, .06, .02 for each successive function. As a collective, the full model across all functions was statistically significant [$L=.54$, $F(28, 572)=3.40$ ($p<.001$)]. For the set of four canonical functions, the r^2 effect size was .46, indicating that the full model explained about 46% of the variance shared between variable sets. The loadings revealed that task- and ego- involving climate variables were the primary significant contributors to the synthetic predictor. Loadings also revealed a positive relationship between prior experience, perception of task- and ego-involving climates and scores reported on the counter conditioning, dramatic relief, and self-liberation subscales. An inverse relationship exists between perception of task- and ego-involving climates and the reinforcement management subscale (as shown in Figure 2).

In order to test the hierarchical arrangement of functions for statistical significance, dimension reduction analysis was utilized. As noted previously, the full model (Functions 1 to 4) was significant. Function 2 to 4 was also significant ($L=.80$, $F(18, 399.29) = 1.86$, $p<.05$, $R^2_C = 14\%$) whereas 3 to 4 and 4 were not statistically significant. Given the R^2_C effects for each function, only the first function was considered noteworthy in the context of this study (32.52% of shared variance).

The standardized canonical function coefficients and structure coefficients for Function 1 are listed in Table 4. Squared structure coefficients are also given for each variable across the function. By using the squared structure coefficients and looking at the table, relevant criterion variables were primarily counter conditioning, dramatic relief and self-liberation with reinforcement management making secondary contributions to the synthetic criterion variable. These processes of change also tended to have larger

standardized coefficients, though the coefficient for reinforcement management was quite small. This result was due to the multicollinearity that this variable had with the other criterion variables.

Relevant predictor variables were ego-involving climate with task-involving climate making secondary contributions to the synthetic predictor variable. Task-involving climate and ego-involving climate had larger standardized coefficients and were positively related to one another. They were also positively related with counter conditioning, dramatic relief, self-liberation and reinforcement management.



Variable	Function 1			
	Coef	p-value	r_s	r_s^2 (%)
Experience	0.15	0.05	0.28	8.11%
Caring	-0.05	0.08	0.26	6.79%
Task	0.83	0.005	<u>0.51</u>	26.36%
Ego	0.86	0.001	<u>0.63</u>	39.85%
R^2_c				32.52%
Counter Conditioning	0.82		<u>0.72</u>	51.31%
Reinforcement Management	-0.09		<u>0.48</u>	23.43%
Stimulus Control	0.16		0.34	11.32%
Consciousness Raising	-0.51		0.31	9.43%
Dramatic Relief	0.68		<u>0.60</u>	36.38%
Helping Relationships	0.06		0.05	0.23%
Self-Liberation	0.21		<u>0.68</u>	46.18%

Note. Structure coefficients (r_s) greater than $|.45|$ are underlined.
 Coef= standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient

