EVALUATING THE SIXTH TOOL: ANALYZING BASEBALL SPECIFIC CHARACTER

A Dissertation

Presented in Partial Fulfillment of the Requirements for the

Degree of Doctor of Philosophy

with a

Major in Education

in the

College of Graduate Studies

University of Idaho

by

Seth Haselhuhn

July 9, 2020

Major Professor: Sharon K. Stoll, Ph.D.

AUTHORIZATION TO SUBMIT DISSERTATION

This dissertation of Seth Haselhuhn, submitted for the degree of Doctor of Philosophy (Ph.D.), with a major in Education and titled "EVALUATING THE SIXTH TOOL: ANALYZING BASEBALL SPECIFIC CHARACTER," has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies to the College of Graduate Studies for approval.

Major Professor _____ Date: _____
Sharon K. Stoll, Ph.D.

Committee Members _____ Date: _____
Justin Barnes, Ph.D.

_____ Date: _____
Damon Burton, Ph.D.

_____ Date: _____
Georgia Johnson, Ph.D.

Department Administrator _____ Date: _____
Michael A. Pickering, Ph.D.

Discipline's College Dean _____ Date: _____
Corinne Mantle-Bromley, Ph.D.

Final Approval and Acceptance by the College of Graduate Studies

_____ Date: _____
Jie Chen, Ph.D.

ABSTRACT

The purpose of this exploratory study was to gain a better understanding of baseball specific makeup and begin development of a valid and reliable instrument designed for use by Major League Baseball (MLB) to objectively assess specific personality characteristics (i.e., makeup) of professional baseball prospects. Four instruments were chosen to measure the psychological constructs of baseball makeup including: motivational styles, self-theories regarding ability, resilience, and moral reasoning. Participants included 232 collegiate baseball players currently competing in five different divisions of collegiate baseball who responded to the package of original instruments as well as items modified to use baseball specific language. Confirmatory factor analysis was used to successfully reduce and combine subscales of the original instruments into an overall model with acceptable fit indexes. Correlational analysis and paired-t-test results provided no support for sport-specific modification of the original instruments. Bivariate and canonical correlation analysis demonstrated consistent, conceptually relevant relationships between the psychological constructs examined. K-mean cluster analysis produced three meaningful motivational style profiles for the sample population and MANOVA results provided conceptually relevant differences between the profiles. In total, results provide objective insights into baseball makeup and support the need for educational interventions as part of professional baseball prospect development.

ACKNOWLEDGEMENTS

"Quit memorizing things anyone can look up in a book and start figuring out how to relate what you have learned to others". – Dr. David G. Sears

The completion of this journey would not have been possible without the contributions and influences of others. Thank you, Dr. Stoll for welcoming me into the program, guiding me through the process, and always allowing me to ask difficult questions and consistently challenging me to find better answers. Thank you, Dr. Burton for always supporting and encouraging me in my interests, your willingness and effort to help me gain a better understanding of sport psychology, and your dedication to help me focus on the process. Thank you, Dr. Johnson for directly challenging my observations of culture and your influence and guidance in helping me gain a deeper understanding of sport. Thank you, Dr. Barnes for your encouragement, guidance, and recommendations through the nuances of the research, degree, and employment processes.

Without the mentorship, friendship, and support provided by Dr. Clinton Culp and Dr. Tom Grant, this process would not have been as valuable. Thank you for welcoming me into the program, your homes, and lives. It is my honor, your contributions are invaluable.

To my wife, Shannon, your patience, support, and love make me go. We did this together and I cannot tell you how happy it makes me to hear you say you are proud of me.

DEDICATION

Monty and Sheila Haselhuhn

For always supporting my endeavors

Beckett and Griffin Haselhuhn

May your curiosity never cease

Shannon Haselhuhn

You are the very best.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter I: INTRODUCTION

Background of the Problem

Major League Baseball (MLB) organizations employ people to find, evaluate, and recruit talented baseball players to play in their organizations. Known as scouts, these people are assigned to areas of the United States and elsewhere to evaluate amateur players and predict the likelihood of the players being able to progress through the minor league system to actually play at the major league level. Although a foolproof evaluation system does not exist, scouts for MLB organizations use similar standards and formulas to evaluate talent (Pleskoff, 2012).

The five "tools", or abilities, of prospective position players which scouts evaluate are: hitting ability, hitting power, running speed, arm strength, and fielding skill. Pitchers are evaluated by velocity and command of each of their pitches (i.e., fastball, breaking ball, change-up) as well as the respective mechanics of their delivery. Each respective tool is graded on a scale of two (2) to eight (8) or twenty (20) to eighty (80) (Pleskoff, 2012). Pitching velocity and running speed tools have objective correlations with grades (i.e., a right-handed hitter who runs from home to first base in 4.1 seconds is a "7") while position players' hitting, arm strength, and defensive ability are rated subjectively based on several criteria (Pleskoff, 2012). For pitchers, the velocity of their fastball is an objective grade measured with a radar gun (i.e., 90 miles per hour is graded a "5") while pitch quality and command as well as mechanics are subjectively graded (Pleskoff, 2012).

Final grades for position players are determined by adding the five individual grades for each respective tool and multiplying the total by two. Pitchers' final grades are determined by adding their grade for each category, adding a zero to the sum, and dividing

by the number of graded categories. The final grades are used to identify the role each prospect will fill in the organization. Most organizations rate players on the same overall scale that includes scores of 80 to 65 indicating a star player that should appear in multiple All-Star games, 65- 50 indicating a regular Major League player, a 49-40 indicating a utility role player, and a 39 and below indicating what is referred to as an "organizational player", meaning a Minor Leaguer that may be brought to the Major League level in emergencies (Pleskoff, 2012).

Another tool assessed by scouts is referred to as "makeup" or the prospective player's attitude and character (Pleskoff, 2012). Makeup assessments vary between organizations and official assessment forms are closely guarded organizational secrets. Anecdotal evidence suggests that while there may be official assessments used by individual organizations, the process is a series of interviews with each respective scout who evaluates the player.

A division exists in the world of scouting amateur baseball prospects (Nyman, 2008; Lewis, 2004). Traditionally, as previously discussed, the approach to finding prospects has been largely subjective, relying exclusively on a scout's experience to identify potential in a prospect. The division started with Billy Beane, the General Manager of the Oakland Athletics (Lewis, 2004). Frustrated with low percentages of players selected in the First Year Player Draft making Major League rosters, he sought a more scientific process (Lewis, 2004). Hiring Paul DePodesta, an economics graduate of Harvard who had developed a statistical program to identify undervalued professional baseball players, created a division within the organization, and following the Athletics' initial success, the division split baseball scouting across MLB (Lewis, 2004).

Bill James, the man credited with initially expanding traditional baseball statistics, calls the statistical analysis of the objective factors which most contribute to winning baseball games sabermetrics (as cited in, Grabiner, 1994). The collective culture of professional baseball is a close knit society which has historically been slow to change (Puerzer, 2003). The culture is also wary of outsiders seeking information that could change the nature of traditional professional baseball scouting jobs and cost current scouts employment (Lewis, 2004). To date, the preferred scouting approach varies by organization and while sabermetrics are becoming more welcomed and understood, the process is not without its limitations, especially considering amateur prospects. According to various professional scouts (Moesche, personal communication, 2004; Scout, personal communication, 2012), the validity of the statistics kept in high school and some lower level college programs pose a considerable problem for an objective approach based in such numeric assessments. Individual statistics are often recorded by volunteers and adjusted by coaches after the fact, and are generally considered untrustworthy.

Before a player is selected in the annual MLB First Year Player Draft, he will be evaluated by a hierarchy of scouts within each organization. The typical starting point is the organization's Regional scout, who reports to the National cross-checker, who then reports to the Director of Scouting or Player Development and the organization's General Manager (Howdeshell, 2012). If each respective scout returns a favorable grade, each scout will organize meetings with the prospect and his family. These semi-casual meetings are the basis of the organization's character assessment.

The hypothesis of this dissertation proposal is that despite the substantial knowledge of character development, motivational orientations, mental toughness, and beliefs regarding

the nature of ability found in the literature of philosophy and psychology, the organizations that constitute MLB are not, as per the literature, taking advantage of established instruments and subsequent teaching curriculums. Therefore, the lack of evidence in the literature regarding character assessments used by MLB organizations presents a need to establish a baseball specific instrument that is valid and reliable to identify character in their prospects. Subsequently, there is a suggested need for a baseball specific curriculum designed for MLB organizations to employ that will enhance character development of their prospects and assist in securing the financial investments made in their prospect selections.

Setting the Problem

The literature regarding current MLB practices of assessing a professional baseball prospect's makeup (i.e., baseball specific character) is virtually non-existent and primarily found in baseball specific periodicals (i.e., Baseball America) and published anecdotal accounts of MLB General Managers and mental skills coaches (Lewis, 2004; Miller, 2012). Personal accounts shared with the investigator by current and former MLB scouts and coaches (Holliday, personal communication, 2012) have also been collected to confirm the lack of an objective, standard assessment employed by respective MLB organizations (Scout, 2012) or the Major League Scouting Bureau (MLSB; Marcos personal communication, 2012; Moesche, personal communication, 2004). The primary characteristics of a professional baseball prospect desired by MLB scouts include their conception of moral reasoning (i.e., decision making, risk taking), motivation (i.e., psychological attributes for enhancing skill development), resiliency (i.e., mental toughness), and personal beliefs regarding the nature of ability (i.e., coachability). Substantial literature exists regarding each of these characteristics, their measurement, and development (Beller & Stoll, 2004; Biddle, Wang, Chatzisarantis, &

Spray, 2003; Burton & Weiss, 2008; Campbell-Sills & Stein, 2007; Dweck, 2000; Stoll & Beller, 2010). The resulting baseball specific character assessment will benefit MLB and MLSB by supporting the creation of a standardized, objective tool to replace current subjective assessments as well as professional baseball prospects by eliminating potential scouting bias and reinforce character development over character assessment.

Statement of the Problem

Considering the above, the purpose of this exploratory study is to gain a better understanding of baseball specific character and begin development of a valid and reliable instrument for Major League Baseball (MLB) organizations to objectively assess baseball specific personality characteristics of professional baseball prospects. As such, the study will employ four instruments which measure the four primary psychosocial characteristics (i.e., moral reasoning, motivational style, self-theories regarding the nature of ability, and resilience) to explore the relationships between the proposed aspects of makeup and the development of a baseball makeup assessment.

The purpose of this exploratory study was to gain a better understanding of baseball specific makeup and begin development of a valid and reliable instrument designed for use by Major League Baseball (MLB) to objectively assess baseball specific personality characteristics (i.e., makeup) of professional baseball prospects.

Research sub-problems

1. What is Major League Baseball (MLB)?
2. What is Minor League Baseball?
3. What is the First Year Player Draft?
4. What are MLB scouts?

5. What attributes do MLB scouts look for in prospective players?
    a. Arm
    b. Running Speed
    c. Hitting Ability
    d. Hitting Power
    e. Defensive Ability
    f. Makeup
6. What is character?
7. What is the role of character in the development of a MLB player?
8. What are motivational styles?
9. What is the role of motivational styles in the development of a MLB player?
10. What are self-theories?
11. What is the role of self-theories in the development of a MLB player?
12. What is resilience?
13. What is the role of resilience in the development of a MLB player?

Research Questions:

Research Question One:

Can a package of instruments be identified to measure baseball makeup?

Research Question Two:

Will modifying items to be baseball specific allow for greater success in identifying baseball makeup?

Research Question Three:

Will the psychological constructs presented in the package of instruments relate to each other in conceptually relevant ways?

Research Question Four:

Can meaningful motivational style profiles for baseball makeup be created?

Research Question Five:

Will there be conceptually relevant differences between motivational style profiles for baseball makeup be evident for this sample?

Delimitations

This study is delimited to the following:

1. All participants will be current collegiate baseball players and will therefore be considered professional prospects.
2. The Hahm-Beller Values Choice Inventory-16 (HBVCI-16) will be used to measure moral reasoning.
3. The Competitive Motivational Styles Questionnaire (CMSQ) will be used as the measure of motivational orientation.
4. The Conceptions of the Nature of Athletic Ability Questionnaire – 2 (CNAAQ-2) will be used to measure self-theories regarding ability.
5. The Connor-Davidson Resilience Scale (CD-RISC) will be used to measure mental toughness.

Limitations

The study is limited by the following.

1. All participants will remain anonymous to ensure protection from exclusion by their current baseball affiliations.
2. As a result of anonymity, criterion variables (i.e., objective performance measures) will not be available.

Assumptions

The study assumes the following.

1. The participants responded to baseball specific version(s) of the test instrument honestly and without coercion or fear of retribution.

Constant Variable

The status of all participants will be "professional baseball prospects". As college baseball players, they will be evaluated by professional baseball scouts and therefore considered prospective professional baseball players.

Dependent Variable

Responses regarding moral reasoning, motivational orientations, personal beliefs regarding the nature of ability, and mental toughness scores as measured by the Hahm-Beller Values Choice Inventory-16 (HBVCI-16), Competitive Motivational Styles Questionnaire (CSMQ), Conceptions of the Nature of Athletic Ability Questionnaire – 2 (CNAAQ-2), and the Connor-Davidson Resilience Scale (CD-RISC) will be considered the dependent variables.

Independent Variable

Items in each of the respective instruments were used as independent variables in each analysis.

Significance of the Study

Major League Baseball organizations make considerable financial investments in the prospects they select in the annual MLB First Year Player Draft. Even under the latest collective bargaining agreement, which limits signing bonuses to players selected in the draft, each player selected in the first round signed for an amount exceeding 1,500,000 dollars with the first selection earning 7,200,000 dollars (Major League Baseball, 2012b). According to Rosenbaum (2012), only 66 percent of players selected in the first round make it through the Minor Leagues and play at the Major League level. Additionally, the percentage of those selections which make Major League rosters consistently drops based on the round selected. Only 49 percent of players selected in the second round make Major League rosters, 32 percent of players selected in rounds three through five, 20 percent of players selected in rounds six through ten, 11 percent of players selected in rounds 11 through 20, and only 7 percent of players selected in any round after the 21st make Major League rosters (Rosenbaum, 2012).

According to the sport psychology literature, mental skills are considered to be the factor that separates elite performers from elite talent, and these skills can be learned (Burton & Raedeke, 2008; Connaughton & Hanton, 2008; Connaughton, Wadey, Hanton, & Jones, 2008; Gould, Dieffenbach, & Moffett, 2002; Gucciardi, Gordon, & Dimmock, 2008; Gucciardi, Gordon, Dimmock, & Mallett, 2009; Gillham, Burton, & Gillham, 2011; Horn, 2008; Jones, Hanton, & Connaughton, 2002; Williams, 2010). The development of mental skills is centered on a foundation of core personal values (Gould, Dieffenbach, & Moffett, 2002; Jones, Hanton, & Connaughton, 2002). While the literature does not explicitly differentiate core values into moral and social values (Frankena, 1973), there is implicit

evidence to support the hypothesis that the preferred social values displayed in ideal mental skills trained athletes are positively influenced by and grounded in moral values.

In a study spanning over 20 years, Stoll and Beller (2010) have found that competitive populations are less adept in moral reasoning than their non-competitive peers, and through appropriate interventions specifically with athletic populations, moral reasoning can be improved (Bredemeier & Shields, 1986). In accordance with Dweck's (2000) research, individual's carry two basic beliefs regarding their talent, an entity belief that talent is an inherent, fixed quality and a malleable belief that talent potential is a product of effort and application of learned skills and strategies. Dweck (2000) has demonstrated successful intervention approaches in several studies that altered individual's self-theories via various methods of feedback (Bandura & Dweck, 1985; Dweck & Legget, 1988; Dweck, Chiu, & Hong, 1995; Grant & Dweck, C. S., 2003).

The primary importance of this study addresses a need in professional baseball for an objective assessment of makeup, a valid and reliable measurement of baseball specific character (i.e., baseball makeup), and likely, a character curriculum to promote and enhance the development of its prospects. Baseball makeup is different than traditional definitions of character, it is defined here as the ideal character attributes professional baseball players should aspire to adapt as a means to reach and remain at the Major League level. The attributes, while expressed in terms of social values, need to be grounded in moral values and specifically the ability to reason morally. Anecdotally, through various discussions with professional scouts, who wish to remain anonymous, the ideal baseball character will include the ability to deal with anxiety, take calculated risks, and be able to follow appropriate rules and break inappropriate rules situationally to maximize prospects' natural baseball related

instincts. Major League Baseball is a private and professional for-profit organization. To best serve its needs, the distinction between baseball makeup and character is imperative.

The benefit of this study will be three fold including: (a) the analysis will aim to investigate an ideal profile of character for individuals in competitive baseball populations. (b) the analysis will serve to protect the valuable investments which MLB organizations make in their prospects to increase the likelihood of their rise to the major leagues, and (c) the analysis will serve the prospect through the development of the character necessary for success in life and therefore enhance their ability to perform within the constraints of the game.

CHAPTER II: REVIEW OF THE LITERATURE

Introduction

The purpose of this exploratory study was to gain a better understanding of baseball specific makeup and begin development of a valid and reliable instrument designed for use by Major League Baseball (MLB) to objectively assess baseball specific personality characteristics (i.e., makeup) of professional baseball prospects.

Sport has historically been labeled as "character building" activity (Bredemeier & Shields, 1986; Clotfelter, 2011; Cote, Strachan, & Fraser-Thomas, 2008; Gerdy, 2009; Kretchmar, 2005; Rudd, 1998, 2005; Shields, Bredemeier, & Power, 2001; Williams, 1934). Most major sport associations still promote their activity with some form of character building reference. The National Collegiate Athletic Association (NCAA) president Mark Emmert states their role as continuing to implement principles with a "…increased emphasis on both athletics and academic excellence" (Emmert, 2012). The National Association of Intercollegiate Athletics (NAIA) recognizes the perceptual relationship between sport and character with its "Champions of Character" program which outlines five values (National Association of Intercollegiate Athletics, 2012). The National Junior College Athletic Association's (NJCAA) states that its mission is to "… promote and foster junior college athletics… so that results will be consistent with the total educational programs of its members" (National Junior College Athletic Association, 2012). The National Federation of State High School Associations' (NFHS) mission statement refers to high school sport as "…interscholastic activities which support academic achievement, good citizenship, and equitable opportunities" (National Federation of State High School Associations, 2012).

According to Baseball America's Draft Database (Baseball America, 2012) most of the baseball players drafted in the annual MLB First Year Player Draft maturate through at least one of the associations mentioned above. If each organization uses a similar talent evaluation process that dictates draft selections (Pleskoff, 2012), then it is a reasonable assumption that each prospect selected in at least the first five rounds of the draft are graded as physically talented enough to play at the Major League level. Yet, most of the prospects drafted every year will never play at the Major League level, and even more interestingly, less than half of the players drafted in the first 10 rounds will make a Major League roster (Rosenbaum, 2012).

Scouting baseball is clearly an inexact science (Boyd, 1998). While there may always be some inherent art to the science of predicting human behavior (Cooper, Heron, & Heward, 2007), providing a tool to assess character attributes associated with elite sport performances (Jones, Hanton, & Connaughton, 2002) will help aid the process. If physical talent and ability are not the determining factors of making a Major League roster, then the importance of makeup or, the sixth tool, deserves more careful study.

Major League Baseball

Major League Baseball (MLB) is a professional sport organization located in the United States of America and Canada. The league consists of 30 clubs, or organizations, which are separated into two different leagues, the National and American. The National League is the older of the two leagues and is currently represented by 16 organizations while the American League is represented by 14 organizations. In the year 2000, the two leagues merged into a single organization which is overseen by the Office of the Commissioner of Baseball.

Minor League Baseball

Each respective MLB organization hosts a network of professional baseball clubs which are collectively referred to as minor leagues. Minor League Baseball (MiLB) is a professional baseball entity that oversees the organization of minor league teams and presently organizes them into 16 leagues which play at six different levels of competition. From the Major League level down, the levels are organized: Triple A (AAA), Double A (AA), Class A Advanced (A Adv), Class A (A), Class A Short Season (SS), and Rookie (R; Minor League Baseball, 2012). Each MLB organization hosts one team at the AAA, AA, A Adv, and A levels. The number of SS and R teams varies per MLB organization. Currently there are 224 minor league teams, most of which play at the Class A level and below. Players are continuously evaluated by scouts throughout the minor leagues and promoted and demoted as their scouting grades, individual performances, and organizational needs dictate. The minor league teams are populated every year by the First Year Player Draft and free agent signings.

First Year Player Draft

The First Year Player Draft currently occurs every June and consists of 40 rounds. From 1998 through 2011, the draft was limited to 50 rounds, however in 2012, the draft was shortened to 40 rounds (Major League Baseball, 2012b). The order in which organizations select prospects in the draft is determined by the previous season's final standings. The organization with the worst win/loss record is allowed to pick first. A round is complete when each MLB organization has made a selection. The first and second rounds are split by a compensatory round. Compensatory round picks are awarded to organizations that have lost a free agent in the previous season. American high school and college baseball players are

the primary source of the prospects selected, with college players being twice as likely to be selected (America, 2012). Amateur prospects are selected by MLB organizations based on the evaluations each organization's network of scouts give players.

Major League Baseball Scouts

Major League Baseball organizations have two sources of talent identification. The Major League Scouting Bureau (MLSB) is operated by MLB and employs 34 full-time and 13 part-time scouts (Marcos, personal communication, 2012) to find, evaluate, and recruit amateur prospects in North America. Prospect reports completed by MLSB are delivered to each MLB organization as a way to reduce scouting costs for organizations as well as to cross check respective organization's prospect evaluations.

The scouting department of each respective MLB organization varies by organization, however, the basic hierarchy is similar across MLB. Generally, the Associate Scout is the lowest on the hierarchy and typically volunteers to help a part time scout cover an Area Supervisors' assigned region. For example, the Northwest region includes the states of Oregon, Washington, Idaho, Montana, and Alaska as well as the Canadian Provinces of British Columbia and parts of Alberta. Associate and part time scouts report prospects to the Area Supervisor who then evaluates the prospect. If the Area Supervisor grades the prospect favorably, the prospect is referred to the Regional Scout, or Regional Cross-Checker. If the Regional Cross-Checker grades the prospect favorably against other prospects in the assigned region, the prospect is referred to the National Cross-Checker, who then compares the prospect against other prospects nationally. Again, if the National Cross-Checker evaluates the prospect favorably, the prospect is referred to the Assistant Director of Scouting. The Assistant Director of Scouting then evaluates the prospect, and if the prospect is graded as an

early round (i.e., first through fifth round) selection, the prospect is evaluated by the Scouting Director. The Scouting Director generally decides when each prospect will be selected in the First Year Player Draft. While it remains possible for a prospect to be selected in the draft by an Area Supervisor, no early round prospects are selected without being evaluated by the Scouting Director (Howdeshell, 2012).

Attributes Graded by Major League Baseball Scouts

Don Pries, former Director of Scouting for the MLSB, is quoted to say, "Scouting is an opinion, if it were an exact science, we wouldn't be here" (as cited in, Boyd, 1998).

Prospects are graded on five physical attributes, or tools: arm, defensive ability, running speed, hitting ability, and hitting power. Generally each prospect is given two grades which are determined by a combination of objective and subjective measures. The first grade is on a scale of 2 through 8 and is based on how well the prospect would perform in the major leagues at the time they are evaluated (Moesche personal communication, 2004). A grade of 2 is considered a non-prospect, a 3 is considered "well below average", a 4 is considered "below average", a 5 is considered "average Major League", a 6 is considered "above average Major League" , a 7 is considered a "Major League All-Star, and an 8 is considered a "Major League Hall of Fame" (Moesche personal communication, 2004; Pleskoff, 2012). The second grade is a projection of the prospect's Overall Future Potential (OPF; Boyd, 1998) for development and is reported on a scale of 40-80 (Marcos, 2012; Moesche personal communication, 2004). As prospects are evaluated through the hierarchy of scouts previously detailed, their character or "makeup" is subjectively evaluated through an informal interview process each respective scout completes, including character references from current and former coaches.

Arm. Arm is the tool that typically gets a scout's attention first as baseball games traditionally start with a warm-up infield/outfield session. A prospect's arm is graded subjectively based on how the ball carries when thrown and how accurately the ball is thrown (Pleskoff, 2012). The ball should have a 12-6 backspin to keep the ball traveling in a straight line and the trajectory should be long and flat. Thrown balls that do not travel in a straight line (i.e., "tail" or "sink") will not travel as far or as fast. Throwing mechanics are an important factor in the arm grade as proper mechanics will produce consistently well thrown balls. Therefore, players with proper mechanics, good strength and quickness, and good hand speed will generate better carry on the ball (Boyd, 1998).

Evaluating pitchers is a blend of an objective measurement (i.e., velocity) and several subjective measurements (Boyd, 1998; Pleskoff, 2012). Each type of pitch in a pitcher's repertoire (i.e., fastball, curveball, slider, other) is evaluated based on velocity, movement, and command (i.e., the pitcher's ability to repeatedly throw the ball to the same target) along with the mechanics of the pitcher's delivery (i.e., arm action, arm slot, and follow through). Velocity is graded primarily on the fastball. A 90 miles per hour (mph) fastball is graded at 5 (i.e., major league average), 95 mph and faster is graded as an 8 (i.e., Hall of Fame) and a fastball below 83mph is graded as a 2 (i.e., no prospect). Velocity is the objective grade and measured with a radar gun. Other attributes such as mechanics, pitch movement, and command are subjective. Additionally, poise, mental toughness, aggressiveness, and baseball instincts are also subjectively graded (Boyd, 1998; Pleskoff, 2012).

Defensive Ability. Defensive ability is also one of the first tools that scouts can evaluate in the infield/outfield warm-up. Defensive abilities are subjectively graded based on the prospect's range (i.e., how much area he can cover from his position on the field),

footwork (i.e., first step quickness, positioning when fielding the ball), the manner in which he approaches a ball to be fielded (i.e., footwork) the action of his hands when catching the ball, and the route(s) (i.e., reacting to a batted ball, shortest distance to get to ball) taken to get to a batted ball (Pleskoff, 2012).

Running Speed. Running speed is primarily an objective measurement. Position players are graded based on the amount of time it takes them to run to first base after they have put a batted ball in play. Time is measured with a stopwatch. The time starts when the bat makes contact with the ball and stops when the batter/runner steps on first base. Before grading a prospect, scouts must consider the situation in which the play occurred (Moesche personal communication, 2004). If the prospect was not running at full speed or rounding first base to advance, the time is not a true reflection of his running speed. Other subjective measures include the prospects running mechanics and agility when transferring from the follow through of the swing to running down the first baseline.

Scouts are trained to time each swing to prevent missing a potential best run. Running speed is graded in seconds and divided by right and left handed hitters. Left handed hitters are expected to be one-tenth of a second faster as they stand closer to first base when hitting and the follow through of the swing leads them to first base. To be considered a Major League prospect, a player must run at least a 4.4 for a right handed hitter and 4.3 for a left handed hitter. The major league average (i.e., grade 5) for a right handed hitter is 4.3 seconds and 4.2 for a left handed hitter. For a prospect to be graded an 8 he must run a 4.0 for a right handed hitter and 3.9 for a left handed hitter (Pleskoff, 2012).

Hitting Ability. According to Don Pries hitting is the tool that is the great equalizer in evaluating prospects (as cited in, Boyd, 1998). Prospects that are graded as 5's or better

are considered more desirable prospects (Boyd, 1998). In other words, a prospect that is graded 5 or better as a hitter only needs a one or two other tools graded as 4 or better to be considered a professional prospect. Hitting ability is also the most difficult grade for a scout to evaluate (Boyd, 1998). Several subjective criteria are observed when evaluating a hitter including strength, bat speed, arm extension after contact, head position, stride, length of swing, barrel control, and how the ball comes off the bat (Boyd, 1998). Additionally, the hitter's aggressiveness and lack of fear are evaluated. The aspect of hitting that makes evaluation difficult is that some great hitters will not meet any of those criteria and some hitters that do will not perform (Boyd, 1998).

While some organizations will use objective measures to grade hitting ability, the MLSB teaches scouts to grade mechanics in spite of relative performance (Boyd, 1998; Pleskoff, 2012). The key to statistical measures is the relative quality of the opposing pitching. Hitting for a batting average of .300 in the Major Leagues deserves a grade of 7 while the same batting average in a high school season does not deserve the same grade because of the difference in the quality of the pitchers faced (Boyd, 1998; Moesche personal communication, 2004; Pleskoff, 2012).

Hitting Power. Hitting for power is a tool that has considerable sway in the OFP grade of a prospect (Boyd, 1998; Moesche, personal communication, 2004). A prospect that can hit for power and has only one or two other average tools is more valued than a prospect that has average arm, defense, and running tools but below average hitting tools (Moesche, personal communication, 2004). Hitting power is primarily a subjective measure in college and high school hitters as the level of competition dictates (Boyd, 1998). Some organizations use number of home runs hit in a season as a criterion for grading power however level of

competition still must be considered. The scale Pleskoff (2012) offers refers to a full major league length season with 15-19 home runs hit graded as average major league and more than 35 per season graded with an 8.

Most prospects under consideration for the First Year Player Draft are playing at the high school or college level at the time they are evaluated. Therefore an objective, numeric system is not applicable for evaluation. Accordingly, scouts are trained to differentiate between power and useable power (Boyd, 1998; Moesche, personal communication, 2004). Using similar mechanical criteria for hitting ability and years of experience evaluating hitters, scouts try to determine how power displayed in pregame batting practice, where the prospect knows relative pitch type, location, and velocity, will translate into power displayed in competition. In competition, prospects are not aware of pitch type, location, or velocity, making optimal contact with the ball much more difficult. Therefore the power displayed in competition is considered "useable" whereas the power displayed in practice is not (Boyd, 1998; Moesche, personal communication, 2004).

Makeup. Makeup is a general umbrella term used in baseball for a prospect's intangible tools (Miller, 2012). By definition, the word intangible refers to something with a metaphysical quality, some attribute that is unable to be grasped or touched with no physical presence (intangible, 2012). Merriam Webster defines it as a "…abstract quality or attribute… such as loyalty or creativity" (2012). According to long time Cincinnati Reds general manager and 1999 MLB Executive of the Year, Jim Bowden, makeup is the most important attribute of a player once physical attributes have been measured and projected (Bowden, 2011).

Bowden (2011), considered an authority on the topic of player assessment in MLB, describes two general types of baseball makeup. For his first description he considers players with the "…highest character, intelligence, heart and passion" (2011) additionally he refers to prospects with this type of baseball makeup as "…the type of person you would want to marry your own daughter" (2011). The other type of ideal baseball makeup Bowden refers to is different in such a way that scouts will often "miss" (i.e., not recognize or grade incorrectly low) when players with this type of makeup are young. Players with this type of makeup often appear to have selfish attitudes, off-field failures, show indifference to media, and generally not be helpful or supportive of their teammates (2011). However, Bowden notes that the best scouting directors will draft these players as well because of their winning attitudes, describing them as people who "…live for the moment with a mental toughness, off-the-charts competitiveness and an 'I will do whatever it takes' type attitude" (2011). Bowden continues to compare prospects with this type of baseball makeup to be "over achievers" that "want to make the final pitch or final at bat" that have an "edge, an advantage… will get dirty, demonstrate more focus, more fight and more intensity" with a "baseball IQ that is off the charts" (2011). The two types of baseball makeup Bowden (2011) describes are idealistic and vary considerably from traditional definitions of moral character proposed by philosophers from the ancient Greeks to modern writers such as Alasdair MacIntyre (2008). Establishing the distinction between moral character and baseball makeup will serve to establish the preferred intangible characteristics of professional athletes and be the subject of the following discussion.

The focus of the current study will be on baseball makeup or character. The purpose is to create a baseball specific instrument that will consider both types of ideal baseball

makeup considering the literature of moral development, motivational orientations, achievement beliefs, and moral reasoning ability. The literature regarding the instruments, tests, or measures that MLB organizations or the MLSB currently use is virtually non-existent. Miller (2012) recently published his Character Development Inventory (CDI). Although the CDI has considerable face validity, Miller (2012) does not share any of the statistics supporting the validity or reliability of the CDI in his text, which was published for popular consumption and not refereed. In an email conversation between Miller and the author, Miller explained he uses the CDI as part of the intake process for his work with the Atlanta Braves and therefore has not completed any statistical analysis regarding the CDI.

According to MLSB Director Frank Marcos, the items used to measure makeup are "…unavailable and for organizational use only" (2012). Despite the lack of public psychometric validation, access to current and former professional baseball scouts provides anecdotal evidence supporting that MLB organizations consider makeup an essential tool of the prospects they evaluate. According to their descriptions, the four dimensions of ideal baseball makeup include (a) risk taking[1] (i.e., moral reasoning), (b) competitive attitude (i.e., motivational style), (c) coachability (i.e., ability beliefs), and (d) mental toughness (i.e., resilience). MLB organizations typically test their top prospects through a third party organization which is hired to develop and evaluate various "psych tests" which the organization administers to evaluate each prospect. In some cases, organizations will hire third party consultants to fly to the homes of each prospect for evaluation. The current study seeks to improve conventional methods with a sound tool to be used to assess professional

[1] In context, MLB scouts refer to risk-taking as assessing behavior in social situations off the field and consider prospects who stay out of trouble off the field to have good "character". Therefore moral reasoning was chosen to reflect prospects' ability to assess situations with moral implications.

baseball prospects' makeup and provide support for the acceptance of makeup development interventions among MLB prospects and players.

Character

Sport is commonly assumed to be a character building activity (Coakley, 2009; Rudd, 1998). Several researchers have examined the role of sport in character development and report mixed results (Bredemeier & Shields, 1986; Stoll & Beller, 1998). In a summary of their collective 20 year study on moral reasoning in sport, Stoll and Beller (2010) report an inverse relationship between time spent in competitive sport environments and moral reasoning abilities. According to McCormack and Chalip (1988), understanding the different social interaction influences on athletes within their respective sport and the social world in which they were raised creates different perceptions of character and therefore character development. Because sport offers diverse experiences, studies comparing athletes to their non-athlete peers may be the cause for varied research findings (as cited in, Coakley, 2009). As a result, the type of sport experience may be the determining factor regarding character development in sport (as cited in, Coakley, 2009). Therefore, a tool to identify current character, combined with strategies to affect character, could be an important tool for sport.

According to Merriam-Webster's dictionary, the term "character" is defined as meaning "…the attributes that make up and distinguish the individual" (2012). The etymology of the word, as per the Stanford Encyclopedia of Philosophy, is of Greek origin and was originally used as a mark on a coin and became known in reference to a distinctive mark by which one thing was distinguished from another (Homiak, 2011). In modern general terminology, the term character is used in reference to the summation of an individual's mental and moral faculties and is often used synonymously with the term "personality",

however theorists in character development do not agree that character and personality are synonymous (Homiak, 2011). Sport philosophers (Lumpkin, Stoll, & Beller, 2003) seem to agree defining character as the outwardly demeanor of an individual as judged by society and also differentiate between character and personality.

The Greek philosopher Aristotle is typically credited with using the term to describe the moral excellence of an individual, as is common parlance in modern times (Homiak, 2011). In *Nicomachean Ethics,* Aristotle explains character as more than the distinguishing features of an individual (Aristotle, 2001). Here Aristotle describes character as the perceptual mean between a virtue and its vice. To be of character then, as per Aristotle, one must situationally act in accordance with virtue however not because of virtue, or to avoid vice, but primarily because one aims to seek temperance of their motives (Aristotle, 2001).

> Virtue, then, is a state of character concerned with choice, lying in a mean, i.e. the mean relative to us, this being determined by a rational principle, and by that principle by which the man of practical wisdom would determine it. Now it is a mean between two vices, that which depends on excess and that which depends on defect; and again it is a mean because the vices respectively fall short of or exceed what is right in both passions and actions, while virtue both finds and chooses that which is intermediate. Hence in respect of its substance and the definition which states its essence virtue is a mean, with regard to what is best and right an extreme. (Aristotle, 2001, p. 959)

In other words, ideal moral character is displayed in terms of virtue as an action motivated on a foundation of moral values. In which case, moral values are those tempered between passions and actions. Lickona (1992) describes character as consisting of operative values, or

values in action. Therefore, in general terms, moral character can be defined as how a person judges both the intention and consequence of another's action.

Devettere (2002) seems to agree that moral character, as defined by the ancient Greeks, is also a function of actions. However Devettere (2002) makes a distinction between character and habit of action while emphasizing Aristotle's (2001) mean that differentiates between virtue and vice, or "good" and "bad" character.

> Character (ethos). The best translation of ethos (spelled with a long 'e') is probably moral character. Character is related to habit but is not the same. Both habits and character can be good or bad. Good character is acquired in two stages. The preliminary stage occurs during childhood when others direct us toward good feelings and actions; however, authentic [not to be confused with existentialism] good character does not emerge until a person "beefiness" making his or her own decisions to seek what is good for its own sake. Repeated good decisions coalesce into enduring states that can be identified as character virtues, virtues such as justice, temperance, and so forth. Thus, deliberately chosen good actions create the virtuous states that form good character. (Devettere, 2002, pp. 139-140)

The distinction that character can be "good" or "bad" is important for understanding the nature of character as well as creating a baseball specific operational definition of character. For this reason, baseball makeup, or character will need delimitations for the development of an operational definition. The limitations will be explored in a subsequent discussion of ability beliefs (e.g., an individual's belief's regarding their potential), motivational style (i.e., an individual's dispositional motivational characteristics) and mental toughness (e.g.,

resilience). Therefore, for an operational definition of baseball makeup will involve moral reasoning, ability beliefs, motivational styles, and mental toughness.

According to Homiak (2011) the ancient Greeks had a division of character similar to that of Bowden (2011). On one side, the Stoics and Socrates believed that only cognitive states were necessary for virtuous character, whereas Plato and Aristotle believed that both cognitive and emotional, or affective, states were necessary. In agreement with Bowden (2011) and educational philosophers, (Dewey, 1975; Gill, 1995; Johnson, 1995), it seems that the preferred definition of character meets both the conditions of the Greek philosophers and MLB is not an "either/or" position but an "either/and" position. Whereas the Stoics and Socrates (Homiak, 2011) would appreciate Bowden's (2011) second type of baseball makeup for its intellectual, hard driven approach, Plato and Aristotle would agree with the first type of Bowden's (2011) baseball makeup that considers, what he terms in modern nomenclature, the "…highest character, intelligence, heart and passion". Both cases of baseball makeup, as per Bowden (2011), deserve 8 grades. While Aristotle goes to great length to describe the conditions of sound moral character (Aristotle, 2001), Bowden (2011) is simply evaluating his observation with a grade to separate potential.

The development of character should therefore be of interest to MLB organizations according to Bowden's (2011) and others (Scout, personal communication, 2012a; Scout, personal communication, 2012b) assessment of the importance of makeup. However, what is known from the limited literature pertaining to baseball talent development, MLB organizations invest significant time and money establishing, on average, 7.4 minor league teams each aimed at developing five tool players (America, 2012). If this is accurate, when physical skills and talent are equal, makeup is left to be the difference maker.

Moral Development

Any discussion regarding moral development must start with clarification of a few key terms (Stoll & Beller, 2004). The first is to differentiate between *moral* and *ethical*. According to William Frankena (1973), morality is an enterprise that exists before the individual and is something in which an individual participates as part of a society. Frankena (1973) differentiates the idea of morality as a social convention used to create rules which guide behavior with the values in which it is based. While morality certainly produces external regulations on individuals, Frankena (1973) states morality is of greater importance than the external rules it creates (i.e., ethics) because individual rules on their own can be based in personal preference and therefore not necessarily on a moral value. Therefore, moral refers to the value structure that creates rules or guidelines for behavior, or ethics. In other words, moral refers to the values which support the rules, or ethics, which a social group agrees to adhere.

Moral development is the process of understanding values and how those values determine the ethics, or rules, of the social group. Lickona (1992) defines character in modern terms as having three interrelating components: moral knowing, moral feeling, and moral behavior. Therefore the development of character should begin with understanding the values, both moral and non-moral (Frankena, 1973). A sound understanding of values will lead to moral feeling (i.e., wanting to do right) and then affect decision making (i.e., moral behavior).

The second set of terms in need of clarification the categories of values, namely *moral* and *nonmoral* values. According to Frankena (1973) a value is the relative worth placed on some person, place, or thing. Therefore, moral values have a metaphysical quality

as these values are what Frankena (1973) refers to as internal or intrinsic. Internal values are regarded as prime values, which suggest their worth is independent regardless of situational conditions. The philosophical quest of ethics is to determine a single, universal moral value. The importance, and complexity of discovering a single, universal moral value is that without competition from other moral values, the universal value would eliminate the problems with decision making regarding human interaction. Without a single, universal moral value it is possible, and relatively frequent, for a situation to occur which places two moral values against one another.

While scholars differ in the relative worth of a value (Gibbs, 2003; Hoffman, 2000; Kohlberg, 1981), there is basic agreement on which values are moral. Kohlberg (1981) focuses on justice, Hoffman (2000) on empathy, and Gibbs attempts to rectify and blend of both justice, which Gibbs (2003) frames as cognitive, and empathy, the emotive. Frankena (1973) argues for beneficence, justice, and love. Fox and DeMarco (2001) agree with beneficence and justice and add freedom by arguing that one must be free to enter into an agreement moral or otherwise and additionally, to prevent an individual freedom is harmful and therefore beneficence is violated. Lickona (1992) names respect and responsibility as moral values of character. According to Lickona (1992), respect is the "…restraining side of morality" that prevents individuals from "…hurting what [they] ought to value." Responsibility, according to Lickona (1992) is the "…active side of morality." Both respect and responsibility are moral values as they keep individuals from violating moral principles and promote the positive proscriptions of moral principles.