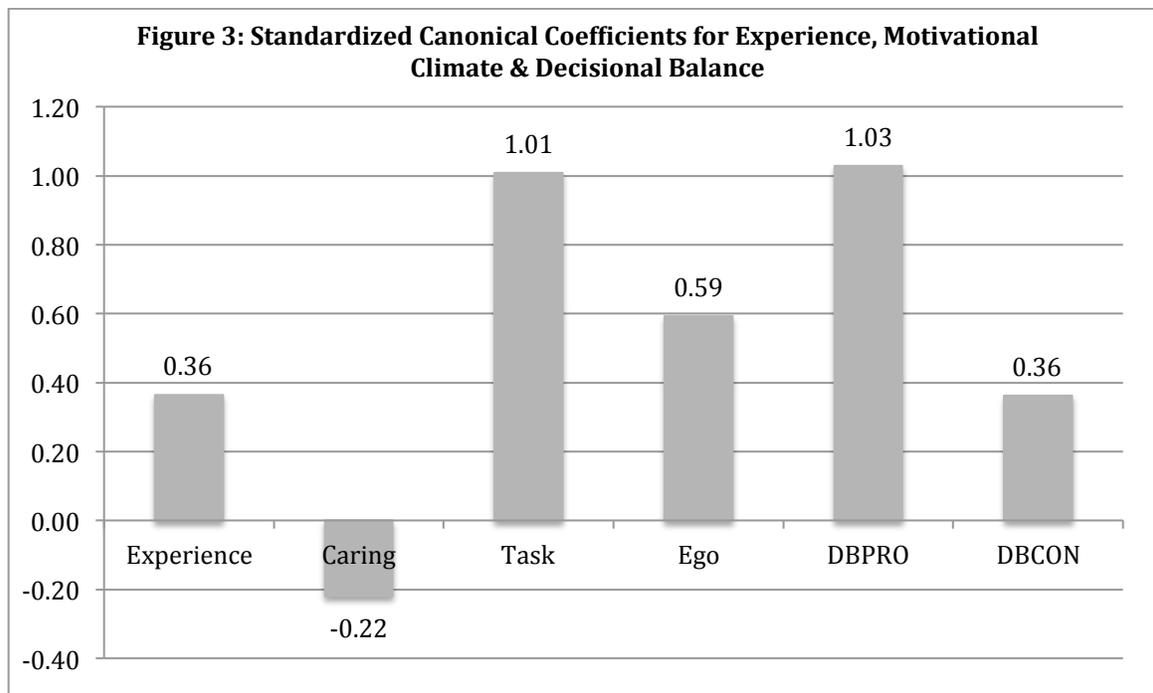
Research Question Four

To determine if prior PST experience and Motivational Climate predict Decisional Balance scores, canonical correlations were calculated utilizing four predictor variables (prior experience to PST, Task-involving, Ego-involving, and Caring climate measures) and two criterion variables (perceived benefits of PST or “Pros” and perceived drawbacks of PST “Cons” from the Decisional Balance measure). The analysis yielded two functions with squared canonical correlations (R^2_c) of .25 and .03 for each successive function. As a collective, the full model across all functions was statistically significant [$L=.73$, $F(8)=6.27$ ($p<.001$)]. Function 2 to 2 was not statistically significant ($p>0.05$). For the set of two canonical functions, the r^2 effect size was .27, indicating that the full model explained about 27% of the variance shared between variable sets. The loadings revealed that prior experience, task- and ego-involving climates significantly contribute to the synthetic predictor variable and that there was a positive relationship between prior experience with PST, perception of task- and ego-involving climates and

perceived benefits and perceived drawbacks on the decisional balance scale (as shown in Figure 3).

The standardized canonical function coefficients and structure coefficients for Function 1 are listed in Table 5. The relevant criterion variable that contributed to the synthetic criterion variable was perceived benefits to PST (Decisional balance pro). This conclusion was supported by the squared structure coefficients and this criterion variable also had a larger canonical function coefficient.

Relevant predictor variables were task-involving climate with ego-involving climate and prior experience making secondary contributions to the synthetic predictor variable. Task-involving climate and ego-involving climate had larger standardized coefficients and were positively related to one another. They were also positively related to perceived benefits for PST (Decisional Balance Pro).



Variable	Function 1			
	Coef	p-value	r_s	r_s^2 (%)
Experience	0.36	0.008	0.43	18.60%
Caring	-0.22	0.254	0.27	7.09%
Task	1.01	0.000	<u>0.65</u>	42.22%
Ego	0.59	0.028	0.41	17.17%
R^2_c				24.70%
Decisional Balance PRO	1.03		<u>0.94</u>	87.68%
Decisional Balance CON	0.36		0.10	1.03%

Note. Structure coefficients (r_s) greater than $|.45|$ are underlined.
 Coef= standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient

Research Question Five

To determine if prior PST experience and Motivational Climate predict Self-Efficacy, correlation and multiple regression analyses were utilized between prior PST experience, Task-involving, Ego-involving, Caring climates and Self-Efficacy. The descriptive statistics and analysis results are presented in Table 6. Each of the predictor variables positively correlated with the criterion, indicating that those with higher scores on these variables tend to have higher self-efficacy. Prior experience is positively correlated with self-efficacy (coded as 1=yes and 0=no), indicating that previous experience with PST contributes to self-efficacy.

The multiple regression model with all four predictors produced $r^2 = .12$, $F(4, 152) = 4.95$, $p < .001$. As can be seen in Table 6, the Task-Involving and Prior Experience variables had significant ($p < .05$) positive regression weights, indicating athletes with higher scores on these scales were expected to have higher self-efficacy, after controlling for the other variables in the model. Caring and ego-involving climates did not contribute to the multiple regression model.

Variable	Mean	STD	Correlation with Self- Efficacy	Multiple Regression Weights	
				b	B
Self-efficacy	3.45	1.00	-		
Caring	3.75	0.84	0.14*	-0.003	-0.002
Task	3.66	0.77	0.24***	0.37*	0.28
Ego	3.47	0.78	0.05	0.14	0.11
Prior Experience [^]	-	-	0.21**	0.47*	0.20

[^]coded as yes=1 no=0
 * $p < .05$ ** $p < .01$ *** $p < .001$

Chapter V

Discussion

Purpose

The primary purpose of this study was to describe the relationship between perceived motivational climate and readiness for psychological skills training amongst National Collegiate Athletic Association (NCAA) Division II athletes as determined by the transtheoretical model. A secondary purpose of this study was to describe the rate at which this demographic contemplated the use of PST.

Research Question One

A valuable part of this study was to determine the rate that NCAA Division II Athletes contemplate the use of PST. The breakdown from this sample was 39.9% Precontemplation, 24.4% Contemplation, 12.5% Action, 20.8% Maintenance. Massey and colleagues (2015) conducted a similar study with NCAA Division I athletes and found that 37% of respondents were in Precontemplation, 28% Contemplation, 9% Action, and 26% in Maintenance. Data from these two studies showed that student-athletes from NCAA Division I and NCAA Division II are very similar in how they view PST.

The majority of the student-athletes in this study were in the precontemplation stage and ultimately not ready for PST. Those that are placed in the precontemplation stage are either not cognizant of the benefits of PST or resistant to PST. To some extent, this was expected given that 130 subjects reported never meeting with a sport psychologist, or taking a class taught by a sport psychology consultant. The amount of

student-athletes in the maintenance stage was surprising, given that the amount of student athletes reporting experience with a sport psychologist/consultant was very low.

Our findings are consistent with other studies that have utilized the TTM to assess readiness for PST. Like this study, other studies from Leffingwell et al., (2001) and Massey et al., (2015) showed the precontemplation stage to have the highest number of student-athletes. This supports the notion that student-athletes have a lack of awareness, or are resistant to the role that PST can play in sport performance.

Research Question Two

The loadings revealed that the task-involving climate variable was the sole significant contributor to the synthetic predictor variable. By examining the p-values for prior experience, caring and ego-involving climates, no significant contribution was found. This was also cross-referenced with the corresponding squared structure coefficients. The squared structure coefficients were substantially smaller for the variables that were not significant.

The loadings also revealed that the contemplation and action variables were the significant contributors to the synthetic criterion variables with maintenance having a secondary contribution. As evidenced by the standardized coefficients, significant contributors to the synthetic variables have larger weights than those that do not contribute. The maintenance subscale is an exception to this due to multicollinearity. Squared structure coefficients were larger for contemplation, action and maintenance than for precontemplation.

Prior to this study, motivational climate hadn't been measured for the role it plays in helping individuals progress through the stages of change. As part of this study, task-involving climates were found to have a positive relationship with the contemplation, action and maintenance subscales.

Prior experience with PST did not significantly contribute to the formulation of the synthetic predictor variable. Initial research ties experience as a significant predictor of readiness for PST, as well as readiness in other realms. Grove and Norton (1999) found that as a result of PST intervention, individuals were more likely to report higher levels of readiness to use PST immediately following intervention, as well as at a three-month follow up. Results from this study indicate that it may be beneficial for the sport psychologist or sport psychology consultant to spend a large amount of time doing a climate intervention prior to PST, specifically a task-involving motivational climate intervention.

Caring climate did not significantly contribute to the synthetic predictor variable. Caring climate has been shown to significantly associate with high enjoyment and commitment to sport, positive attitude towards coaches/teammates, and engagement in caring behavior. In theory and as evidenced by the present study, these factors seemingly do not contribute to readiness for PST, though they may contribute to processes contributing to readiness.

Research Question Three

The literature indicates that as an individual progresses through the stages of change, they will utilize more processes of change in order to do so. Therefore, we

would expect prior experience with psychological skills training to significantly contribute to the synthetic predictor variable. The loadings revealed that task- and ego-involving climate variables were the primary significant contributors to the synthetic predictor variable.