According to Frankena (1972), nonmoral values are those values which assert a relative worth to tangible objects. Nonmoral values include (a) utility, the relative worth of

an object based on its function, (b) intrinsic, the relative subjective worth of an object to an individual, (c) extrinsic, the relative objective worth of an object to an individual, and (d) inherent, the relative sentimental value of an object to an individual. Contributory values are nonmoral values that are some combination of the previous four. A baseball example would include an infielder's glove is of higher value to him than that of another's glove (i.e., utility) as it has been formed to his hand and made to fit him specifically (i.e., intrinsic). The infielder needs that glove to perform his role on the team (i.e., objective) and as a result of the time, effort, and financial investment in the glove it gains sentimental value (i.e., inherent) for the infielder.

The relationship between moral and nonmoral values is significant (Frankena, 1973; Fox & DeMarco, 2001). The nonmoral values of an individual affect the moral judgment, and therefore moral behavior of an individual. In other words, nonmoral values influence moral reasoning in such ways that individuals lacking moral development, particularly moral knowing, will violate moral principles based on nonmoral values (Fox & DeMarco, 2001; Lickona, 1992). For this reason, moral reasoning is a necessary skill for moral character. Specifically, ideal baseball makeup will require moral reasoning skills in order to handle the emphasized nonmoral influence (i.e., signing bonus) of professional baseball in America.

The ability of professional baseball prospects to recognize moral and nonmoral values with an understanding of the difference between morality and ethics permits them to identify moral and/or ethical dilemmas. The ability to recognize situations that place two moral values or ethical codes in conflict enables them to make calculations regarding risk and starts the process of learning to reason morally (Fox & DeMarco, 2001; Lumpkin, Stoll, & Beller, 2003).

According to Coakley (2009), social worlds are "…an identifiable sphere of everyday actions and relationships". Culture is developed through shared ways of life and understandings as individuals learn as they live with one another (Coakley, 2009). The process in which culture is developed includes individuals considering the thoughts, feelings, and actions of themselves and others, known as social interaction (Coakley, 2009). Through the process of social interaction, the structure, or pattern of relationships and arrangements within the group are developed (Coakley, 2009).

As a result, the character of the individuals within the social group is a function of the relative moral development of the individuals that make up the group and the overriding purpose of maintaining the group (Kohlberg, 1981; Lumpkin, Stoll, & Beller, 2003). Therefore, the ability to identify culture specific characteristics is important to maintaining social worlds which suggests the continuing development of moral character is imperative to maintaining the success of the respective social world (Eys, Burke, Carron, & Dennis, 2010).

Stages of Moral Development

The purpose of studying makeup in professional baseball prospects is to aid and encourage its development. Therefore, understanding a moral developmental theory is an important aspect of understanding makeup as proposed here. Kohlberg's (1981) research outlined the stages of moral development and a basic outline of the stages he presents will serve as a guideline for determining the moral character dimension of the ideal baseball makeup. Kohlberg (1981) identified six stages of moral development and organized the stages into three levels. The three levels, in order of development are termed: Preconventional, Conventional, and Postconventional. The categorization is generally based on the interpretation and analysis of rules as related to the individual, others, and society,

respectively. Each level contains two stages which are identified by the content and social perspective of each stage.

Preconventional Level. The Preconventional level contains Stage One and Stage Two. Stage One is titled *The Stage of Punishment and Obedience* and contains the concept of morally right as defined by "…literal obedience to rules and authority, avoiding punishment, and not doing physical harm" (Kohlberg, 1981, p. 409). In Stage One of moral development, individuals moral knowing is limited to rule obedience for the sake of obedience and avoiding physical harm to people and property. The reasoning behind being obedient in Stage One is centered on avoiding punishment and recognizing the superior power of authorities over the individual (Kohlberg, 1981).

The social perspective of Stage One is completely egocentric (Kohlberg, 1981). Individuals in Stage One are oblivious to the intentions of others, leaving their actions to be judged by physical consequences alone (Kohlberg, 1981). The consequence of lacking the ability to recognize the psychological interests of others is individuals in Stage One are unable to differentiate between the perspective of a superior authority and their own (Kohlberg, 1981). For professional baseball, Stage One is undesirable as prospects will be unable to make calculations regarding risk taking (Fox & DeMarco, 2001; Miller, 2012; Scout, personal communication, 2012), be unable to provide the counterarguments necessary to handle anxiety (Burton & Raedeke, 2008; Horn, 2008; Miller G, 2012; Scout, personal communication, 2012; Williams, 2010), and stuggle to reason morally regarding professional and personal dilemmas (Fox & DeMarco, 2001; Lumpkin, Stoll, & Beller, 2012; Lumpkin, Stoll, & Beller, 2003).

Stage Two of the Preconventional level is titled, *The Stage of Individual Instrumental Purpose and Exchange* where morally right actions are based on "…serving one's own or other's needs and making fair deals in terms of concrete exchange" (Kohlberg, 1981, p. 409). In Stage Two of moral development, moral knowing is characterized by acting in obedience with the rules when it serves an individual's immediate interests and allowing others do the same (Kohlberg, 1981). Individuals in Stage Two reason that because others have their own interests which can differ from the individual's own then it is fair to allow them to act in accordance with their interests as well.

As individuals develop to Stage Two, they begin to separate their personal interests and perspectives from other people's interests and perspectives including those of superior authority (Kohlberg, 1981). In Stage Two, morally right actions become relative as individuals understand that the personal interests and perspectives of others will conflict with their own as well as others. The conflicts are resolved through an exchange of services that results in each party gaining the same level of personal satisfaction of their needs (Kohlberg, 1981). Stage Two is not the preferred stage of development for professional baseball players as an exchange between others for the sake of the satisfaction of personal interests forsakes rule obedience.

Rule obedience is a desired characteristic of baseball makeup (Miller G, 2012; Moesche, personal communication, 2004; Scout, personal communication, 2012). The ability to calculate risks, including breaking rules, is a preferred characteristic for professional baseball players (Miller 2012; Moesche, personal communication,2004; Scout, personal communication, 2012) however, calculations that are based in a concrete exchange of personal interest satisfaction is debilitative. According to a former professional scout with

over 10 years of scouting experience, players who are able to evaluate risks and decide to break rules for the betterment of themselves and the team or organization are ideal (Scout, personal communication, 2012a).

In summation, the Preconventional level of moral development focuses moral knowing, feeling, and action on the individual. The motivations for acting in morally right ways are derived from self-interest. Additionally, individuals become aware that others have different interests than the individual and others should be allowed to satisfy those interests despite the rules of superior authority. As a result of the egocentric focus of the Preconventional level of moral development, it is not the ideal level for professional baseball players.

Conventional Level. The Conventional level contains Stage Three and Four, (Kohlberg, 1981). Stage Three is termed *The Stage of Mutual Interpersonal Expectations, Relationships, and Conformity* and contains the concept of moral knowing as being nice and showing concern for other people and their feelings, demonstrating loyalty, and being motivated to follow both rules and expectations (Kohlberg, 1981). Stage Three is the first stage which individuals recognize their self-interests are not as important as maintaining the norms of the social group of which they belong. In Stage Three, moral knowing is focused on having good intentions, showing concern for others, and maintaining relationships through trust, loyalty, respect, and gratitude (Kohlberg, 1981).

Individuals in Stage Three reason that they should do what is morally right because if they were the other, they would want the other to do so for them. In Stage Three of moral development, what is morally right is determined by the individual's recognition of "...shared feelings, agreements, and expectations…" (Kohlberg, 1981, p. 410) of the social world

(Coakley, 2009) in which they reside. Individuals in this stage place shared values of the group above personal interests but do not recognize the general perspective of their social group in comparison to other social groups (Kohlberg, 1981).

Stage Three is distinct as it is the first stage in which an individual considers maintaining relationships through shared values. Shared values are essential in team building. (Wooden & Jamison, 2007), and while Stage Three is not the ideal stage of moral development for professional baseball players, it is the first acceptable stage. The direction of the moral compass of individuals that are concerned for the treatment of others and who are motivated to meet shared expectations is dependent on the shared expectations of the social world (Coakley, 2009; Lumpkin, Stoll, & Beller, 2003; Kohlberg, 1981; Kretchmar, 2005). Therefore, as applied for this study, Stage Three is not the preferred stage of development for professional baseball prospects as their dedication to loyalty determines the relative honor of their actions.

Stage Four of moral development is titled, *The Stage of Social System and Conscience Maintenance* and is characterized by moral actions being defined as those which uphold social norms (Kohlberg, 1981). Individuals in Stage Four feel an obligation to uphold the laws of and contribute to their respective society or social world. In Stage Four the shared values which the individual became aware of in Stage Three become the values (i.e., personal interests) of the individual (Kohlberg, 1981).

The reasons for accepting the social world's shared values as an individual's own include the perception that it is morally correct to uphold the laws of the group as means for the group to continue, the perception that self-respect is determined by meeting the individuals role within the group (Kohlberg, 1981) through *social interaction* (Coakley,

2009), and the perceptions of consequences are determined by considering the effect on the group if everyone in the group were to act in a similar manner (Kohlberg, 1981).

Stage Four is also an acceptable stage of moral development for professional baseball prospects under the assumption that the social world in which they feel obligated to adhere to is the one determined by respective baseball organization which they belong. Obligation to the shared values of the baseball organization allows the organization to continue as designed and overseen by the policies and procedures outlined by the collective administration that is Major League Baseball. The relative values of the social world of the baseball organization may or may not be morally sound and therefore adherence to the shared values of the organization alone may prevent Stage Four from being the ideal stage of moral development for professional baseball prospects.

Transitional Level. The Transitional level is sandwiched between the Conventional and Postconventional levels of moral development. Kohlberg (1981), refers to the Transitional level as Stage 4 ½ and considers it Postconventional. However because the reasoning process of individuals in Stage 4 ½ is not based on moral principles, it is not grouped with Stages Five and Six (Kohlberg, 1981). The transition made from the Conventional level to the Postconventional level is therefore characterized by an individual's ability to separate themselves from the social world of which they belong and make decisions regarding their obligation and duty to respective social conventions but those decisions are not based on specific values or principles (Kohlberg, 1981).

The Transitional level is the preferred level for a professional baseball prospect because it shows that the prospect has the moral development to calculate risk by recognizing moral and/or ethical dilemmas. Individuals with the ability to separate themselves from the

situation and analyze it are arguably better prepared to handle performance anxiety (Burton & Raedeke, 2008; Krane & Williams, 2010; Ravizza, 2010). More importantly, the ability individuals in Stage 4 ½ have to evaluate a social world are seeking rights, values, and principles in which to base their moral actions and therefore determine their character (Kohlberg, 1981). The status of the characteristics of the individual in Stage 4 ½ as autonomous but undirected creates a valuable opportunity for Major League Baseball organizations to affect their values and principles to align with the core values and principles of ideal baseball makeup. Additionally, recent research regarding the neuroscience of moral development indicates a prime window of brain development between the ages of 16 and 22 years old (Gazzaniga, 2005; Tancredi, 2005) which coincides perfectly with the age at which baseball players transition from amateur to professional status.

Postconventional Level. The Postconventional level consists of Stages Five and Six and is characterized by moral knowing based in moral values and principles that are in agreement with or despite the social conventions of relative social worlds (Kohlberg, 1981). Stage Five is titled, *The Stage of Prior Rights and Social Contract or Utility* and contains the concept that it is morally correct to"… uphold the basic rights, values, and legal contracts of a society, even when they conflict with the concrete rules and laws of the group" (Kohlberg, 1981, p. 411). In Stage Five, being aware that others hold a variety of values and opinions, which are relative to the values of the social world in which they belong, and the rules derived from these values should be usually be upheld impartially is considered morally right with the exception of situations which the relative values of the group violate non-relative values such as life and liberty (Kohlberg, 1981).

The reason for considering non-relative values (i.e., moral principles) a priori is regarded as morally correct is that Stage Five individuals have a moral feeling of obligation to protect the non-relative rights of themselves and others regardless of majority opinion (Kohlberg, 1981). Abiding by the agreements or laws of the group is important because they have made a social contract to do so and therefore are required to uphold the majority opinion (i.e., agreed upon laws) assuming the majority opinion is based on the utility of producing the greatest good for the greatest portion of group. Therefore in situations that violate the non-relative values and rights of others, individuals in Stage Five feel obligated to break social contracts to protect the non-relative values of others (Kohlberg, 1981).

The social perspective necessary to reason at Stage Five includes what Kohlberg (1981) terms a "prior-to-society" perspective that a rational individual takes. Prior-to-society suggests that Kohlberg (1981) believes universal moral values exist and should be upheld regardless of the local values of an individual's social world. Therefore, individuals in Stage Five recognize that moral and legal perspectives differ and struggle to integrate them (Kohlberg, 1981).

The struggle is similar to the problems encountered in John Stuart Mill's Utilitarianism (Wilson, 2012). Utilitarianism is a moral philosophy championed by Mill that judges the relative moral worth of an action on the consequences it produces (Wilson, 2012). In utilitarian moral philosophy, Mill argues the motivations for moral action are personal pleasure and pain while recognizing that personal motivations are often in conflict with moral obligations, Mill argues that as a result of our natural human condition, we must (i.e., ought) seek pleasure (Wilson, 2012). Therefore utilitarianism is a teleological moral theory that determines morally right actions based on the nonmoral value they produce and

Kohlberg's (1981) stages of moral development imply a deontological theory which judges the moral worth of an action in the moral values which support it (Frankena, 1973). In other words, Mill (Wilson, 2012) regards people as means to a moral end while Kohlberg (1981) regards people as moral ends.

Stage Five is an appropriate stage for professional baseball players and likely the highest stage baseball players should be expected to reach. Despite the notion that baseball players should aspire to develop to Stage Six, even Kohlberg (1981) suggests that few people reach the final stage of moral development. Development to Stage Five allows a baseball player to acquire the appropriate perspective and reasoning skills to display moral character, shows the appropriate motivation to do so, and suggests the preferred achievement belief necessary for personal and professional growth.

Stage Six is titled *The Stage of Universal Principles* and assumes guidance of all universal ethical principles which all humanity should follow (Kohlberg, 1981). The ultimate stage of moral development, Stage Six defines morally correct action as actions guided by universal moral principles, namely justice, human rights, and respect of human dignity. The perspective necessary to display the characteristics of Stage Six is to always recognize moral principles and accept them as valid (Kohlberg, 1981). The inherent difficulty of doing so is clearly inhibitory to success in professional sport in America. It is foreseeable for individuals displaying the characteristics of Stage Six to encounter tremendous difficulty participating in an activity that is wholly based in social contracts and nonmoral values.

Moral Reasoning

Moral reasoning is the process of making rational decisions regarding ethics (Fox & DeMarco, 2001). As per the previous discussion regarding the difference between morality

and ethics, moral reasoning is a process employed to develop ethics, or what Fox and DeMarco (2001) refer to as applied ethics. Moral reasoning is an application of normative ethics, which is the branch of ethics that uses language and reasoning to make moral judgments regarding social interactions (Fox & DeMarco, 2001). The pragmatic application of ethics fits the social world of baseball as players are judged in a teleological sense as opposed to a deontological one (Miller, 2012; Moesche, personal communication, 2004; Lewis, 2004; Pleskoff, 2012; Scout, personal communication, 2012). In other words, baseball prospects are evaluated in a largely subjective manner based on what they do, not why they did it.

Fox and DeMarco (2001) suggest that everyone knows something about moral reasoning and engage in moral reasoning whenever a behavior is judged. Aptitude in moral reasoning is therefore a measure of moral character. If character is the outward demeanor of an individual as judged by another (Lumpkin, Stoll, & Beller, 2003), of the attributes that distinguish the individual (character, 2012), regarding the perceptual mean between a virtue and its vice (Aristotle, 2001), then the ability to reason morally is certainly an acceptable measure of moral character.

Moral reasoning is especially important in the development of baseball makeup. The onslaught of nonmoral values (Frankena, 1973) which accompany a professional baseball prospect after being selected in the First Year Amateur Draft (Lewis, 2004; Miller, 2012) requires that the prospect be prepared to separate themselves from their social world (i.e., Stage 4 ½) in order to make reasoned decisions regarding their future. Moral reasoning involves the ability to understand the relationship between moral and nonmoral values regarding decision making and behavior (Fox & DeMarco, 2001; Lumpkin, Stoll, & Beller,

2003) an important aspect of baseball makeup (Lewis, 2004; Miller. 2012; Scout, personal communication, 2012). Once such understandings are developed, individuals become increasingly aware of moral and/or ethical dilemmas and therefore are more capable of making informed decisions that could have a significant impact on their baseball career, life, or often, both (Lumpkin, Stoll, & Beller, 2012).

Calculated risk taking is an important aspect of baseball makeup (Bowden, 2011; Boyd, 1998; Lewis, 2004; Miller, 2012; Moesche, personal communication, 2004; Scout, personal communication, 2012). Therefore, assessing moral knowledge, and therefore moral reasoning ability, of a professional baseball prospect is imperative to assessing baseball makeup. The Defining Issues Test (DIT) was developed by James Rest at the University of Minnesota (Rest, DIT Manual and Test, 1988) and is considered a neo-Kohlbergian approach to measuring moral development. While Kohlberg's theory is based on justice and influenced by Kant's (1983) categorical imperative and Rawl's theory of justice (Rawls, 1971), the DIT allows for consideration of other morals values such as beneficence (i.e., do no harm, prevent harm, remove harm, do good). Rest suggests that morality is more than the development of moral reasoning (Weiss, Smith, & Stuntz, 2008).

Narvaez and Rest (1995) outline a model of morality with four components. The first of which is termed moral sensitivity. To be morally sensitive, one must be aware that their actions affect others (i.e., Kohlberg's stage two) requiring empathy and role-taking. The second component is moral judgment, the ability to decide between morally right and wrong actions (i.e., Kohlberg's stage three). The third component is moral motivation in which an individual must decide between competing values (i.e., moral reasoning and Kohlberg's stage 4). The fourth component is moral character and involves the individual processes that

determine a moral plan of action considering the moral and nonmoral values presented in respective situations. Although the components are presented in a hierarchical fashion, they interact and influence each other as a failure to act morally could be the result of a lack of moral sympathy, judgment, and/or motivation (Weiss, Smith, & Stuntz, 2008).

The complexity of moral reasoning is apparent and therefore instrumentation to assess moral reasoning is also generally complex. For the purposes of this study the HBVCI-16 was chosen to assess the sample population's moral knowledge. The DIT was considered for use because of its statistical power however because of its complexity and the electronic administration of the assessment, it is not feasible. Therefore the HBVCI-16 was chosen as it has consistently and extensively used in athletic populations and is much more practical for administration considering the sample population and the method of administration. Additionally deontic theory states individuals use several moral principles when making moral decisions and therefore an instrument designed with a deontic framework will simplify the process to capture a present state of moral knowledge.

The HBVCI-16 focuses on measuring moral knowing using deontology as a conceptual framework (Beller & Stoll, 2004). Deontology is an ethical theory which evaluates morality based on a concept of universal values[2] as opposed to the relative values (i.e., moral and nonmoral) in which the consequences of action produce (Frankena, 1973; Fox & DeMarco, 2001). The inventory is not psychometrically designed to assess individual reasoning processes for justice, honesty, or responsible moral action but to characterize how particular groups, in this case professional baseball prospects, morally reason and make cognitive judgments regarding moral issues in sport (Beller & Stoll, 2004). According to

[2] "Universal" principles refers to moral principles established in the Judeo-Christian western tradition. Future studies should consider similar research to include various cultural differences across baseball specific populations, particularly in Latin America and Asia.

Lickona (1992) moral knowing is the cognitive phase of learning about and resolving moral issues. Kohlberg (1981) suggests that the relationship between moral knowing, judgment, and action is moderate at best. Therefore, a measurement of moral knowing is a reasonable choice for understanding the moral perceptions of a particular group.

The HBVCI-16 was designed as an instructional tool to measure moral growth in an educational setting (Beller & Stoll, 2004). Factor analysis revealed no clear factors, and therefore, as deontic theory states moral decisions includes reasoning using multiple moral principles, it is considered a single factor instrument and will not likely produce acceptable fit indexes when analyzed with confirmatory factor analysis (CFA). However deontic moral theory is a suitable choice to meet the purposes of this study as general moral knowledge meets the needs of the current study and specific moral values used within sport are, at this point, not as important.