The loadings revealed that counter conditioning, self-liberation and dramatic relief variables were the primary significant contributors to the synthetic criterion variable with reinforcement management and stimulus control making secondary contributions. Consciousness raising was found to have a very high standardized canonical function coefficient but scored very low on the squared structure coefficient, so it was not interpreted.

Loadings also revealed a positive relationship between perception of task- and ego-involving climates and scores reported on the counter conditioning, dramatic relief, and self-liberation subscales, but an inverse relationship exists between perception of task- and ego-involving climates and the reinforcement management subscale. Scores from the prior experience predictor variable and consciousness raising criterion variable were not interpreted due to the extremely low squared structure coefficient. These results would suggest that fostering a task- or ego-involving climate may help individuals use several of the processes of change in PST.

Ego-involving climates more strongly contributed to the synthetic predictor variable than task-involving climates. This may be due to the fact that the desire to compete and excel in sport is to outperform their peers, or to use psychological skills training to help cope with the high anxiety commonly associated with ego-involving climates. One cannot precisely determine the rationale for why ego-involving climates

contribute more to the synthetic predictor variable, but prior AGT research can provide a linkage between the aforementioned ideas.

Neither caring climate nor helping relationships significantly contributed to the synthetic variables. Pearson correlations did not reveal a significant relationship between the two constructs either. To some extent this was unexpected given the linkage between caring and caring behavior, a concept that helping relationships would also associate with.

Research Question Four

The loadings revealed that the task-involving climate variable was a significant contributor to the synthetic predictor variable with prior experience and ego-involving climate making secondary contributions. Standardized weights showed that task-involving climate contributed over three times as much to the predictor variable than prior experience and almost twice as much as ego-involving climates.

The decisional balance pro variable was the sole significant contributor to the synthetic criterion variable. Standardized weights show decisional balance con to be .36, this alludes to there being some significance amongst the data. Upon further examination, the squared structure coefficient was only 1.03%, meaning it didn't help make up a significant portion of the synthetic criterion variable.

Data also showed that positive relationships between prior experience, task- and ego- involving climates with perceived benefits of PST. As mentioned previously, prior experience is commonly associated with readiness, willingness and ability to change.

The results strongly supported this aspect of prior literature. A plethora of reasons exist for task-involving climates making up more of the synthetic predictor variable than ego-

Prior research shows a strong correlation between task-involving climates and reported persistence and increased effort to perform well in sport. This relationship lends nicely to perceived benefits of using PST. Individuals that are persistent in identifying new ways to compete and attain skill in their sport may report increased willingness to take part in psychological skills training. Increased effort would associated highly with desirability to achieve peak performance, a concept that also may relate to high reporting of pros in the decisional balance measure.

Research Question Five

Literature provides information on the role self-efficacy plays in commitment to using psychological skills training as assessed by the TTM. As an individual progresses through the stages of change, self-efficacy is expected to grow. As part of this study, a significant association between prior experience with PST, task-involving climates and self-efficacy toward PST was identified. The linkage between prior experience with PST and self-efficacy was expected, however the role of task-involving climates was previously unidentified. This research indicated that after PST, individuals may be more confident in their ability to use the skills if they are in a task-involving climate. This is supported by the achievement goal research (Kavussanu & Roberts, 1996).

Prior research with motivational climate has found a linkage between task-involving climates and perceived competence (Harwood et al., 2015). Though no formal research has been performed on perceived competence in PST, the assumption can now

be made that self-efficacy and perceived competence are distinctly related when it comes to PST as both concepts fall into the confidence spectrum.

Chapter VI

Summary, Conclusions, and Recommendations

Summary

For the last several years, coaches in the field of sport have been paying attention to strategies targeting physical skill improvement. At a certain point, it is possible to achieve maximum ability from a physical standpoint, and in order to perform at the peak of one's ability, the mental skill set must match the physical skill set. This has led to the development of psychological skills training programs and the creation of positions within athletic departments, and professional teams for sport psychologists and sport psychology consultants. Though an emphasis has been placed on PST by coaches and administrators alike, athletes have not readily adopted the use of PST.

Researchers have spent a large amount of time identifying reasons why athletes are reluctant to use PST. Some feel as though the use of a sport psychology consultant implies a "weakness" in one's ability, whereas others don't believe in the effectiveness of training. In order to adhere to PST, researchers have hypothesized that a high amount of self-motivation needs to be apparent in the trainee. Though research has linked adherence and reluctance factors to PST, little has been done to look at the role team climate plays in adherence. This study was an attempt to describe the role that motivational climate has in readiness, willingness and ability to use PST.

Task-involving and ego-involving climates had a positive relationship with readiness and willingness to use PST, whereas only task-involving climates had a positive relationship with self-efficacy. Task-involving climates were shown to contribute more to the synthetic predictor variable for the stages of change association, as

well as decisional balance association, but not the processes of change association.

Reasons for this are hard to determine, though it can be assumed it may be for a coping mechanism, or to outperform peers.

Prior experience with PST didn't play as big of a role in the contribution of the predictor variable for readiness, or willingness. This was surprising because in prior TTM research in sport and other realms, individuals were most likely to report higher levels of readiness depending on prior involvement with behavior change. Results from this study indicate that before embarking on a PST program with a team, it may be in the best interest of the sport psychology consultant to do a climate intervention. The results from this study also suggested that the coach has the greatest amount of influence when it comes to the use of PST on the team.

Prior experience did play a large role in the association with self-efficacy. This matches Bandura's self-efficacy theory because it is stated that previous experience is the greatest factor in determining self-efficacy. Task-involving climates were significantly associated with self-efficacy as well, which is supported by the previous Achievement Goal Theory research.

Researchers have also tried to identify the rate at which individuals contemplate the use of PST, only mostly at the NCAA Division I level. In a comparison between the two studies, the demographics were largely similar in readiness for PST. This study quantified the rate at which NCAA Division II athletes contemplated the use of PST, an area that has not been previously studied.

Conclusions

Based upon the results of this study, four conclusions were made:

1. NCAA Division II athletes are comparable to NCAA Division I athletes in how they view readiness for PST and the majority of the student-athletes in this demographic were not ready for PST programs.
2. Task-involving climates associated with readiness for PST more than prior experience.
3. Prior experience with PST and task-involving climates associate with more perceived benefits to use PST than prior experience and ego-involving climates.
4. Prior experience with PST and task-involving climates predict perceived ability to use PST.

Recommendations for Future Studies

- 1. Causal study.** A relationship between prior experience, motivational climates and readiness, willingness and ability to use PST is apparent but the sequence to which this happens is unknown. It is plausible that the climate is more task-involving due to prior experience from PST.
- 2. Control for coaches value of PST.** Evident from this study, the coach has a great amount of influence when it comes to the motivational climate, but also the amount of readiness and willingness to use PST. The coaches attitude toward PST could also play a role in whether the athletes are subjected to it, and whether they adhere to a PST regiment.
- 3. Control for the type of Sport.** Previous research has linked type of sport with contemplation of PST. Individual sports were also included in the analysis, where the climate of the team may not be as prevalent.

4. Gender differences. Controlling for gender differences would be important, as one gender may be more prone to social desirability. It would also be worthy to research if one gender perceives motivational climate differently than the other, and how this would effect PST usage.

5. Control for coaches experience. The amount of time that a coach has served in that capacity could help identify how strongly an environment is perceived as task- or ego-involving.

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Appendix A



APPROVAL OF PROTOCOL

February 12, 2016

Joseph Beyer
jbeyer@ku.edu

Dear Joseph Beyer:

On 2/12/2016, the IRB reviewed the following submission:

Type of Review:	Modification
Title of Study:	Examining the Relationship Between Motivational Climate, Goal Orientation, and Readiness for Psychological Skills Training in United States (US) Army Cadets
Investigator:	Joseph Beyer
IRB ID:	STUDY00003147
Funding:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Information Statement, • Correspondence_for_STUDY00003147.doc, • FEB8 HSCL_New_Submission_Form_V2.pdf, • Climate and Readiness Survey

The IRB approved the study on 2/12/2016.

1. Notify HSCL about any new investigators not named in the original application. Note that new investigators must take the online tutorial at https://rfs.drupal.ku.edu/human_subjects_compliance_training.
2. Any injury to a subject because of the research procedure must be reported immediately.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.

Continuing review is not required for this project, however you are required to report any significant changes to the protocol prior to altering the project.