Regarding ideal baseball character (Lewis, 2004; Miller, 2012; Moesche, personal communication, 2004; Scout, personal communication, 2012), moral development, and therefore moral reasoning, is an important facet to consider. As discussed, moral character is an accumulation skills and traits that allow an individual to make decisions regarding right and wrong actions in relation to their social world, and ideally (i.e., Kohlberg's stage five and six) humanity as a whole. Identifying and cultivating moral reasoning skills in professional baseball prospects is therefore an important measure for MLB organizations to consider when selecting and developing prospects.

However elite athletes have a unique set of characteristics (Gould, Dieffenbach, & Moffett, 2002) which is not exclusive to moral character. Therefore, any inventory of ideal baseball makeup should consider other characteristics which elite athletes have been shown

to share (Connaughton, Wadey, Hanton, & Jones, 2008; Gould, Dieffenbach, & Moffett, 2002; Jones, Hanton, & Connaughton, 2002).

Motivation

According to Roberts (2012), the general concept of motivation is vague and inconsistent in the literature despite the common acceptance and overuse of the term regarding various aspects of human behavior. Roberts (2012) cites Horn's (2008) latest and well-accepted sport psychology text as an example. Horn's (2008) *Advances in Sport Psychology* contains three chapters concerning motivation and while Roberts (2012) claims "…each is fine as it stands" he also comments that there is little cross-referencing between the three chapters. Roberts (2012) also states that Ford (1992) suggests there are over 32 different theories of motivation each with "…their own definitions of motivation". Considering the differences, Roberts (2012) asserts the importance of gathering common assumptions from contemporary theorists to construct a framework of motivation.

The primary assumption in modern motivational theory is that motivation is a process rather than an entity (Roberts, 2012). Duda and Treasure (2010) claim that motivation is dependent upon both malleable, psycho-logical tendencies of athletes and aspects of their social environments. Specifically, motivation of athletes is a function of the ways in which respective athletes interpret their sport experiences (Duda & Treasure, 2010). Therefore, as per Duda and Treasure (2010), motivation differs among respective athletes based on their unique perspective of sport as interpreted by their respective dispositional traits. Weiss and Amorose (2008) agree, stating that motivational theories share an interactionist approach. Motivation should be understood as the interaction between an athlete's respective social-contextual factors and the individual differences between each athlete's disposition (Weiss &

Amorose, 2008). Harwood, Spray, and Keegan (2008) also lament the fact that researchers have been unable to identify an operational definition of motivation and provide an interactionist concept of their own based on intrapersonal and environmental influences.

The other commonality in the core of the motivation literature is despite not having an agreed upon operational definition for motivation, there is a general consensus regarding the concept of motivation. Roberts (2012) cites Maehr and Zusho's (2009) review of achievement goal theories to find a typical definition of motivation. Maehr and Zusho (2009) found that motivation is typically defined as a process that influences the initiation, direction, magnitude, perseverance, continuation, and quality of goal directed behavior. Duda and Treasure (2010) refer to behavioral patterns that suggest motivation is a combination of engagement and enjoyment in an activity. Weiss and Amorose (2008) suggest the concept of motivation can be most easily understood as the "because" answers to "why" questions. Weiss and Amorose (2008) suggest operant conditioning principles (Cooper, Heron, & Heward, 2007) of antecedents (i.e., what or who influences variations in behavior) and consequences (i.e., physical, psychological, and/or social benefits or costs) are implied in both the "why" question and "because" answer (Roberts, 2012; Weiss & Amorose, 2008). Harwood, et al., (2008) outline their concept of motivation through various achievement goal theories. According to Harwood, Spray, and Keegan (2008) achievement goals represent the meaning which individuals assign to situations through a process of cognitive structures that organize their definitions of success, failure, and motivation which influence their affective reactions, and produce subsequent motivated behaviors.

A common strategy for addressing the lack of an operational definition for motivation is to address the common components found in the literature. If motivation is generally

defined as a function of the interaction dependent upon personal differences and social environment stimuli as discussed above, then discovering the interpersonal differences of professional baseball prospects will serve to help understand the various manners in which they interpret the social environment of collegiate and professional baseball.

Achievement Goal Theory

Significant literature has been provided regarding the specific characteristics responsible for individual differences regarding motivation styles and achievement orientations (Bandura & Dweck, 1985; Duda & Treasure, 2010; Dweck 2000; Dweck & Legget, 1988; Dweck, Chiu, & Hong, 1995; Elliott & Dweck, 1988; Grant & Dweck, 2003; Gillham, Gillham, & Burton, 2012; Horn, 2008; Maehr & Zusho, 2009; Roberts, 2012; Weiss & Amorose, 2008; Weiss, Smith, & Stuntz, 2008; Williams., 2010). These studies provide information valuable to understanding the influences regarding the initiation, direction, magnitude, perseverance, continuation, and quality of goal directed behavior (Maehr & Zusho, 2009) of athletes in achievement settings, such as professional baseball.

The most popular theories in motivation research regarding sport psychology are those with a social-cognitive approach, and the most popular specific approach is achievement goal theory (Roberts, 2012). Social-cognitive theories assume that humans are active participants in decision making and planning achievement (Roberts, 2012). Achievement goal theory argues people give meaning to their achievement behavior with goals that reflect the purposes of their behavior. Therefore for the motivation of an individual to be understood, the function and meaning of their achievement behavior needs to be considered and the goal of their action understood (Roberts, 2012).

According to Nicholls (1984), the development or demonstration of competence is the energizing construct of the motivational processes of achievement goal theory. Nicholls (1984) recognized a person's internal sense of ability significantly influenced motivation to achieve and thought ability was perceived in two different constructs, which subsequently create development or demonstration of competence (Harwood, Spray, & Keegan, 2008). Constructs were referred to as "states of involvement" and considered to be orthogonal and situational. However, Nicholls (1984) recognized individuals develop a tendency to choose the same state as a result of a specific socialization process in achievement domains.

The task state of involvement defines success as personal mastery of a skill, task, or strategy in which the individual experiences a sense of accomplishment from developing personal milestones (i.e., self-referenced measures) and skill mastery (Harwood, et al., 2008; Nicholls, 1984). Nicholls (1984) believed individuals would choose this state of involvement in situations in which displays of mastery indicate level of ability. The ego state of involvement defines success via social comparisons (i.e., normative measures) of effort expenditure to achieve similar goals (Harwood, Spray, & Keegan, 2008; Nicholls, 1984). Nicholls (1984) believed individuals would choose this state of involvement in achievement situations which displays of mastery (i.e., development) were not enough to demonstrate ability. Both task and ego states of involvement were considered latent and situational as individuals would select a state of involvement based on an achievement goal determined by individual situation. However, Nicholls (1984) believed as children move through a socialization process (Coakley, 2009; D'Andrade, 2008; Putnam, 2000; Sage & Eitzen, 2012; Swanson, 2009) they gradually begin to separate the concepts of ability, effort, task difficulty and luck (Harwood, et al., 2008).

According to Nicholls (1984), between the ages of five and seven years of age (i.e., about the same age most American children become involved in organized sport) children are unable to perceive any difference between ability and effort or ability and task difficulty. Therefore effort is positively correlated with ability as children define difficult tasks as those requiring significant effort and are arguably in the purest state of task involvement Harwood et al., 2008). Children at this age are referred to as having an "undifferentiated concept of ability" as they are unable to choose an ego state of involvement (Nicholls, 1984).

As children continue through the socialization process they begin to differentiate the concepts of effort, ability, and task difficulty and become capable of choosing an ego state of involvement (Harwood, et al., 2008). At this age, generally about 11 or 12 years old, ability is seen as a capacity and therefore effort and ability become inversely related as their concept of ability limits what their effort can achieve (Harwood, et al., 2008). Difficult tasks are now defined as goals only few can accomplish and their normative measures of ability oppose perceived levels of effort to determine their odds of successfully accomplishing the situational task. As levels of effort expenditure are no longer perceived as accomplishment, Nicholls (1984) referred to them as now having a "differentiated concept of ability" as they are now situationally assessing their odds of success using both self-referencing and normative measures to estimate the level of effort needed to accomplish a given task. In other words, they are now using an interactionist approach to estimate odds of success which affects their motivation to develop skills, avoid displaying incompetence, or displaying competence via self or normative referencing measurements.

Nicholls (1984) describes states of involvement as the foundation of goal orientations. Goal orientations refer to the tendency of an individual to choose a task or ego state of

involvement which is largely determined through the socialization process experienced as children. Therefore individuals with a task orientation perceive education and sport (i.e., achievement settings) as opportunities for growth and mastery and use self-referencing measures to define success as working hard to learn, develop teamwork, and improve personal skill mastery (Harwood, et al., 2008). Conversely, individuals with an ego orientation perceive achievement settings as opportunities to gain or lose social status, display superiority, and generate wealth and use normative measures to define success as outperforming others regardless of personal growth (Harwood, et al., 2008). Goal orientations are considered more dispositional than situational. However, individuals would still be likely to choose an orientation based on situational factors (Harwood et al, 2008; Nicholls, 1984; Roberts, 2012).

Generally, Nicholls (1984) described task and ego goal orientations as orthogonal indicating four different relationships could occur based on the social implications of the achievement domain. In other words, the same individual can have different orientations dependent upon the global setting (i.e., education or sport; competitive, non-competitive) they were experiencing. In terms of profiling task and ego goal orientations, the task orientation is perceived as facilitative in most achievement domains as individuals will have lower competitive anxiety and increase problem solving and problem focused coping strategies (i.e., increasing effort) and adaptive emotion focused coping (i.e., social support) in response to stress (Harwood et al., 2008). Conversely, ego orientation is profiled by higher levels of competitive anxiety, increased cognitive disruption and interference (i.e., focused on normative referencing opposed to new skill adaptation), and maladaptive emotion focused coping (i.e., blaming others, escape, and avoidance) and problem focused coping (i.e.,

cheating) however simple profiles are not adequate to explain motivational behavior (Harwood et al., 2008).

In competitive situations, an ego orientation would be preferable as winning is an important social value. However high ego and low task orientation would not be ideal as encountering adversity is common in achievement domains therefore an argument for high ego and task orientation can be made for competitive situations as individuals perceiving social comparisons as benchmarks of success will need to embrace some self-referencing measures in order to respond to adversity in a manner which will allow positive social comparisons (i.e., winning). According to Harwood et al, (2008), Nicholls never tested these relationships and little is known regarding specific antecedents regarding goal orientations. Recent research has indicated goal orientations can shift within contests such as an elite tennis player having an ego orientation while in service and a task orientation when receiving (Smith & Harwood, 2001).

Self-Theories

Dweck and colleagues (2000) have completed extensive research regarding how people develop beliefs that help them organize their world and provide meaning to their respective experiences (Dweck, 2000). The focus of her work was to discover the antecedents of specific responses to failure in achievement settings. Cited extensively in the sport psychology achievement goal theory literature (see Harwood et al., 2008), her primary research site has been educational settings and her insights regarding how individuals' self-beliefs create different psychological worlds which lead them to think, feel, and act differently than others under similar circumstances is of primary interest here. The process of ascending through the minor league system is dependent on development (Lewis, 2004;

Miller, 2012) and therefore established theories regarding individual beliefs pertaining to abilities to learn and develop new skills and responses to failure is of interest.

Two self-theories have been identified (i.e., entity and incremental) which include corresponding and respective patterns of responses to failure (i.e., helpless and mastery). While Dweck (2000) and Nicholls (1984) theories are similar, it is important to explicitly identify these theories for the purpose of advancing Nicholls' (1984) orientations through establishing antecedents for responses to failure and to aid novices in the field of sport psychology (i.e., professional baseball scouts) in identifying professional baseball prospects baseball makeup. Additionally, explicitly assessing the aspects of entity and incremental self-theories (Dweck, 2000) will aid the interpretation of results of the current study and to a lesser extent, professional baseball scouts evaluating implicit differences between the more complex motivational styles.

Dweck (2000) prefaces her descriptions of entity and incremental self-theories by addressing four common beliefs in society. Each are measured in the CNAAQ-2 and implied in the motivational styles represented in the CSMQ. Exploring these four beliefs further present the need for including Dweck's (2000) basic measures of self-theories when assessing baseball makeup. First, people assume individuals demonstrating high ability are inherently more likely to display mastery orientated qualities. The importance of addressing this misconception is using subjective assessments, professional scouts may not realize prospects who demonstrate high ability have also experienced high anxiety and could helplessly respond when facing failure (Dweck, 2000). Second, success does not necessarily foster mastery oriented responses as success does little to reinforce a desire for challenge or constructive coping regarding setbacks (Dweck, 2000), reinforcing the need to understand

the antecedents responsible for eliciting specific responses. Third, the role of feedback is dependent upon the timing and type of feedback, praise focused on performance outcomes (i.e., normative referencing) or global ability assessments (i.e., intelligence, athleticism) for the purpose of developing confidence are counterproductive and can reinforce entity beliefs (Dweck, 2000). Finally, displays of confidence do not always indicate mastery orientation (Dweck, 2000). Similar to ego orientations, Dweck (2000) has found individuals who appear to be the most confident because they can compare well socially and challenging their performance alters the achievement domain. Understanding how these common beliefs can be misleading, especially when identified through subjective processes (i.e., MLB evaluations) supports the development of an objective instrument to measure baseball makeup and the inclusion of Dweck's (2000) theories as part of the conceptual framework of makeup.

Entity theorists. Individuals who believe their ability and potential is a fixed, inherent trait are said to be entity theorists (Dweck, 2000). In other words, entity theorists believe their ability and potential is mostly unchangeable. Therefore increasing effort and employing new problem solving strategies are ineffective approaches to overcome adversity, and helpless responses to failure and adversity are reinforced (Dweck, 2000). The belief is conceptually considered debilitative to development as entity theorists are forced to focus on maintaining social perceptions of competence at all costs and resist skill and strategy adjustments (Dweck, 2000). Therefore, entity theorists generally seek tasks in which they can favorably compare to their peers in order to protect their self-esteem and social standing, including situations in which they may have previously demonstrated competence if they feel that repeating a respective performance will create poor social comparisons (Dweck, 2000).

Biddle et al. (2003) developed the CNAAQ-2 to examine the components of self-theories in an athletic context and included two subscales to measure entity beliefs and two to measure incremental beliefs. Each of the subscales is more situational (i.e., goal orientation) than the conceptually dispositional entity or incremental beliefs. The gift subscale suggests one source of entity beliefs is a perception that athletic abilities are attributed to genetic or "natural" causes (Biddle et al., 2003). Gift beliefs can be facilitative in achievement domains (i.e. similar to ego orientations) where normative referencing social comparisons are deemed important and an individual has no reason to believe their natural "talent" cannot compare well (Biddle et al, 2003; Dweck, 2000). Gift beliefs can conversely be debilitative regarding performance when individuals encounter others with more comparable abilities, eliciting a helpless response (Dweck, 2000). The stable subscale suggests individuals perceive their abilities as relatively unchangeable (Biddle, et al., 2003). Stable beliefs do not seem to be as dynamic as gift beliefs, however they will mostly be debilitative regarding development and only debilitative to performance when gift beliefs are challenged (Biddle et al., 2003; Dweck, 2000).

Dweck and colleagues (2000) identified a specific set of responses entity theorists have in common when encountering challenge and failure. The helpless orientation (Dweck, 2000) is characterized by blaming their fixed intelligence, lowered performance expectations, negative emotions, decreased persistence, and deteriorating performances. According to Dweck (2000), the first of these characteristics to be displayed is the blaming of intelligence despite proving their ability only moments before encountering challenge and failure. Entity theorists are so discouraged by their difficulties they often shrink their successes and exaggerate their failures, signifying the meaning they have for failure (Dweck, 2000). Entity

theorists are also quick to lower their performance expectations after encountering failure, losing faith in their ability to perform tasks in which they were previously successful (Dweck, 2000). Entity theorists also call attention to their successes in other realms and offer irrational excuses for their decreased performances (i.e., claiming they are suddenly bored) despite previous positive social comparisons (Dweck, 2000). In her research in the classroom, Dweck (2000) found the entity theorists reverting back to ineffective strategies, immediately quitting, and developing depressed and anxious moods, all signifying the helpless response as a maladaptive (Dweck, 2000).

Incremental theorists. In contrast, incremental theorists believe their potential is indefinite and can be changed with effort (Dweck, 2000). In her work intended for popular consumption, Dweck (2006) refers to the incremental theory as the "growth mindset". The term growth is meant to reflect the incremental theorists' belief that through increasing effort, learning new skills and strategies, and seeking challenges they can increase their abilities and overcome difficult tasks (Dweck, 2000). The effects of subscribing to this theory are a willingness to sacrifice opportunities for positive social comparison to learn something new, thriving on challenges, and exerting effort as means to master something new, even in situations that foster low confidence levels (Dweck, 2000).

Biddle et al. (2003) developed the learning and improvement subscales to examine the components incremental beliefs. The learning subscale suggests one source of incremental beliefs is a perception that athletic ability can be attributed to a systematic process of gaining new skills and strategies (Biddle et al., 2003; Dweck, 2000). Learning beliefs are conceptually considered facilitative to development (i.e., task orientation) but can be considered debilitative to performance in competitive situations which require an

individual to perform a familiar, but not ideal, skill in order to win or outperform others. The improvement subscale suggests individuals perceive their abilities as dynamic. Incremental theorists perceive their abilities as a product of deliberate and consistent learning as means of increasing performance (Biddle et al., 2003; Dweck, 2000).

While entity theorists display a helpless response to adversity and failure, the incremental theorists also demonstrate a unique set of characteristics in response to adversity and failure (Dweck, 2000). The mastery orientation is primarily displayed by an apparent lack of consideration for failure as individuals demonstrating mastery orientation do not seem to acknowledge failure (Dweck, 2000). In situations which prompt entity theorists to blame their ability, avoid challenge, and provide excuses, incremental theorists become excited for the opportunity to gain a new skill (Dweck, 2000). According to Dweck (2000), incremental theorists consistently demonstrate positive self-talk and perform some type of self-instruction or monitoring to increase their effort and were consistently more successful than entity theorists.

A basic understanding of the central self-theories people hold regarding their ability is important to counter common societal beliefs regarding the relationship between social comparison (i.e., outperforming others) and the underlying characteristics that may or may not be associated with successful performance (Dweck, 2000). Assumptions regarding the connection between performance and motivation can be misleading and create common misconceptions developed through traditional subjective assessments, especially those employed by professional baseball scouts (Dweck, 2000; Lewis, 2004). Additionally, the research conducted by Dweck and colleagues (2000) may provide a conceptual framework for the potential development of a systematic curriculum to develop baseball makeup.

Self-theories of athletic ability. Biddle, Wang, Chatzisarantis, and Spray (2003) have validated an instrument using Dweck's (2000) research as a conceptual framework. The Conceptions of the Nature of Athletic Ability Questionnaire – 2 (CNAAQ-2) is a 12-item renovation of the original Conceptions of the Nature of Athletic Ability Questionnaire (CNAAQ) reported by (Sarrazin et al., 1996). The CNAAQ-2 uses a five-point Likert type scale which respondents indicate their level of agreement (i.e., 1 strongly disagree to 5 strongly agree) to indicate their self-theories regarding athletic ability. Four subscales were revealed representing antecedents of entity and incremental beliefs. The two subscales associated with entity beliefs were labeled as "stable" and "gift" (i.e., three items each), whereas the two subscales associated with incremental beliefs were labeled as "learning" and "improvement" (i.e., three items each). These subscales were then tested and successfully linked to ego and task involvement (Nicholls, 1984) respectively (Biddle, et al., 2003). Further testing revealed a link between entity beliefs (i.e., stable and gift) with amotivation and incremental beliefs (i.e., learning and improvement) with enjoyment (Biddle, et al., 2003).

Motivational Styles

Arguably, professional baseball prospects share a similar goal of progressing through the minor league system and playing at the major league level (Lewis, 2004; Miller, 2012). Intuitively, in terms of selecting professional baseball prospects, maintaining a high task orientation would be preferred, however as these goal orientations are not mutually exclusive and MLB is a for profit entertainment industry, a goal of outperforming others is an important state to consider. According to the Baseball Almanac (2012), since the inception of the First Year Player Draft in 1965, only twenty one players have been drafted and advanced

directly to a major league roster. Therefore the ideal baseball prospect would be high task and ego oriented, a good prospect would likely be high task and moderate ego oriented, and high ego and low task oriented would most likely to demonstrate maladaptive motivation responses (Roberts, 2012).

Because of the situational aspect of baseball, a more complex concept of achievement goal orientations is necessary to make thorough evaluations. Implicit theories advance goal orientations in terms of dispositional characteristics and antecedents for motivation yet provide only two categories for profiling the complex nature of motivation. Therefore, it is important to advance the dispositional nature of motivation classification and use antecedents as factors to differentiate between more complex motivational styles. States of involvement are highly situational, goal orientations are more dispositional, and implicit beliefs are even more dispositional, with motivational styles considered the most dispositional motivational construct. As previously discussed, as the aspects of motivation are projected dispositionally, the complexity of the situational interactions also increases. Therefore the purposed theory of baseball makeup will need to be primarily described using motivational styles. Therefore, implicit theories, resiliency, and moral reasoning will need to be employed to differentiate between the various styles.