Please note university data security and handling requirements for your project:
<https://documents.ku.edu/policies/IT/DataClassificationandHandlingProceduresGuide.htm>

You must use the final, watermarked version of the consent form, available under the "Documents" tab in eCompliance.

Sincerely,

Stephanie Dyson Elms, MPA
IRB Administrator, KU Lawrence Campus

Appendix B

Mr. [] - This is Joe Beyer, I am a doctoral candidate at the University of Kansas in the Health and Psychology of Physical Activity program (Health, Sport and Exercise Science department).

I am writing you today because I have started the dissertation process and am looking to survey NCAA athletes. The dissertation consists of a survey assessing motivational climate (within the team) and how it relates to readiness for psychological skills training. The survey should take no longer than 30 minutes. I am looking to acquire as many participants as possible and am curious what it would take to be able to survey the athletes at [].

All the best -

Joe

Appendix C

Athletes -

My name is Joe Beyer, I am a student at the University of Kansas trying to complete my dissertation. This is an online survey looking at the relationship between motivational climate and psychological skills training. It takes around 10 minutes to complete. All of the information you provide is anonymous and will not be reported back, or traced to you at the individual level. Participation in the survey is voluntary.

https://kansasedu.qualtrics.com/SE/?SID=SV_eESWxfy4UMjbMN

Best -

Joe

Appendix D

Information Statement

The Department of Health, Sport, and Exercise Science at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand the role that motivational climate plays in readiness for psychological skills training. This will entail your completion of a survey. Your participation is expected to take approximately 50 minutes to complete. The content of the survey should cause no more discomfort than you would experience in your everyday life.

Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of the team motivational climate and the role they play in shaping readiness for psychological skills training. Your participation is solicited, although strictly voluntary. Your name will not be associated in any way with the research findings. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission.

If you would like additional information concerning this study before or after it is completed, please feel free to contact us by phone or mail.

Completion of the survey indicates your willingness to take part in this study and that you are at least 18 years old. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

Sincerely,

Joseph E. Beyer
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Appendix E

Coaching Staff -

Recently I spoke with _____ seeking approval to speak with each of you. I am trying to finish my dissertation and will be sending a survey to the athletes at _____. The topic of the survey is motivational climate and its role in depicting readiness for psychological skills training. Motivational climate is important because task-involving climates have been linked with perceived competence, self-esteem, and intrinsic motivation. All of these are factors of successful sport performance.

If we get enough participation from the athletes on your team then I can give you an idea of the perceived motivational climate apparent on your team. If this sounds like information you would like to know then I would suggest you encourage your team to participate and let me know so that I can put together some data to send back to you.

All the best -

Joe Beyer

Appendix F

Q1 What University do you attend?

Q2 Are you currently practicing or participating in a sport?

- Yes (1)
- No (2)

Q3 What sport do you participate in?

Q4 Are you at least 18 years of age?

- Yes (1)
- No (2)

Q5 What is your age?

Q6 With which gender do you identify?

- Male (1)
- Female (2)
- Prefer not to respond (3)

Q7 Have you ever consulted with a sport psychologist or sport psychology consultant before?

- Yes (1)
- No (2)

Q8 Have you ever taken a class taught by a sport psychology consultant?

- Yes (1)
- No (2)

Q9 Was this during the last 6 months?

- Yes (1)
- No (2)
- N/A (4)

Q10 How many years have you competed in organized sports?

Q11 What year are you in school?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (4)

Q12 Are you fluent in reading, writing and speaking English?

- Yes (1)
 No (2)

Q13 Mental training is defined as the intentional and systematic practice of mental skills to improve sport performance. This might include goal setting, imagery, deep breathing and relaxation, working on your focus, improving your confidence, or any other training you do to specifically improve your mental game. The questions below are meant to assess your thoughts and experiences towards mental training. Because individuals differ in their approach towards sport, please know that we expect athletes to respond differently, and there is no right or wrong answer. We only ask that you are open and honest of your opinions and experiences.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Mental skills may help me perform, but I don't think so. (18)	<input type="radio"/>				
I have difficulties with mental skills, but so do most other athletes. Why spend time thinking about them? (19)	<input type="radio"/>				
I would rather cope with my mental skills limitations than try to change them. (20)	<input type="radio"/>				
It might be worthwhile to work on my mental skills. (21)	<input type="radio"/>				
I'm hoping someone could help me	<input type="radio"/>				

<p>improve my mental skills. (22)</p> <p>Maybe a sport psychologist will be able to help me. (23)</p> <p>I am really working hard to improve my mental skills. (24)</p> <p>Anyone can talk about improving their mental skills. I am actually doing something about it. (25)</p> <p>I am actively working on my mental skills. (26)</p> <p>I have been successful working on my mental skills for at least the last 6 months. (27)</p> <p>I have used the mental skills I have learned for at least 6 months and plan to continue working on them. (28)</p> <p>After all I have done to improve my mental skills,</p>	<input type="radio"/>				
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I feel confident in my new habits. (29)					
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Q14 Mental training is defined as the intentional and systematic practice of mental skills to improve sport performance. This might include goal setting, imagery, deep breathing and relaxation, working on your focus, improving your confidence, or any other training you do to specifically improve your mental game. The questions below are meant to assess your thoughts and experiences towards mental training. Because individuals differ in their approach towards sport, please know that we expect athletes to respond differently, and there is no right or wrong answer. We only ask that you are open and honest of your opinions and experiences.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I read about mental skills training in an attempt to learn more about it. (13)	<input type="radio"/>				
I look for information on mental skills training. (14)	<input type="radio"/>				
I think about information I have read in articles and books about how to do mental skills training. (15)	<input type="radio"/>				
I notice more talk in the media about the benefits of sport psychology. (16)	<input type="radio"/>				
I have read books by famous performers	<input type="radio"/>				

and leaders who talk about working with a sport psychologist. (17)					
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Q15

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I get frustrated/upset because I know that thinking the way I do stands in the way of achieving my goals. (15)	<input type="radio"/>				
I get upset when I consider I am not living up to the athletic standards I have for myself. (16)	<input type="radio"/>				
It makes so much sense to do mental skills training, but I struggle to do it consistently, which frustrates me. (17)	<input type="radio"/>				
I have been thinking the way I do since I started playing sports, and I am frustrated that it is getting in the way of my performance. (18)	<input type="radio"/>				
When I think about my current level of performance,	<input type="radio"/>				

and where I would like to be, it affects me emotionally. (19)					
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Q16

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Since mental training is so important, I will do whatever it takes and am confident I can incorporate it into my daily routine. (13)	<input type="radio"/>				
Like physical training, I am committed to doing mental skills training consistently to maximize my potential as an athlete. (14)	<input type="radio"/>				
I am committed to working on my mental skills and I know I can keep improving them. (15)	<input type="radio"/>				

Q17

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Rather than viewing mental skills training as simply	<input type="radio"/>				

another task to get out of the way, I try to enjoy it and use it as time to sharpen my skills. (14)					
I incorporate mental skills training as an important part of my preparation routine. (15)	<input type="radio"/>				
Rather than viewing mental training as a chore, I now see that it is helpful in achieving my goals. (16)	<input type="radio"/>				
Rather than thinking of mental training as something for those with problems, I use it as a way to enhance my strengths. (17)	<input type="radio"/>				

Q18

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I can be open with at least one person about the struggles I am having. (12)	<input type="radio"/>				

I have someone who listens when I need to vent. (13)	<input type="radio"/>				
I have someone I can depend on when I am struggling in my program. (14)	<input type="radio"/>				

Q19

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Winning in my sport is a reward for working on my mental skills. (15)	<input type="radio"/>				
Being able to play as well in practice as I do in games is a reward I get from working on my mental skills training. (16)	<input type="radio"/>				
Winning against teams/players that used to beat me in competition is a reward I receive from working on my mental skills. (17)	<input type="radio"/>				

Q20

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I keep things in the athletic facilities to remind me to work on my mental game. (18)	<input type="radio"/>				
I have an alarm set on my phone that reminds me to work on my mental training. (19)	<input type="radio"/>				
I do my mental training first thing in the day so there are not distractions that get in the way later in the day. (20)	<input type="radio"/>				
I put things in my house to remind me of working on my mental game. (21)	<input type="radio"/>				

Q21 The following questions assess your attitudes toward mental training and your previous experiences with mental training (e.g., setting goals, working on your ability to focus, training to improve confidence, training your intensity levels, etc.). Rate how important each of these items are to you. All items follow the phrase preceding the first box. If I participated in a mental skills training program...