Gillham, Gillham, and Burton (2012) have conducted several studies to propose a model that expands on achievement goal theory. Gillham et al. (2012) include four motivational styles that operate in a similar manner as task and ego involvement and entity and incremental beliefs yet maintain specific differences in the behaviors exhibited in each of the four proposed orientations. The specifications allow for a more detailed motivational profile which should serve the identification of ideal baseball make up well.

Developmental focused. Developmental focused athletes are most closely related to Nicholls (1984) task goal orientation and demonstrate mastery style responses to learning and failure (Dweck, 2000, Elliot, 1999). Athletes who are developmentally-focused seem to have the strongest intrinsic motivation (Deci & Ryan, 1985) and fit the Burton and Weiss' (2008) performance oriented style. Developmentally-focused athletes enjoy competition, consistently demonstrate high effort, seek tasks that are high in difficulty and demonstrate persistence in response to failure (Gillham, et al., 2012). Athletes with this motivation style perceive challenges as opportunities to learn and develop, suggesting that these athletes are incremental theorists (Dweck, 2000). When developmentally focused athletes encounter failure they respond by employing different problem solving strategies, increased effort and focus, and maintaining high persistence and motivation (Burton & Weiss, 2008; Dweck, 2000; Elliot, 1999; Gillham, et al., 2012). As a result, developmentally-focused athletes perceive competence to be largely irrelevant as their attributions for failure are centered on controllable aspects of their performance such as effort and problem solving (Gillham, et al., 2012). Therefore, developmentally focused athletes highest priority goals are learning and improvement.

As suggested previously, task and mastery orientations are preferable characteristics for athletes in competitive environments. Professional baseball prospects identifying with these characteristics should be more successful as professionals in terms of makeup. The importance of focusing on learning and improvement regarding anxiety control and intelligence (Bowden, 2011; Miller, 2012; Moesche, personal communication, 2004; Scout, personal communication, 2012), are key aspects of performance, and the ideal professional

baseball prospect should be highly competitive and possess inclinations directed towards consistent effort output and improvement.

Win fixated. Athletes with a win-fixated motivational style generally focus on demonstrating high levels of competence and ego orientation (Gillham, et al., 2012). Win-fixated athletes are closely related to Elliot's (1999) and Dweck's (2000) performance orientations as well as Burton and Weiss' (2008) success orientation. While development-focused athletes believe their abilities are not innate characteristics and can be developed through effort, new strategies and problem-solving, win-fixated athletes believe the source of their abilities is primarily fixed traits and/or innate talent (i.e., entity beliefs), enhanced by learning and improvement (Gillham, et al., 2012). In other words, win-fixated athletes are primarily motivated to win (i.e., socially compare), and when in situations which threaten their competence, they will exert minimum levels of effort in order to win.

The blending of task and ego goal orientation matches Sarrazin and colleagues (1996) model and contradicts Dweck's (2000) model. Sarrazin and colleagues (1996) demonstrated that Dweck and colleagues (see: Dweck & Elliott, 1983; Dweck & Legget, 1988) hypothesis, which predicts performance orientated individuals would hold capacity beliefs, did not directly correlate with beliefs regarding sport ability. Sarrazin and colleagues (1996) hypothesis is that task and ego goal orientations switch dependent upon the importance of social comparison in the situation. Therefore, in relation to Elliott's (1999) and Dweck's (2000) mastery orientations, win-fixated athletes determine their task and ego goal orientation dependent on their respective probabilities of winning (Gillham et al., 2012).

According to Gillham et al., (2012), win-fixated athletes' primary goal is to win and compare well socially. As a result, they are primarily ego orientated; however they still

employ task involvement strategies to improve their chances of winning (Gillham et al., 2012). Because win-fixated athletes select task involvement strategies only when their ability to win is threatened (i.e., gift beliefs), their effort output is dependent upon competition (Gillham et al., 2012), which suggests that win fixation may not be the ideal motivational style for professional baseball prospects. Win-fixated professional baseball prospects should still be expected to be successful in terms of makeup but perhaps not as successful as developmental focused prospects. Competitive drive is an important aspect of baseball make up (Bowden, 2011; Lewis, 2004; Miller, 2012; Moesche, personal communication, 2004; Scout, personal communication, 2012), however, due to the varied responses to failure consistent with this motivational style it may not be considered ideal.

Doubt orientated. Athletes demonstrating doubt orientation are often star athletes and students who have previously maximized their potential and have perfectionistic characteristics (Gillham et al., 2012). As a result, these athletes experience high levels of anxiety stemming from their moderate levels of competence coupled with their tendency to focus on social comparison (i.e., others perceiving them as incompetent, social image) as determinants of success (Gillham et al., 2012). Therefore, they exhibit ego goal orientations and entity beliefs and prefer tasks that are unchallenging that will not prompt mistakes.

Doubt-orientated athletes are likely to demonstrate high levels of unfocused effort and only display task state of involvement strategies as means to avoid acknowledgement of their declining abilities (Gillham et al., 2012). These characteristics are similar to Elliot and Thrash's (2001) mastery avoidance style which is characterized by personal performance goal setting (i.e., maintaining personal performances), pessimistic achievement outlook, and anxiety.

Professional baseball prospects who identify as doubt-orientated may not possess ideal baseball makeup characteristics. Despite their tendency to be primarily ego oriented and entity theorists but use task involvement strategies, the temporal relationship regarding their use of task involvement strategies combined with their general avoidance of situations which induce mistakes prevents them from maintaining constructive effort output, particularly when challenged. However, as the doubt-oriented motivational style is prevalent in star athletes (Elliott & Thrash, 2001; Gillham et al., 2012), doubt orientation may easily be confused with win-fixated orientations when using the traditional subjective assessments of scouts (Boyd, 1998; Pleskoff, 2012). The possibility of confusion supports the development of a baseball specific instrument to objectively identify the motivational styles of prospects. Additionally, as prospects, doubt-orientated athletes should not be excluded from further consideration in the scouting process as most of the determining factors of the doubt orientation have been shown to be unstable (i.e., changeable) with proper feedback and education (Dweck, 2000).

Failure evader. The final motivational style presented by Gillham et al. (2012) is the failure-evader. As per Nicholls (1984), the failure-evader style consists of high ego and low task goal orientations, which as previously discussed, was the least desired combination. As a result they tend to lose frequently causing them to define success in terms of avoiding failure and not being perceived as incompetent (Burton & Weiss, 2008; Elliott, 1999; Dweck, 2000). Therefore they are most similar to Burton and Weiss' (2008) failure-oriented, Elliott's (1999) performance-avoidance, and Dweck's (2000) learned helplessness styles. Failure-evaders expend high effort outputs to avoid failure through seeking easy tasks and producing excuses for being unable to perform (Gillham et al., 2012).

In contrast, failure-evaders choose tasks in which they have previously demonstrated competence to maintain social perceptions of competence (Elliott, 1999; Dweck, 2000; Gillham, et al., 2012). Because they believe their abilities are innate, stable traits that cannot be changed, they avoid competition by changing tasks or withdrawing effort (Elliott, 1999; Dweck, 2000; Gillham, et al., 2012). Additionally, failure-evaders resist goal setting as goals establish standards which are beyond their perceived abilities. Failure-evaders believe this attracts attention to their lack of competence and triggers anxiety, which is relived with preemptive excuse making (Burton & Weiss, 2008).

The failure-evader motivational style is likely the least preferred style for professional baseball prospects. Highlighted by competition avoidance and a lack of willingness to persist in the face of adversity, failure avoiders do not demonstrate the ideal characteristics of baseball makeup (Bowden, 2011; Boyd, 1998; Lewis, 2004; Miller, 2012; Moesche, personal communication, 2004; Scout, personal communication, 2012) and should be graded accordingly. The importance of developing an objective baseball makeup assessment tool is again highlighted as identifying the characteristics of failure-evader is difficult with traditional, subjective assessments. Subjective assessments are problematic when identifying motivational styles in professional baseball prospects as failure evaders may show aptitude at levels promoting favorable social comparisons (Sarrazin et al., 1996) in situations (i.e., high school and/or college baseball settings) in which they have previously demonstrated competence (Burton & Weiss, 2008; Dweck, 2000; Gillham et al., 2012)

Motivation is one of the most important determining factors in athletic success (Horn, 2008; Williams, 2010; Jones, Hanton, & Connaughton, 2002). It is also one of the most misunderstood concepts in the sport psychology literature (Roberts, 2012) and overused

terms in sport (Duda & Treasure, 2010). As a result, MLB scouts have been dependent on subjective assessments of baseball makeup based on their respective experiences in player development (Boyd, 1998; Moesche, personal communication, 2004; Scout, personal communication, 2012a) Therefore a sound psychometric instrument which identifies motivational orientations is needed to strengthen professional baseball prospect evaluations and aid in prospect development.

Competitive Motivational Styles Questionnaire (CSMQ). The CMSQ (Gillham,et al., 2012) is a statistically validated and reliable tool to pragmatically identify the previously discussed motivational styles of athletes. The CSMQ consists of 20 items which factor into four dimensions to identify the respective motivational styles. Eight characteristics (i.e., effort expenditure, goal priority, response to failure, task involvement, definitions of success and failure, perceived ability, competitive outlook, and social focus) which are commonly discussed as variables of baseball makeup (Moesche, personal communication, 2004; Scout, personal communication, 2012a) were employed to identify the four dimensions (Gillham et al., 2012). The systematic development of the CSMQ advances the conceptual framework of several other achievement goal theory instruments and consistently shows acceptable correlations (Gillham et al., 2012). The CSMQ is easy to read and understand (i.e., 3.7 Flesh-Kincaid grade level) and provides significant and objective insight on the motivational styles of professional baseball prospects (Gillham et al., 2012).

Mental Toughness

Mental toughness is one of the most used and misunderstood terms in sport today (Jones, Hanton, & Connaughton, 2002), and the literature focused on its study is equivocal. Several attempts to define mental toughness have been made (Bull, Shambrook, James, &

Brooks, 2005; Clough, Earle, & Sewell, 2002; Gould, Dieffenbach, & Moffett, 2002; Gucciardi, Gordon, & Dimmock, 2008; Jones, Hanton, & Connaughton, 2002; Mamassis & Doganis, 2004; Thelwell, Weston, & Greenlees, 2005), and despite the disagreements between each, the main common theme is that mental toughness is an important aspect of elite performance.

Burton and Raedeke (2008) refer to mental toughness as an individual's ability to perform their best under any circumstance. While their definition may be the simplest, it can certainly be applied to any number of mental tools and skills. The lack of a specific, operationalized definition is the central tenant of the literature regarding mental toughness. Generally, there are three different research groups whose definitions are considered in the literature.

From his experience working with elite athletes, Loehr, (1982, 1995) claims mental toughness is an ability to remain clam, relaxed, and energized in response to adversity in athletes who have learned how to increase their positivity and think in specific ways regarding problems, pressure, and mistakes. Clough et al. (2002) based their definition on a combination of the reflections of athletes, coaches, and sport psychology practitioners, with an established psychological principle from academic research, namely hardiness. Jones et al. (2002) used personal construct theory as a framework to create profiles of elite (i.e., Olympic) athletes and from those profiles developed a general and specific definition of mental toughness along with twelve attributes of a mentally tough performer.

Loehr's (1982) definition is a result of interviewing hundreds of athletes regarding their experiences of peak performance. It was his belief that if athletes' feelings of high energy (i.e., challenge, inspiration, determination), fun, lack of pressure, optimism, calmness,

confidence, control, and focus could be intentionally triggered and maintained, the probability of a good performance would increase dramatically (Williams & Krane, 2001). Loehr's (1982, 1995) work is extensively cited in the literature as a reference for the foundation of more specific and operational definitions which have recently been developed.

Clough et al. (2002) confronted a significant concern from the field of sport psychology in their process to develop a specific definition of mental toughness. The separation between practitioners (i.e., coaches and athletes) and academic research is the source of a considerable gap in the field of sport psychology. The Clough et al. (2002) group's definition combined popular qualitative methods (Gould et al., 2002; Kreiner-Phillips & Orlick, 1993; Loehr, 1982) of interviewing elite athletes and previously established constructs in psychology (i.e., hardiness). The development of their *4C's Model of Mental Toughness* combined (1) control, (2) commitment, and (3) challenge from a concept in the health psychology literature termed *hardiness* and (4) confidence from an applied approach in sport psychology. According to Clough et al. (2002), hardiness is considered a personality factor which provides a buffer between an individual's reaction to the stressors they encounter (i.e., maintain positive health indices under stress) and makes a logical inferred application to sport.

The fourth "C" in Clough et al.'s (2002) model is taken from a practical approach to sport psychology. Confidence was chosen as an important aspect of anecdotal and intervention research in sport psychology that was not specifically identified as a component of hardiness. The 4C's model offered a definition of mental toughness,

> Mentally tough individuals tend to be sociable and outgoing; as they are able to remain calm and relaxed, they are competitive in many situations and have lover

> anxiety levels than others. With a high sense of self-belief and an unshakeable faith that they control their own destiny, these individuals can remain relatively unaffected by competition or adversity. (Clough, et al., 2002, p. 38)

The strength of Clough et al.'s (2002) definition is the combination of a specific, academic construct in the field of psychology and a practical, pragmatic approach from a practitioner perspective. In addition, Clough et al. (2002) produced two measurements of mental toughness.

The Mental Toughness Questionnaire 48 (MT48) is a questionnaire that provides an overall mental toughness score as well as a profile for sub-scales (i.e., optimism, self-image, life satisfaction, self-efficacy, and stability). The Mental Toughness Questionnaire 18 (MT18) was developed as a more practical instrument for "sports people" to use (Clough et al., 2002). The MT18 delivers an overall mental toughness score but no sub-scale scores. However, in a review of conceptual and practical issues in sport, Connaughton and Hanton (2008) criticize the MT48 and MT18 because the majority of Clough et al.'s (2002) theory is based in hardiness and therefore the MT48 and MT18 are as well. Until a clear definition can be developed, it seems a psychometric measurement is unlikely.

Jones et al. (2002) have seemingly provided a definition of mental toughness that advanced the basic theories of Loehr (1982) and Clough et al. (2002) using qualitative methods to determine the attributes of elite and super elite athletes (i.e., Olympians and gold medal winning Olympians) and the coaches and sport psychology consultants which work with them (Crust, 2008). Jones et al.'s (2002) actual definition resembles previous definitions,

> Mental toughness is having the natural or developed psychological edge that enables you to:
>
> - Generally, cope better than your opponents with the many demands (competition, training, and lifestyle) that sport places on a performer.
> - Specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure. (Jones, et al. p. 209)

The strength of Jones et al. (2002) definition is the twelve attributes of mentally tough performers developed through the coding and analysis process of qualitative methodology. While most of the general concepts included have previously been mentioned here, Jones et al. (2002) acknowledge the previous findings in the literature and support their results but emphasize that their attempt is the first to differentiate between what mental toughness is and the attributes that are required to be mentally tough. The twelve attributes are as follows in order of rank (1) having an unshakeable self-belief in your ability to achieve your competition goals, (2) having an unshakable self-belief that you possess unique qualities and abilities that make you better than your opponents, (3) having an insatiable desire and internalized motives to succeed, (4) bouncing back from performance set-backs as a result of increased determination to succeed, (5) thriving on the pressure of competition, (6) accepting that competition anxiety is inventible and knowing that you can cope with it, (7) not being adversely affected by others' good and bad performances, (8) remaining fully focused in the face of personal life distractions, (9) situationally switching their "sport focus" on and off , (10) remaining fully-focused on the task at hand in the face of competition-specific distractions, (11) pushing back the boundaries of physical and emotional pain, while still maintaining technique and effort under distress (in training and competition), and (12)

regaining psychological control following unexpected, uncontrollable events (competition-specific).

Even though Jones et al. (2002) definition has become the dominate conception of mental toughness in the literature (Crust, 2008); it is not without its critics. The major criticisms are the small sample numbers due to the selection of elite and super elite sport persons and the assumption that these people are mentally tough because, and primarily because, they have previous athletic success. In response, researchers have continued the debate that mental toughness is either a personality trait, a temporal mental state, and/or a set of psychological characteristics (Bull et al., 2005; Crust, 2008)

The purpose for a brief review of the literature regarding the development of a definition of mental toughness is to help delimit the discussion and focus on strategies for the measurement of mental toughness. As discussed previously, the ideal makeup of a professional baseball prospect includes the attributes explored in the literature regarding mental toughness. Clearly, mental toughness is an important concept in elite sport performance. However without a sport specific instrument to assess mental toughness, researchers interested in performance enhancement need to examine other, similar psychological constructs to assess the concept of individual responses to adversity (Campbell-Sills & Stein, 2007; Pickering & Hammermeister, 2012).

Resilience

Resilience is similar to hardiness and a hypothesized correlate of mental toughness. Resilience is considered a psychological construct used to denote a homeostatic return to a prior psychological condition (Carver, 1998), the maintenance of positive adaptation by individuals despite experiences of significant adversity (Luthar, Cicchetti, & Becker, 2000), a

capacity or tendency to strive in the face of adversity (Connor & Davidson, 2003), an ability to function well after exposure to stress (Bonanno, 2004), and an individual's ability to thrive despite adversity (Campbell-Sills & Stein, 2007). Similar to mental toughness, the literature regarding resilience is divided on several fronts. However the consistency among the various definitions regarding a positive response to adversity is of particular interest for the purposes of evaluating baseball makeup (Bowden, 2011; Scout, personal communication, 2012).

Initial research was directed towards understanding maladaptive behaviors of patients with mental disorders and later focused on children who were from socioeconomic disadvantaged backgrounds, had experienced abuse and community violence, had mentally ill parents, and/or had chronic illness and been exposed to catastrophic life events (Luthar et al., 2000). Major research questions focused on the antecedents of resilient behavior (i.e., internal personality disposition or external factors) including individual attributes, interpersonal relationships within the family structure, and characteristics of respective social environments (Luthar et al., 2000). More recently, the measurement of resilience has been studied in American undergraduate populations (Campbell-Sills & Stein, 2007) and military populations (Pickering & Hammermeister, 2012).

The expansion of the study to external factors produced a discrepancy in terminology and therefore prevented a standardized definition (Luthar et al., 2000). However, as a result of the expanded body of knowledge, the term "resilience" has been considered more appropriate than "resiliency" (Luthar et al., 2000). Resiliency carries a connotation of a personality trait which leads to misleading ideas regarding the relative nature of measuring responses to adversity (Masten & Coatsworth, 1998). While the semantics of terminology do not contribute to understanding the antecedents of positive and/or negative responses to

adversity (Carver, 1998; Luthar et al., 2000; Masten & Coatsworth, 1998), the effects of proper terminology are important regarding the development of resilience because determining competence, despite adversity, is dependent upon individual perceptions and measurements of both competence and adversity (Luthar et al., 2000).

Another discrepancy in the resilience literature refers to terminology within proposed models of resilience research. The terms “protective” and “vulnerability” have been used interchangeably to describe the effects of interacting with adversity (Luthar et al., 2000). Protective effects are generally used to describe interactions with adversity which individuals with a particular attribute were relatively unaffected, whereas individuals without a similar attribute were vulnerable to the effects of facing adversity (Luthar et al., 2000). Luthar (1993) proposed more sophisticated language be used to describe the effect of dealing with adversity by adding two dimensions to each main effect. *Protective-stabilizing* was recommended to describe an effect denoted with no change in an individual’s competence when facing adversity and *protective-enhancing* was recommended to describe improved competency when facing adversity (Luthar, 1993). Conversely, *vulnerable-stable* was recommended to describe an effect in which individuasl with a particular attribute displayed incompetence compared to those without a similar attribute regardless of adversity and *vulnerable and reactive* used to describe an effect of increased incompetence in response to adversity (Luthar, 1993). The distinctions between the four responses are important considering the development of and distinction between baseball makeup profiles.

The importance of terminology distinctions are further supported by the multidimensional nature of resilience. According to Luthar et al. (2000), evidence of uneven functioning across different domains (e.g., education, emotion control, and behavior) in

response to adversity does not invalidate the construct of resilience but reinforces the need for researchers to consider the specific situations in which resilience is studied. Important aspects of this specificity include careful consideration that adaptive resilience in one domain does not imply adaptive resilience in other domains, and studies in specific situations will enhance the precision of terminology in the literature (Luthar et al., 2000). Further, specificity regarding attributes of individuals within certain social domains will aid in determining the relative valence of resilience displayed considering the subjective perceptions of risks within each domain by both researchers and participants (Luthar et al., 2000).