	Not At All Important (1)	Slightly Important (2)	Neutral (3)	Moderately Important (4)	Extremely Important (5)
my self-confidence would increase. (22)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my ability to concentrate would improve. (23)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely to reach my goals. (24)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be proud of myself. (25)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would get an edge over my competition. (26)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would perform better in pressure situations. (27)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would enjoy my sport more. (28)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would develop more as a person. (29)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would know I was doing all I could to improve. (30)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would come closer to reaching my potential. (31)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It would help me deal with the stress of being an athlete. (32)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my parents would disapprove. (33)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
it might hurt my performance. (34)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
my teammates would think I have an interpersonal problem with them. (35)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wouldn't have	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

enough time to study or socialize. (36)					
it would make me think too much during competition/activity. (37)	<input type="radio"/>				
my teammates would think I am weak. (38)	<input type="radio"/>				
it would make no difference in my athletic performance. (40)	<input type="radio"/>				
my coach would think I am not mentally tough. (41)	<input type="radio"/>				
other people will think I can't handle my own problems. (42)	<input type="radio"/>				

Q22 I am confident in my ability to work on my mental skills...

	Not At All Confident (1)	Slightly Confident (2)	Somewhat Confident (3)	Moderately Confident (4)	Very Confident (5)
in the offseason. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
even when I have limited time in my schedule. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
even if people around me don't think its useful. (45)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
even when I don't see immediate benefits. (46)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
even without	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

instruction or guidance from a sport psychologist or coach. (47)					
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Q23 Directions: As you read the following statements think about what it is like to be a member of your team. Please circle the number on the 5-point scale listed below that best describes how you truly feel. On this team...

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Players feel good when they do better than teammates. (22)	<input type="radio"/>				
Players are punished for mistakes. (23)	<input type="radio"/>				
Players are taken out for mistakes. (24)	<input type="radio"/>				
Out-playing teammates is important. (25)	<input type="radio"/>				
Coach pays most attention to the "stars". (26)	<input type="radio"/>				
Doing better than others is important. (27)	<input type="radio"/>				
The coach favors some players. (28)	<input type="radio"/>				
Players are encouraged to outplay teammates. (29)	<input type="radio"/>				
Everyone wants to be	<input type="radio"/>				

the high scorer. (30)					
Only the top players "get noticed". (31)	<input type="radio"/>				
Players are afraid to make mistakes. (32)	<input type="radio"/>				
Only a few players can be the "stars". (33)	<input type="radio"/>				
Trying hard is rewarded. (34)	<input type="radio"/>				
The coach focuses on skill improvement. (35)	<input type="radio"/>				
Each player's improvement is important. (36)	<input type="radio"/>				
Players try to learn new skills. (37)	<input type="radio"/>				
Players are encouraged to work on weaknesses. (38)	<input type="radio"/>				
The coach wants us to try new skills. (39)	<input type="radio"/>				
Players like playing good teams. (40)	<input type="radio"/>				
All players feel like they have an important role. (41)	<input type="radio"/>				
Most players	<input type="radio"/>				

get to play in the games. (42)					
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Q24 Directions: As you read the following statements think about what it is like to be a member of your team. Please circle the number on the 5-point scale listed below that best describes how you truly feel. On this team...

	Strongly Disagree (1)	Disagree (2)	Not sure (3)	Agree (4)	Strongly Agree (5)
Players are treated with respect. (14)	<input type="radio"/>				
The coaches respect the players. (15)	<input type="radio"/>				
The coaches are kind to the players. (16)	<input type="radio"/>				
The coaches care about the players. (17)	<input type="radio"/>				
Players feel that they are treated fairly. (18)	<input type="radio"/>				
The coaches try to help the players. (19)	<input type="radio"/>				
The coaches want to get to know all the players. (20)	<input type="radio"/>				
The players like one another for who they are. (21)	<input type="radio"/>				
The coaches listen to the players. (22)	<input type="radio"/>				
The coaches accept the players for	<input type="radio"/>				

who they are. (23)					
Players feel safe. (24)	<input type="radio"/>				
Players feel comfortable. (25)	<input type="radio"/>				
Players feel welcomed every day. (26)	<input type="radio"/>				