Regarding the current study's interest in mental toughness, resilience is a logical construct to assess in professional baseball prospects. While the term mental toughness is often used in the vernacular of professional baseball scouts, their connotation typically regards an ability to handle anxiety and/or adversity (Moesche, personal communication, 2004; Scout, personal communication, 2012). Therefore, resilience is more specific to their colloquial use of the term mental toughness as individual perceptions of adversity are important in examining resilience (Luthar et al., 2000). While examining mental toughness in professional baseball prospects may provide a more sophisticated understanding of makeup, until better instrumentation is developed to examine the construct effectively, identifying specific attributes to differentiate between makeup profiles is unlikely. The MT48 and MT18 (Clough et al., 2002) could be argued as a suitable choice to examine mental toughness for reasons previously discussed. However, a more psychometrically sound instrument has been developed to assess resilience in various populations, and due to the specific context of the current study (i.e., examining makeup of professional baseball prospects), the MT48 and

MT18 prove to be inadequate psychometrically to assess specific attributes regarding the effects of adversity.

The Connor-Davidson Resilience Scale (CD-RISC) has been identified as a valid and reliable psychometric instrument to assess resilience in American undergraduates (Campbell-Sills & Stein, 2007) and military populations (Pickering & Hammermeister, 2012). The CD-RISC is a 10-item scale which has been shown to consistently produce acceptable psychometric properties for efficient measurements of resilience (Campbell-Sills & Stein, 2007). Therefore, because of resilience's relationship with hardiness, mental toughness, and ultimately dealing with anxiety (i.e., persistence under perceived adversity) and considering the strong psychometric properties and ease of use, the CD-RISC was chosen to include in an investigation of baseball makeup.

Conclusion

Major League Baseball (MLB) is a for-profit, professional sport business entity. Athletes are selected as potential MLB players based on the evaluations of professional baseball scouts regarding five different physical tools as well as their character or makeup (Pleskoff, 2012). The evaluation process varies between MLB organizations and is largely based on subjective assessments for all five physical tools and makeup (Boyd, 1998; Moesche, personal communication, 2004; Pleskoff, 2012). Baseball makeup is a combination of various intangible factors (Miller, 2012) of which risk taking, decision making, motivation, and perceived ability to develop potential in the face of adversity (Bowden, 2012; Lewis, 2004) are of primary interest (Moesche, personal communication, 2004; Scout, personal communication, 2012).

Therefore an instrument that measures factors such as moral reasoning, motivational styles, ability, and resilience addresses each of the primary concerns stated in the sparse literature and more specifically in anecdotal definitions of ideal baseball makeup. Moral reasoning, as perceived by baseball scouts, measures a prospect's ability to assess risks (i.e., manage social responsibility) and make decisions off the field, motivational styles provide a profile for determining a prospect's relationship between their individual perceptions and social environment, assessing a prospect's self-theories regarding the nature of their athletic ability addresses the likelihood of their development, and understanding a prospect's ability to handle anxiety provides a foundation for the profile of ideal makeup. Lacking any reliable reference regarding current practices to objectively measure baseball makeup (Marcos, personal communication, 2012; Scout, personal communication, 2012b) it is clear that MLB and its organizations are in need of greater understanding as well as an instrument to assist professional baseball scouts in separating baseball performance and relevant character attributes.

CHAPTER III: METHODS

The purpose of this exploratory study was to gain a better understanding of baseball specific makeup and begin development of a valid and reliable package of instruments designed for use by Major League Baseball (MLB) to objectively assess baseball specific personality characteristics (i.e., makeup) of professional baseball prospects. As such, the study modified and combined four valid and reliable instruments, the Hahm-Beller Values Choice Inventory-16 (HBVCI-16), the Competitive Motivational Styles Questionnaire (CSMQ), the Conceptions of the Nature of Athletic Ability Questionnaire – 2 (CNAAQ-2), and the Connor-Davidson Resilience Scale (CD-RISC; see Appendix C) for analysis. The Institutional Review Board (IRB) of the University of Idaho approved this project as exempt, posing no risk to the participants (see Appendix A).

Participants

According to Rosenbaum (2012), the majority of selections in MLB's First Year Player Draft are college players which are selected twice as often as high school players. Therefore, it is a reasonable assumption that all college baseball players are evaluated by MLB scouts and are then considered professional baseball prospects. As per Tabachnick and Fidell (2007), sample sizes for instrumentation are recommended to have a 1:10 item to participant ratio to maintain statistical power. The CMSQ is the largest instrument in the battery (i.e., 20 items), therefore a sample size greater than 200 participants was collected.

Measures

Hahm-Beller Values Choice Inventory -16 (HBVCI-16). The HBVCI-16 examines how participants' reason in the sport context regarding the moral principles of justice, honesty, and responsibility, using a deontic theoretical framework based in the Judeo-

Christian tradition (Beller & Stoll, 2004). Participants use a five-point Likert type scale with labels ranging from 1 (strongly agree) to 5 (strongly disagree). Respondents indicate their feelings to 16 scenarios. Twelve of the items are designed to create moral tension and four items contain no moral considerations and are designed as consistency checks. Under deontic ethical theory, moral knowing involves honesty, justice, and responsibility in all situations. Therefore, as a single factor instrument, no dimension scores are applicable, despite items written to emphasize specific moral principles (i.e., justice, honesty, and responsibility). After a series of eight studies spanning 17 years which included a total of 13,558 participants, Beller and Stoll (2004) report a Cronbach reliability coefficient of .86 for the HBVCI-16 which is considered acceptable (Cohen, Manion, & Morrison, 2007; Johson & Christensen, 2004). Results of those studies were tested against the Defining Issues Test's (DIT; Rest, 1988) "P value". The P value is one of the scores generated by the DIT and is a measure of a participant's principled thinking and related to Kolhberg's (1981) levels of moral development. Beller and Stoll (2004) report a correlation of 0.82 between HBVCI scores and the DIT P value. Tabachnick and Fidell (2007) state values which are correlated greater than 0.80 are considered indistinguishable, therefore establishing reliability for the HBVCI (Beller & Stoll, 2004).

Factor analysis results were used to reduce, the 25-item version to 12 items that more directly concerned justice, honesty, and responsibility and maintained a Cronbach alpha value of 0.86 (Beller & Stoll, 2004). The current version of the HBVCI includes 16 items including the 12 strongest items with moral relevancy through factor analysis as well as four consistency check items. According to Beller and Stoll (2004), consistency checks are important aspects of cognitive instruments because the validity of results is dependent upon

earnest effort and honest responses from participants. Therefore, it is important to include items designed to check the effort and honesty of the respondents. The four consistency check items in the HBVCI-16 have no moral content and therefore should only be answered in agreement or neutral (Beller & Stoll, 2004). The first step in the scoring procedures includes evaluating the consistency check items for agreement. If the four consistency check items are responded to as expected, they are disregarded and the remaining 12 items are summed.

Competitive Motivational Styles Questionnaire (CSMQ). The CMSQ is a 20 item instrument with four subscales developed to examine the motivational style of athletes (Gillham, Burton, & Gillham, 2012). Participants are asked to respond to each item according to a six-item Likert type scale (i.e., 1 = strongly disagree; 6 = strongly agree). Resulting scores evaluate athletes' four motivational styles (i.e., Development Focused [DF], Win Fixated [WF], Doubt Oriented [DO], Failure Evader [FE]). The CMSQ developed through an iterative instrument development process (Gillham, et al., 2012). Through the course of four studies to develop the instrument, Gillham et al. (2012) report a Cronbach Alpha value of .74 which is considered generally reliable (Cohen, Manion, & Morrison, 2007; Johson & Christensen, 2004). As reported by Gillham et al. (2012) confirmatory factor analysis (CFA) indicate a good fitting model, [x^2 (*df* 161) = 487.11], p <.001; RMSEA = .06, SRMR = .06; NNFI = .93, and CFI = .94. Subscale alphas, mean, and SD scores were reported by Gillham et al. (2012) as: DF (0.68; 5.12 ± .54), WF (0.85; 4.01 ± 1.10), DO (0.79; 3.76 ± .97), and FE (0.67; 2.10 ± .68).

Conceptions of the Nature of Athletic Ability Questionnaire -2 (CNAAQ-2). The CNAAQ-2 is a 12 item, psychometric scale with four subscales developed using Dweck's

(2000) entity and incremental self-theories as a conceptual framework (Biddle et al., 2003). The CNAAQ-2 produced a model supporting statistically significant relationships ($p < 0.05$) between entity beliefs (i.e., stable and gift), ego involvement, and amotivation as well as between incremental beliefs (i.e., learning and improvement), task involvement, and enjoyment (Biddle et al., 2003) in samples that reported both high and low competency levels. Confirmatory factor analysis for the final model produces a good fitting model, [x^2 (*df* 343) = 815.49]; RMSEA = .047, RMSR = .065; NNFI = .92; CFI = .92; and subscale alpha scores of 0.70 for entity and 0.75 for incremental.

Connor-Davidson Resilience Scale (CD-RISC). The CD-RISC is a 10 item, single factor instrument used to assess resilience in which participants respond to using a five-point Likert type scale. Originally a 25 item scale (Conner & Davidson, 2003), through the course of three studies Campbell-Sills and Stein (2007) surveyed 1,622 college students and used exploratory and confirmatory factor analysis to reduce the number of items by 15 and maintain a Cronbach' s Alpha coefficient of .85 with a good fitting model; [x^2 (*df* 35) = 93.77], p <.001; RMSEA = .05; CI = 0.043-0.57; CFI = .97; and SRMR = .03. Pickering and Hammermeister (2012) also confirmed a sound model for the 10 item scale with a sample of 427 United States Army soldiers [x^2 (*df* 35) = 116.705], p < .0005; RMSEA = 0.77; NNFI = .96, and CFI = .97.

Baseball Makeup Inventory (BMI). The primary purpose of creating and testing baseball specific items against original items was to explore the possibility of what Bredemeier & Shields (1986) termed a "bracketed morality". In other words, collegiate baseball players may perceive the constructs described in the original differently when presented in baseball specific terminology. Three instruments (i.e., HBVCI, CSMQ,

CNAAQ-2) were reworded to be baseball specific to create the Baseball Makeup Inventory (BMI; see Appendix C). Of the 16 scenarios in the HBVCI-16, 15 were revised to baseball specific scenarios (i.e., item 2-2 was previously a baseball scenario) to match the moral content in the item with the support of face validity from an original author. The four consistency check items (i.e., 6-5, 11-8, 17-11, and 23-14) were also translated to baseball scenarios which included no moral significance. The 20 items of the CSMQ and the 12 items of the CNAAQ – 2 were slightly modified (i.e., CMSQ item 1 for DF is "I always give my best effort" and was modified to read "I always give my best effort on the diamond") to reflect a baseball specific concept of motivational styles and self-theories regarding the nature of baseball ability to match recommendations of the authors regarding future research (Biddle et al., 2003; Gillham et al., 2012) and to match common parallels made in the sport psychology literature between achievement goal theory research in educational and sport settings (Duda & Treasure, 2010; Harwood, Spray, & Keegan, 2008). Campbell-Sills and Stein (2007) suggest current symptoms or moods (i.e., depressed, struggling in practice) may affect responses. Therefore, the 10 items of the CD-RISC were not modified but were included in the randomization of the total 42 items (CMSQ, 20; CNAAQ – 2, 12, CD-RISC, 10).

The BMI was presented in two sections. Section I included the modified HBVCI-16 items. Section II contained the modified items from the CMSQ, CNAAQ-2, and the original CD-RISC which were presented as one 42 item instrument. The items were presented in a randomized order, with randomization created by using Microsoft Excel's random number function.

Procedures

College baseball coaches were recruited via email (see Appendix B) and with follow-up phone calls to request the participation of their athletes in the study. Recruitment began in the summer of 2012 and continued through the Fall semester. The timing of the recruitment was important as college baseball is in its practice schedule in the Fall semester and roster limitations are relaxed. Therefore, coaches and players had more time to devote to completing the assessments, and more players are on program rosters than would be during the Spring semester.

The purpose of the study and administration protocol to complete the battery was explained to the coaches. Coaches were directed to a website (www.baseballmakeupinventory.weebly.com) that disseminated the survey link for their players to access the battery of instruments. The website included the directions for completing the surveys as well as links that briefly described each of the original instruments. Participants were taken directly from the website to Survey Monkey where they were first provided with directions for completion, reminded that responses are anonymous, that their participation was voluntary despite the requests of their coaches, and that if they were younger than 18 years of age, they should not continue. Contact information for the principle investigator as well as the faculty sponsor (i.e., Dr. Sharon K. Stoll) was provided, and participants were encouraged to contact either party with any questions.

Participants were then taken to the demographic section where they were first asked to confirm they were at least 18 years of age. Participants indicating they were less than 18 years of age were immediately taken to the exit page on Survey Monkey. Participants under 18 years of age were excluded as very few college baseball players are under the age of 18.

Therefore getting parental consent would unnecessarily delay data collection The participants then completed basic demographic information that would allow the principle investigator to check which schools had completed the test battery for the purposes of communicating with coaches and to decipher which division of college baseball the participants were currently competing. Other demographic information included year of eligibility, total years of baseball played, total years of private instruction, and if the participant had ever been selected in the MLB First Year Player Draft. Next the HBVCI-16, CMSQ, CNAAQ-2, and CD-RISC were completed as separate instruments with directions including response scale descriptions. Following the CD-RISC, Survey Monkey took them to a directions page for the BMI where they completed the baseball specific version of the HBVCI-16 in Section I. Section II of the BMI consisted of all baseball modified items in the CMSQ, CNAAQ-2, and CD-RISC presented in a randomized order. Upon completion of the entire item set (i.e., reported between 25-40 minutes), participants were taken to the exit page which included a brief statement thanking them for their participation and an option to request results in May of 2013. Survey Monkey results were downloaded to a Microsoft Excel spreadsheet and then uploaded into Statistical Package for the Social Sciences (SPSS) computer program for analysis.

Data Analysis

The complete data set was first cleaned following the procedure suggested by Tabachnick and Fidell (2007) using SPSS. Confirmatory factor analysis (CFA) was used as a quality check for the dataset with the established instruments, to explore item effectiveness and subscale correlations, and examine the proposed theory of makeup using SPSS AMOS. Individual participant scores from each of the original instruments (i.e., HBVCI, CSMQ,

CNAAQ-2, and CD-RISC) were assessed to analyze the specific characteristics of professional baseball prospects to create a general profile using descriptive statistics using the statistical program Minitab to compare differences between means by division, year, and the interaction division x year using the Tukey post hoc test. Bivariate correlation analysis were used to examine the conceptual relevancy between the measures. Hierarchical and k-means cluster analyses were completed using subscales of the CMSQ as clustering variables and multivariate analysis of variance (MANOVA) tests were employed to test for significant main effects of between clusters regarding implicit theories, resilience, and moral reasoning using SPSS. Scheffe's post-hoc test was used to indicate significance between specific variables as it is considered one of the most conservative post-hoc analyses (Tabachnick & Fidell, 2007). Canonical correlation analysis was also performed using SPSS to analyze relationships between subscale scores. The process was then repeated for the modified BMI items. Additionally, paired t-tests were completed to compare scores of the original and modified scales.

CHAPTER IV: RESULTS

The purpose of this exploratory study was to gain a better understanding of baseball specific makeup and begin development of a valid and reliable instrument designed for use by Major League Baseball (MLB) to objectively assess baseball specific personality characteristics (i.e., makeup) of professional baseball prospects.

Results are reported as described in the previous section. Data cleaning results will be described briefly, CFA fit indexes will be reported and compared to originally reported values to examine the relative quality of the dataset and then to explore the theory of the proposed model of makeup and research questions. Descriptive statistics are then reported to gain a general understanding of the sample's profile based on subscale scores. Hierarchical and k-mean cluster, and MANOVA results are then reported to examine specific motivational style profiles. Finally, canonical correlation analysis results are reported to further examine the relationships between motivational styles, implicit beliefs, resilience, and moral reasoning.

Data Cleaning

Data cleaning is an important step in the data analysis process that helps ensure the accuracy of results (Tabachnick & Fidell, 2007). The first step was the elimination of data entries with missing subscales. Participants who completed at least of 80 percent of each subscale, or in the case of the single factor HBVCI-16 and CD-RISC, the entire instrument, were included and players' subscale means were substituted for missing values (Tabachnick & Fidell, 2007).

The second step was to analyze the distribution by testing skewedness and kurtosis of each subscale using the Frequency analysis in SPSS. According to Tabachnick and Fidell

(2007), items with skewedness and/or kurtosis values above or below ±3.29 should not be considered normally distributed and therefore eliminated. Results indicated two items on the HBVCI-16 (i.e., 8 and 11), three items in the DF subscale of the CMSQ (i.e., 1, 11, 18), and two items in the Learning subscale of the CNAAQ-2 (i.e., 2 and 8) to have positive kurtosis values greater than 3.29. However because the total sample size exceeded 100 participants, the risk of underestimations of variance associated with positive kurtosis disappears, therefore no items were deleted from subsequent analyses (Tabachnick & Fidell, 2007).

The third step in the data cleaning process for multivariate statistics is to eliminate outliers using Malhadobis Distance. Any items with Malhadobis Distance values over 149 should be eliminated (Tabachnick & Fidell, 2007). Using SPSS linear regression analysis, all subscales were listed as dependent variables and the demographic variable YEAR (i.e., 1 = Freshman, 4 = Senior) was listed as an independent variable and the Malhadobis Distance values were saved to the SPSS datasheet for analysis. All values for Malhadobis Distance were less than 149 and therefore all items were included for further analysis.

The final step in the data cleaning process was to determine the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value. According to Tabachnick and Fidell (2007) KMO values greater than 0.6 are necessary for quality factor analysis results. Each individual instrument was analyzed with exploratory factor analysis (EFA) using maximum likelihood extraction, unrotated factor solution based on eigenvalues greater than 1, and maximum iterations set at 100. Results revealed a range of KMO values between .750 and .882 suggesting that the dataset was acceptable for factor analysis. During the total sample population was reduced from $N = 256$ to $N = 232$ (HBVCI-16), $N = 233$ (CMSQ), $N = 230$ (CNAAQ-2), and $N = 230$ (CD-RISC).

The previous four steps were repeated for the BMI items under the following conditions. The BMIHBVCI-16 items were treated exactly the same as the HBVCI-16 items detailed above. Items 8 and 10 produced values greater than 3.29 (i.e., positive kurtosis) and were kept as the sample size was greater than 100 (Tabachnick & Fidell, 2007). The remaining items were presented to the participants in randomized order and were separated and grouped to replicate the original subscales for all future analysis.

Two BMI items from the DF (BMIDF; 22 and 36) subscale showed positive kurtosis as did one item from the BMI Learning (BMILN; 39), and three items from the BMI CD-RISC (BMICD; 10, 17, 29), but all items were included in future analysis as the sample size was greater than 100 (Tabachnick & Fidell, 2007). None of the BMI items revealed Malhadobis Distance values greater than 149 and the KMO values for each respective item ranged from .755 to .922, suggesting the BMI dataset was also suitable for factor analysis (Tabachnick & Fidell, 2007). Based on data cleaning, the total sample was reduced from N = 256 to N = 215 (BMI HBVCI-16), N = 218 (BMI CMSQ), N = 217 (BMI CNAAQ-2), and N = 216 (BMI CD-RISC).

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is a sophisticated structural equation modeling technique that is preferred over exploratory factor analysis (EFA) because CFA can be used to confirm a hypothesized factor structure, whereas EFA groups items based only on their respective responses (Tabachnick & Fidell, 2007). In other words, EFA is appropriate when gathering data to discover relationships between items, and CFA is appropriate to test the relationship between known or theorized factors. In addition to the data cleaning methods previously listed, Schreiber, Nora, Stage, Barlow, & King (2006) state a ratio of 10

participants per item is generally required for CFA. The CMSQ was the largest instrument used (i.e, 20 items) so therefore $N > 200$ was requried for CFA to be used for analysis.

The type of CFA employed here is considered a multiple regression technique and provides path coefficients (i.e., the validity relationship between an item and the latent variable or subscale), correlations (i.e., the relationship between latent variables), and several values referred to as "fit indexes" (i.e., the variance from a perfect linear regression). Two general measures of fit are provided. The first type is referred to as "target and null model measures", and assesses the variance of the hypothesized model to a perfect linear regression (i.e., 1.0 is a perfect regression). Measures include the normed fit index (NFI), the non-normed fit index (NNFI) which is sometimes referred to as the Tucker Lewis index (TLI), and the comparative fit index (CFI) among others (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004; Tabachnick & Fidell, 2007). Suggestions for appropriate fit indexes vary in the literature, and most agree that there are no "golden rules" of fit acceptance (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004). Acceptable target and null measure values are generally considered to be greater than 0.90 suggesting a good fit with values greater than 0.95 preferable. However, as the fit indexes are constantly being developed (Tabachnick & Fidell, 2007) in certain situations target and null model values over 0.85 can be argued to be an acceptable fit in psychology research because of the complexity of the theories being assessed (Beauducel & Wittmann, 2005; Raykov, 1998).

The second type of fit indexes are referred to as "discrepancy functions" and assess the variance from a perfect linear regression (i.e., 0.0 is a perfect regression), including the chi-square (CMIN), relative chi-square (CMIN/DF), the root mean square error of approximation (RMSEA), and the standardized root mean residual (SRMR). These values

should also be considered guidelines (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004; Tabachnick & Fidell, 2007). General acceptance of fit assessed with CMIN values are typically disregarded with sample sizes greater than 200, acceptance of fit for the CMIN/DF (i.e., [x^2 (*df* x) = x.xx]) values is between 2.0 and 5.0, and RMSEA and SRMR values less than 0.08, with values preferably less than 0.05 deemed acceptable (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004; Tabachnick & Fidell, 2007).

Despite the discrepancy in the literature pertaining to the relative accuracy and relevance of each of the fit indexes, it is generally recommended to report chi-squared, NNFI, and CFI as well as RMSEA and SRMR (Beauducel & Wittmann, 2005; Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004; Raykov, 1998; Schreiber, Nora, Stage, Barlow, & King, 2006; Tabachnick & Fidell, 2007). Complete CFA results produced using SPSS AMOS and these fit indexes can be found in Table 1 (i.e., original scales) and Table 4 (i.e., baseball specific scales).

Hahm-Beller Values Choice Inventory-16. Although the HBVCI-16 was designed as a single factor instrument, CFA was employed to assess the internal validity using path coefficients. According to Beller and Stoll (2004), the instrument is designed as an instructional tool to assess deontic reasoning which conceptually suggests that individuals use a combination of the moral values of justice, honesty, and responsibility when assessing situations with moral implications. Despite this conceptual framework, individual items in the instrument were designed to emphasize one of the three moral values. Therefore no clear factors (i.e., primary loadings greater than 0.5 with no cross loadings greater than 0.2) are expected or apparent when analyzed with EFA. Confirmatory factor analysis revealed a poor fit on most indexes, [x^2 (*df* 104) = 345.66]; RMSEA = 0.10, SRMR = .08; NNFI = .72, CFI =

.76, as expected. Path coefficients ranged from .27 to .68 (M = .52; α = .85). According to Brown (2006), path coefficients assess the validity of an item's relationship to the construct it measures. For example, a path coefficient of 0.50 suggests the respective item is about 50% accurate in predicting the latent (i.e., unobserved) variable.

Of greater interest in assessing the overall fit of a baseball makeup model, the strongest acceptable path coefficients (i.e., ≥ 0.6; Beauducel & Wittmann, 2005) were all originally designed to emphasize the moral value of justice (i.e., items 4, 7, 10, and, 12). Beauducel and Wittmann (2005) state path coefficients for CFA use in psychology can be considered significant when between 0.40 and 0.60 depending on the conceptual framework. However results including path coefficients greater than 0.70 are generally considered more significant results (Hu & Bentler, 1999). For exploratory purposes, these four items were tested for latent covariance correlation against the remaining items and found a correlation of .883 which, according to Tabachnick and Fidell (2007), suggests virtually no difference in the variables. In other words, for this dataset, it appears that the four strongest items can produce the same assessment as the 16 item scale while maintaining a Cronbach's alpha value of 0.75. Therefore, these four items were the only items from the HBVCI-16 used to assess the fit of the proposed theory of makeup.

Competitive Motivational Styles Questionnaire. The CMSQ includes four subscales indicating specific motivational styles (Gillham, Gillham, & Burton, 2012). The expected relationships include a low positive correlation between DF and WF as well as between DO and FE. Both DF and WF were expected to have low negative correlations with both DO and FE. Results confirmed these expectations with subscale correlations between DF and WF of 0.51, between DO and FE of 0.62, between DF and DO of -0.42, between DF

and FE of -0.62, between WF and DO of -0.16, and between WF and FE of -0.19. Confirmatory factor analysis revealed similar fit indexes to Gillham et al. (2012), [x^2 (*df* 164) = 342.097, *p*. = .000], RMSEA = .068, SRMR = .07; NNFI = .85, CFI = .87 (see Figure 1). Path coefficients ranged from .39 to .76 (M = .57; α = .71) for five DF items, .48 to .83 (M = .71; α = .79) for four WF items, .16 to .71 (M = .58; α = .76) for six DO items, and .33 to .71 (M = .57; α = .69) for five FE items. Items eliminated from the overall model included DF 1 (i.e. .57), DF 5 (i.e., .39), DO 2 (i.e., .16), DO 10 (i.e., .55), FE 3 (i.e., .33), and FE 8 (i.e., .56).

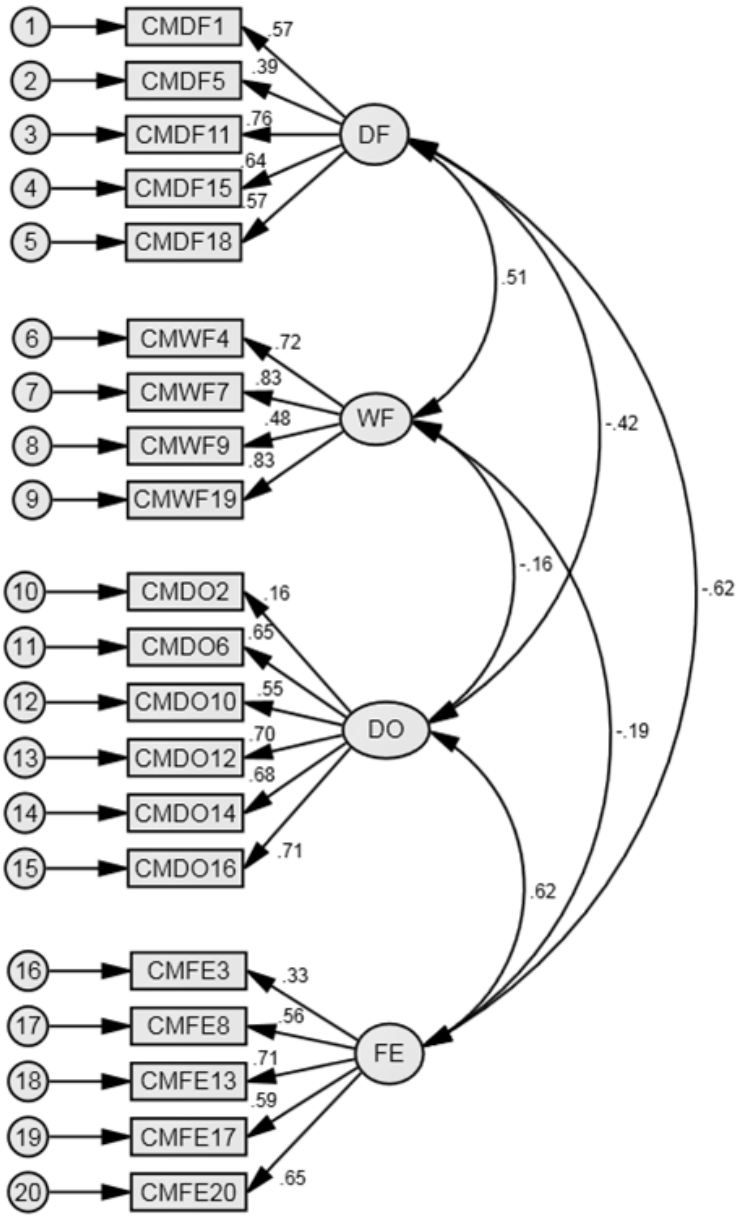

Figure 1. CMSQ CFA Model

The largest differences between Gillham et al., (2012) CFA fit indexes and the indexes in this data set are found in the target and null model measures indexes. The residual indexes are larger in the current dataset but still within the generally accepted range as previously discussed. One possible reason for the lower target and null model measure fit could be sample size as there is little congruence in the literature regarding the various fit

indexes and sample sizes (Beauducel & Wittmann, 2005; Hu & Bentler, 1999; Tabachnick & Fidell, 2007). Another reason for the differences could possibly be the sample population. College baseball players are generally sensitive to perceived evaluations related to MLB draft status, and despite instructions clarifying that this study was exploratory in nature, this sample population may have different perceptions and attitudes regarding motivational styles than the sample population used in the Gillham et al. (2012) studies which was much more diverse in age, sex, and sport type (i.e., individual and team). The reasoning for this explanation is supported by the disparity between the mean factor loadings in the subscales. On average, this sample population reported a .16 difference in mean subscale path coefficient, indicating the possibility that a baseball specific population may have different attitudes regarding motivational styles, particularly in the DF, WF and FE subscales. The explanation will be considered further as cluster and canonical correlation results are presented and discussed.

Conceptions of the Nature of Athletic Ability Questionairre-2. The CNAAQ-2 includes four subscales indicating beliefs regarding the nature of ability based on Dweck's (2000) entity and incremental beliefs (Biddle et al., 2003). The expected relationships include a low positive correlation between Learning and Improvement (representing incremental beliefs) as well as between Stable and Gift (representing entity beliefs). Both Learning and Improvement were expected to have low negative correlations with both Stable and Gift. Results confirmed these expectations with subscale correlations between Learning and Improvement of 0.43, between Stable and Gift of 0.52; between Learning and Stable of -0.48, between Learning and Gift of 0.02, between Improvement and Stable of -0.29, and between Improvement and Gift of -0.14. Confirmatory factor analysis (see Figure 2) revealed

similar fit indexes to Biddle et al., (2003), [x^2 (*df* 48) = 53.912, p = .000], RMSEA = .02, SRMR = .039; NNFI = .99, CFI = .99. Each subscale included three items with path coefficients ranging from .52 to .71 (M = .64; α = .67) for Learning items, .67 to .78 (M = .73; α = .77) for Improvement items, .49 to .63 (M = .57; α = .59) for Stable items, and .68 to .90 (M = .76; α = .80) for Gift items. As a result of the unacceptable Cronbach alpha value produced by the Stable subscale, the Stable and Gift subscales were combined to represent Entity beliefs (α = .73) and the Improvement and Learning subscales were combined to represent Incremental beliefs (α = .73) for subsequent analysis. Considering the overall baseball makeup model, items eliminated included CNST10 (i.e., .49) from Entity beliefs and CNLN5 (i.e., .52) from Incremental beliefs.

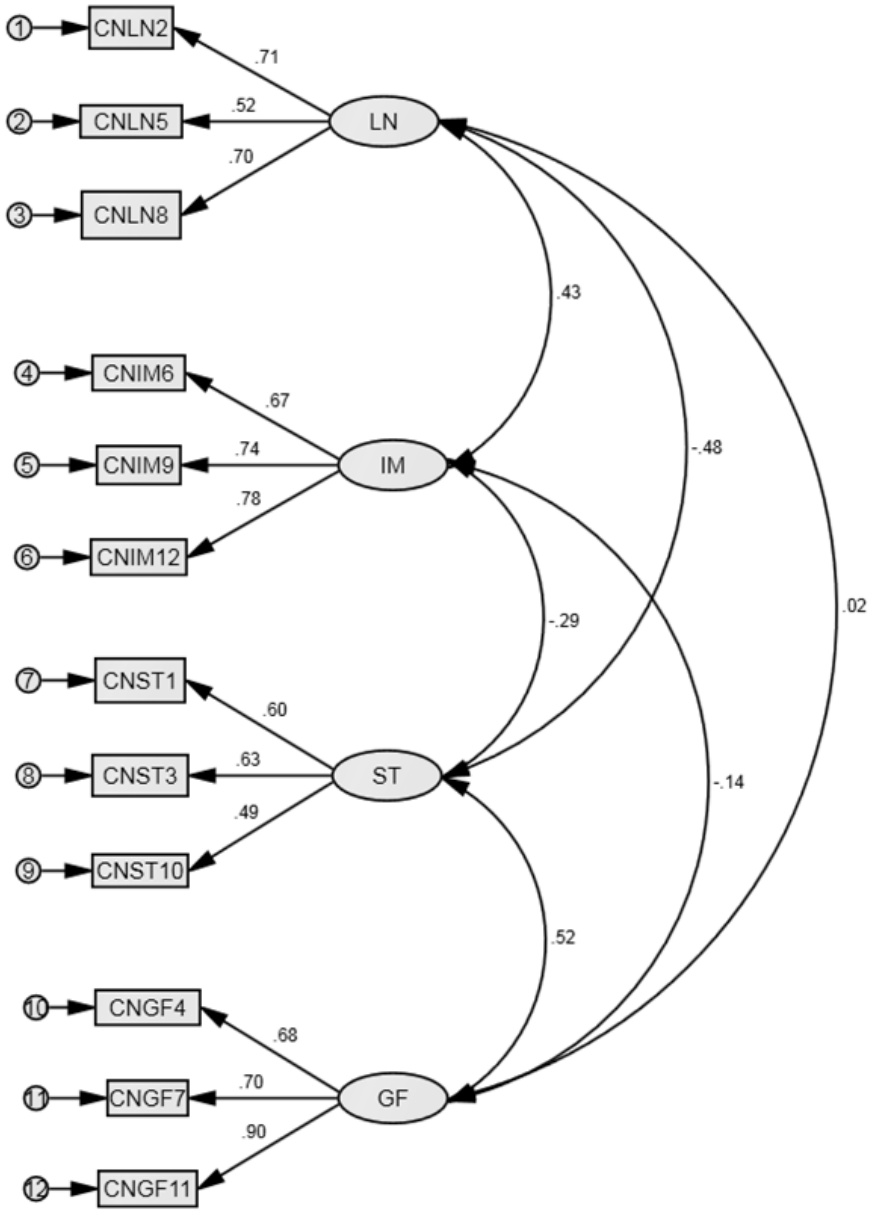

Figure 2. CNNAQ-2 CFA Model

Connor-Davidson Resilience Scale. The CD-RISC has been reduced and confirmed as a single factor instrument to examine resilience in undergraduate students (Campbell-Sills & Stein, 2007) and soldiers in the United States Army (Pickering & Hammermeister, 2012). Confirmatory factor analysis revealed lower, but still acceptable, fit indexes than Campbell-Sill and Stein (2007) and Pickering and Hammermeister (2012) reported in previous studies

[x^2 (*df* 35) = 98.204, p = .000], RMSEA = .089, SRMR = .056; NNFI = .889, CFI = .914. Path coefficients ranged from .38 to .75 (M = .61; α = .85).

While the current model is generally acceptable, it is clearly not as well defined as those produced by Campbell-Sill and Stein (2007) and Pickering and Hammermeister (2012). The most likely explanation for the difference is that college baseball players often struggle with self-assessments, especially concerning perspective, likely due to fact that they have rarely faced failure, especially in baseball, at this point in their life. Therefore several of the items on the CD-RISC are vulnerable to social desirability bias. Considering an overall baseball makeup model, the four items with the highest factor loadings (< 0.65) were retained (i.e., 4, 5, 9, and 10). The selected items have a mean factor loading of 0.71 and retain a Cronbach alpha of 0.80.

Table 1. CFA Fit Indexes and Path Coefficients for Original Scales

	Fit Indexes							
	Chi-square		Residual		Target		Path Coefficients	
	x^2	*df*	RMSEA	SRMR	NNFI	CFI	$\bar{x}$	α
HBVCI-16	345.66	104	.100	.079	.721	.758	.52	.85
CMSQ	342.10	164	.068	.071	.847	.868		
DF							.57	.71
WF							.71	.79
DO							.58	.76
FE							.57	.69
CNAAQ-2	53.91	48	.023	.039	.988	.991		
Incremental							.69	.73
Learning							.64	.67
Improvement							.73	.77
Entity							.68	.73
Stable							.57	.59
Gift							.76	.80
CD-RISC	98.204	35	.089	.056	.889	.914	.61	.85

Proposed overall makeup model. For exploratory purposes, selected items from each original model were combined as per the current theory of baseball makeup. Each subscale was included with at least three respective original items. Factor loadings were used to choose the items resulting in a 30 item model with eight subscales. Confirmatory factor analysis (see Figure 3) revealed an acceptable fit [x^2 (*df* 436) = 680.624, p = .000], RMSEA = .05, SRMR = .07; NNFI = .90, CFI = .88. Path coefficients ranged from .58 to .81 (M = .67; α = .69) for DF items 11, 15, and 18, .49 to 85 (M = .71; α = .76) for WF items, .65 to .74 (M = .69; α = .78) for DO items 6, 12, 14, and 16, .50 to .79 (M = .69; α = .70) for FE items 6, 12, 14, and 16, .33 to .76 (M = .58; α = .72) for Incremental items CNIM9, CNIM12, CNIM6, CNLN2, and CNLN8, .33 to .87 (M = .59; α = .73) for Entity items CNGF4, CNGF7, CNGF11, CNST1, and CNST3, .63 to .68 (M = .69; α = .78) for HBVCI-16 items 4, 7, 10, and 12, and .66 to .76 (M = .71; α = .80) for CD-RISC items 4, 5, 9, and 10 (see Table 2).

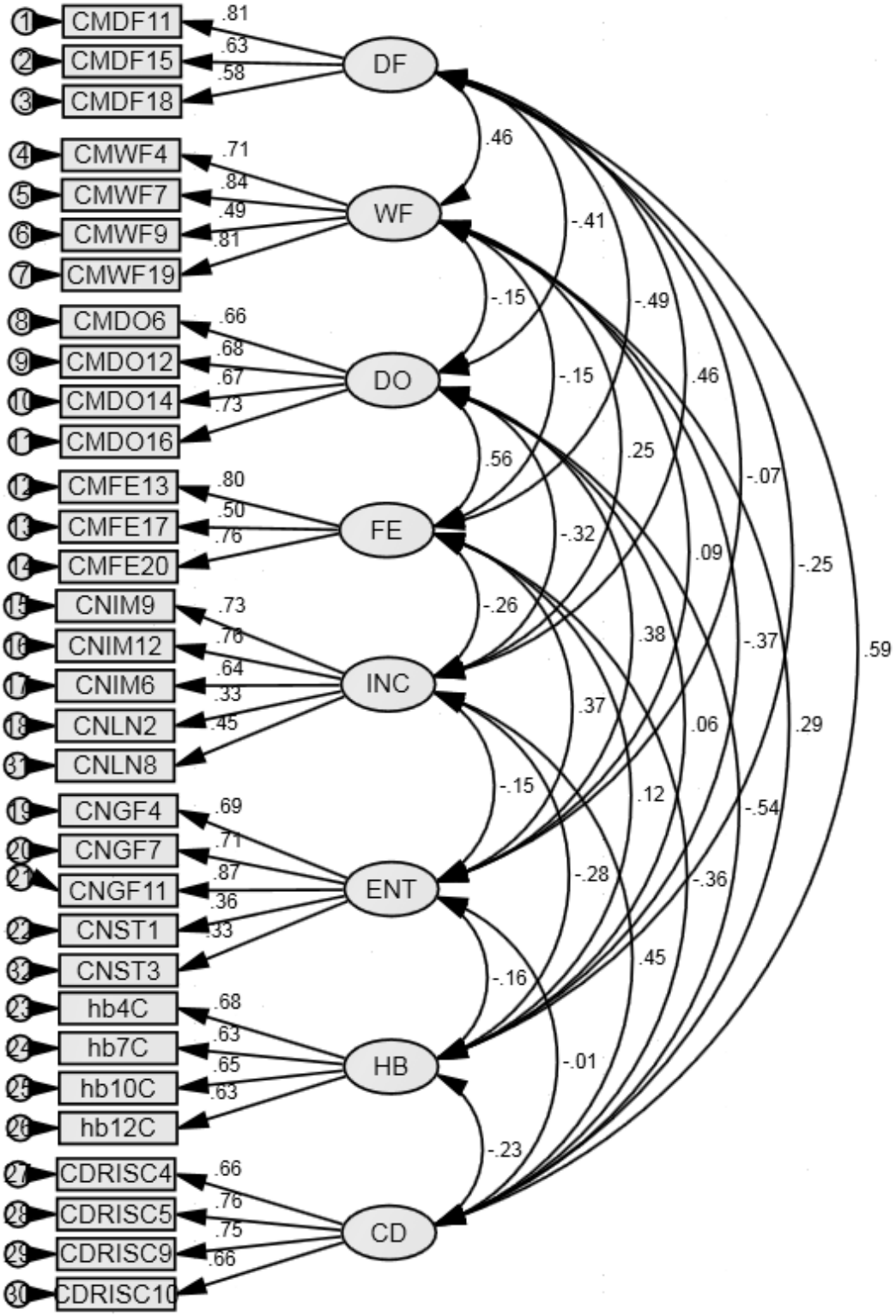

Figure 3. Proposed Baseball Makeup Model

Table 2. CFA Fit Indexes and Path Coefficients for Proposed Model

	Fit Indexes							
	Chi-square		Residual		Target		Path Coefficients	
	x^2	*df*	RMSEA	SRMR	NNFI	CFI	$\bar{x}$	α
Proposed Model	680.624	436	.05	.07	.90	.88		
DF							.67	.69
WF							.71	.76
DO							.69	.78
FE							.69	.70
Incremental							.59	.73
Entity							.59	.73
CD-RISC							.69	.78
HBVCI-16							.65	.75

Subscale correlations within the proposed model (see Table 3) were mostly consistent as expected. The positive and weak correlation between WF and Entity was expected to be negative as per the relationships between the conceptual frameworks of the CMSQ and CNAAQ-2. Caution should be used before making generalizations because the model is exploratory. Negative and moderate correlations between HBVCI-16 scores and the DF, WF, Incremental, and CD-RISC scores, as well as a positive but weak correlation between FE and HBVCI-16 were also unexpected. Correlation results match results found by Beller and Stoll (2004) regarding poor moral reasoning in athletic populations. However moral reasoning was hypothesized to be positively correlated with facilitative and negatively correlated with debilitative aspects of other scales.

Table 3. Proposed Baseball Makeup Model CFA Latent Variable Correlations

	1	2	3	4	5	6	7
1. DF							
2. WF	.46						
3. DO	-.41	-.15					
4. FE	-.49	-.15	.56				
5. Incremental	.46	.25	-.32	-.26			
6. Entity	-.07	.09*	.38	.37	-.15		
7. HBVCI-16	-.25*	-.37*	.06*	.12*	-.29*	-.16	
8. CD-RISC	.59	.29	-.54	-.36	.45	-.01	-.23*

* Indicates unexpected relationship

Baseball makeup inventory HBVCI-16. The BMI-HBVCI-16 was analyzed using the same procedures as the original HBVCI-16. Exploratory factor analysis revealed no clear factors (i.e., primary loadings greater than 0.5 with no cross loadings greater than 0.2). Confirmatory factor analysis revealed a poor fit on all indexes, [x^2 (*df* 104) = 250.473, *p*. = .000], RMSEA = .086, SRMR = .08; NNFI = .66, CFI = .71, as expected. Path coefficients were different from the original ranging from -0.04 to 0.59 (M = .40; α = .74). The differences may support Bredemeier and Shields' (1986) bracketed morality concept. However caution should be exercised in making generalizations as the original HBVCI-16 was designed as a teaching instrument and therefore has no evidence of psychometric properties and standardized scores for the HBVCI-16 are not available. Therefore, it is difficult to specify the exact differences between the original and baseball specific versions using factor analysis. For more detailed discussion relevant to these details, refer to the descriptive statistics section of this chapter.

Baseball makeup inventory CMSQ. The results confirmed expectations for subscale correlations between DF and WF of 0.40, between DO and FE of 0.59; between DF and DO of -0.40, between DF and FE of -0.40, between WF and DO of -0.17, and between WF and FE of -0.20. Confirmatory factor analysis (see Figure 4) revealed similar fit indexes to

Gillham et al. (2012), [x^2 (*df* 164) = 379.186, *p*. = .000], RMSEA = .078, SRMR = .08; NNFI = .84, CFI = .86. Path coefficients ranged from .25 to .90 (M = .59; α = .73) for five DF items, .54 to .88 (M = .74; α = .81) for four WF items, .30 to .73 (M = .61; α = .77) for six DO items, and .44 to .77 (M = .61; α = .74) for five FE items. Results indicate little difference between the baseball specific items and the original items, providing little support for a baseball specific instrument to assess motivational style.

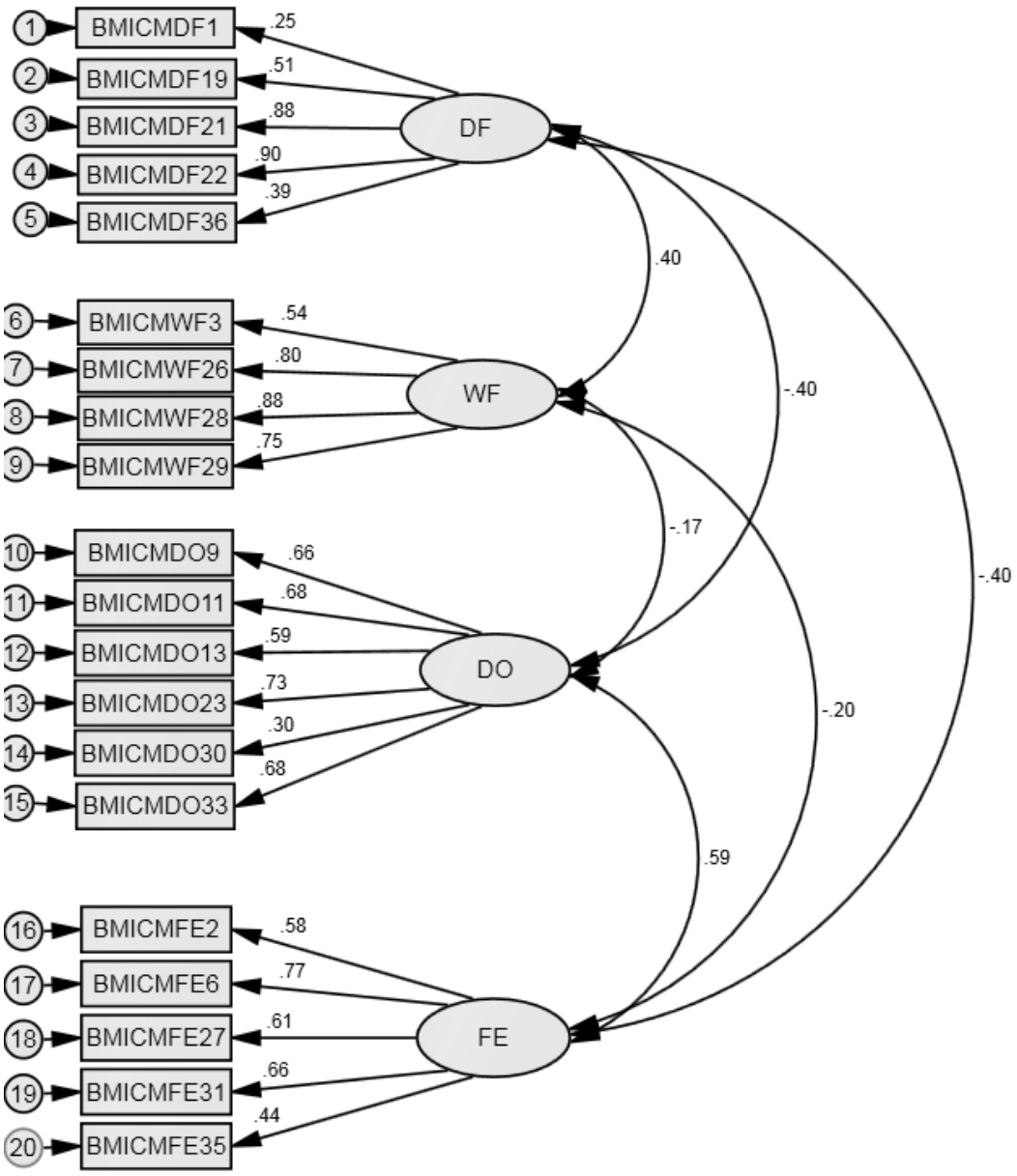

Figure 4. BMI CMSQ CFA Model

Baseball Makeup Inventory CNAAQ-2. The results confirmed expectations for subscale correlations between Learning and Improvement of 0.42, between Stable and Gift of 0.46; between Learning and Stable of -0.24, between Learning and Gift of 0.03, between Improvement and Stable of -0.23, and between Improvement and Gift of -0.13. Confirmatory

factor analysis (see Figure 5) revealed similar fit indexes to Biddle et al., (2003), [x^2 (*df* 48) = 71.007, p = .000], RMSEA = .05, SRMR = .06; NNFI = .97, CFI = .98. Each subscale included three items with path coefficients ranging from .59 to .82 (M = .72; α = .75) for learning items, .73 to .90 (M = .79; α = .83) for improvement items, .40 to .80 (M = .61; α = .62) for stable items, and .82 to .93 (M = .88; α = .91) for gift items. The baseball specific items provided improved mean factor loadings and Cronbach alpha values for each subscale especially for learning (i.e., +.10; +.08) and gift (i.e., +.12; +.11) subscales. The positive differences suggest baseball players separate baseball from other aspects of their lives (e.g., school) regarding the importance of learning and that baseball players' may have a unique relationship with gift beliefs. Despite the differences, the Stable subscale again produced an unacceptable Cronbach alpha value and therefore the subscales were combined to reflect Entity (α = .80) and Incremental (α = .77) as was done with the original scale. Considering the overall baseball makeup model, items eliminated included BMICNST16 (i.e., .40) from Entity and BMICNLN7 (i.e., .59), from incremental.

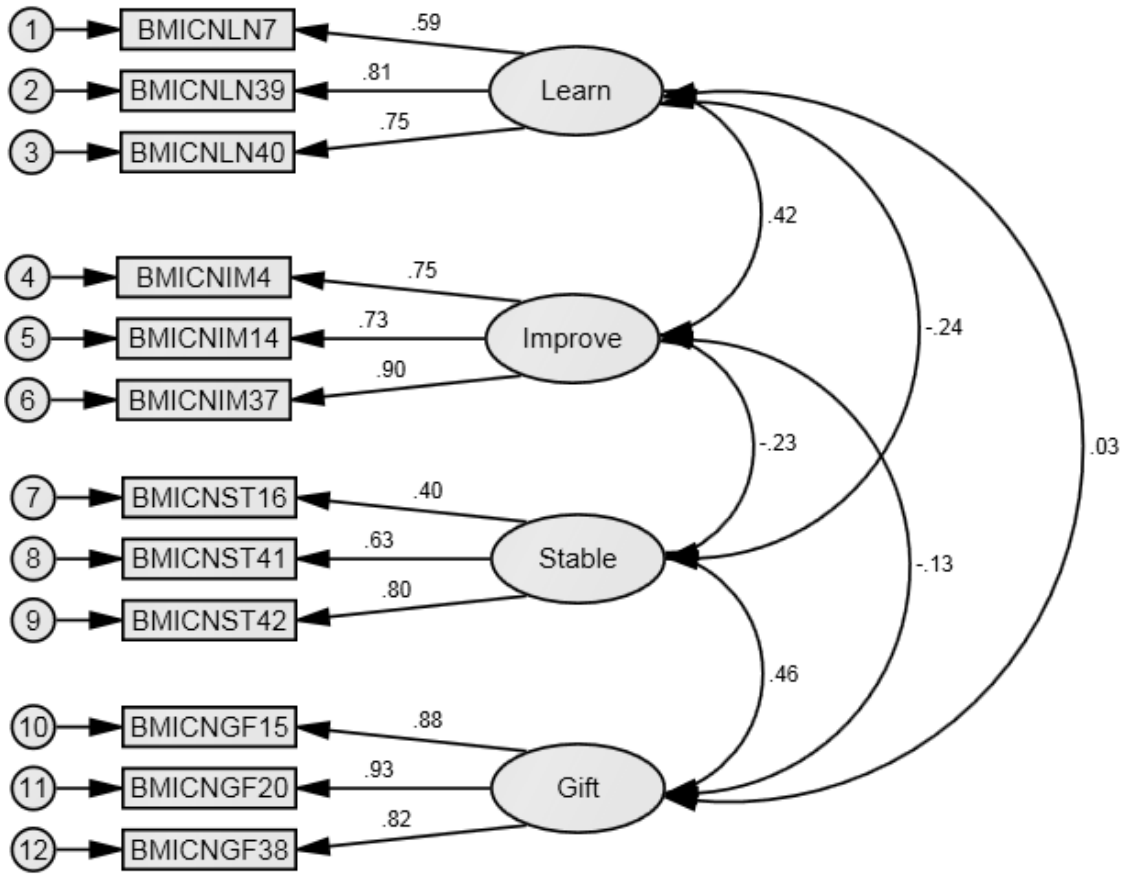

Figure 5. BMI CNAAQ-2 CFA Model

Baseball makeup inventory CD-RISC. In this case, a baseball specific mindset was expected to produce differences in responses. Confirmatory factor analysis revealed stronger fit indexes than Campbell-Sill and Stein (2007) and Pickering and Hammermeister (2012) [x^2 (*df* 35) = 40.243, p = .000], RMSEA = .03, SRMR = .04; NNFI = .99, CFI = .99. Path coefficients ranged from .27 to 70 (M = .60; α = .84). The stronger fit is likely due to the socialization process most male team sport athletes are exposed to regarding achieving and maintaining status (Coakley, 2009; Sage & Eitzen, 2012). The process aligns with the social desirability bias explanation provided in the results of the original CD-RISC.

Table 4. CFA Fit Indexes and Path Coefficients for Baseball Specific Scales

	Fit Indexes							
	Chi-square		Residual		Target		Path Coefficients	
	x^2	*df*	RMSEA	SRMR	NNFI	CFI	$\bar{x}$	α
HBVCI-16	250.473	104	.086	.083	.660	.706	.40	.80
CMSQ	379.186	164	.078	.083	.836	.859		
DF							.59	.73
WF							.74	.81
DO							.61	.77
FE							.61	.74
CNAAQ-2	71.007	48	.047	.057	.970	.978		
Incremental							.69	.77
Learning							.72	.75
Improvement							.79	.83
Entity							.74	.80
Stable							.61	.62
Gift							.88	.91
CD-RISC	40.243	35	.026	.037	.989	.992	.60	.84

Proposed overall baseball makeup inventory model. For exploratory purposes, selected items from each original model were combined as per the current model of baseball makeup. Each subscale was included with at least three original items. Factor loadings were used to choose the items resulting in a 32 item, model with eight subscales. Confirmatory factor analysis (see Figure 6) revealed a poor fit [x^2 (*df* 377) = 748.887, p = .000], RMSEA = .07, SRMR = .09; NNFI = .84, CFI = .86. Path coefficients ranged from .51 to .90 (M = .77; α = .80) for BMI-DF items 19, 21, and 22, .76 to .89 (M = .81; α = .85) for BMI-WF items 26, 28, and 29, .65 to .79 (M = .70; α = .78) for BMI-DO items 9, 11, 23, and 33, .59 to .77 (M = .68; α = .73) for BMI-FE items 2, 6, and 31, .39 to .89 (M = .64; α = .77) for Incremental items BMICNIM4, BMICNIM14, BMICNIM37, BMICINLN39, and BMICNLN40, .23 to .93 (M = .66; α = .80) for Entity items BMICNST41, BMICNST42, BMICNGF15, BMICNGF20, and BMICNGF38, .46 to .73 (M = .69; α = .80) for BMI-

HBVCI-16 items, 3, 4, and 16, and .63 to .73 (M = .67; α = .77) for CD-RISC items 8, 12, 24, and 32 path coefficients and alpha (see Table 5).

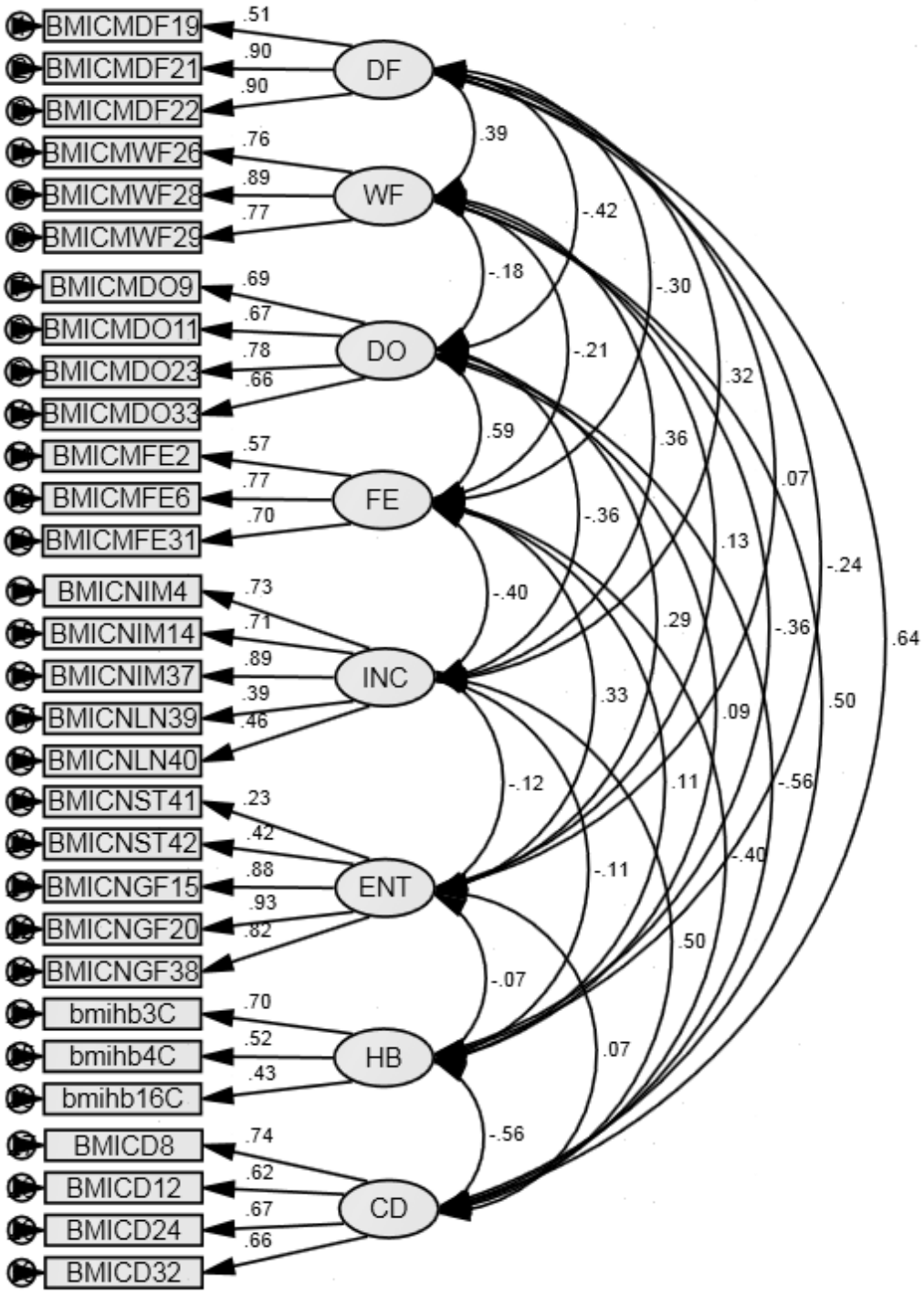

Figure 6. Proposed BMI Overall Model

Table 5. CFA Fit Indexes and Path Coefficients for Proposed Baseball Model

	Fit Indexes						Path Coefficients	
	Chi-square		Residual		Target			
	x^2	*df*	RMSEA	SRMR	NNFI	CFI	$\bar{x}$	α
Proposed Model	748.887	377	.07	.09	.84	.86		
DF							.77	.80
WF							.81	.85
DO							.70	.78
FE							.68	.73
Incremental							.64	.77
Entity							.69	.80
CD-RISC							.67	.77
HBVCI-16							.69	.60

Subscale correlations within the proposed model (see Table 6) were mostly consistent with expectations. Similar to the proposed model based on the original items, the positive and weak correlations of the WF and DF subscales and Entity were expected to be negative. Relationships between the HBVCI-16 scores and the CMSQ were not expected but match findings of Beller and Stoll (2004). The positive and strong correlation shared between HBVCI-16 and CD-RISC was also not expected. The positive and weak correlation shared between Entity and CD-RISC was not expected. Again, generalizations should be made with caution as the two proposed models are for exploratory purposes only.

Table 6. Proposed Overall Baseball Makeup Inventory Model CFA Latent Variable Correlations

	1	2	3	4	5	6	7
1. DF							
2. WF	.39						
3. DO	-.42	-.18					
4. FE	-.30	-.21	.59				
5. Incremental	.32	.36	-.36	-.40			
6. Entity	.07*	.13*	.29	.34	-.12		
7. HBVCI-16	-.25*	-.36*	.09*	.11*	-.11	-.08	
8. CD-RISC	.64	.50	-.56	-.40	.50	.08*	-.56*

* indicates unexpected relationship

Descriptive Statistics

Participants. The sample population included collegiate baseball players from five different divisions of collegiate play in the United States (i.e., California, Idaho, Montana, Oregon, Texas, and Washington) including the National Collegiate Athletic Association (NCAA) Division I (*N* = 41) and II (*N* = 17), the National Association of Intercollegiate Athletics (NAIA; *N* = 24), the National Junior College Athletic Association (NJCAA; *N* = 11), and the Northwest Athletic Association of Community Colleges (NWAACC; *N* = 140). The sample population by year of eligibility and division is presented in Table 7.

A total of 256 collegiate baseball players logged on to Survey Monkey during the data collection period of the study. The data cleaning process reduced the total sample population from *N* = 256 to *N* = 232 for the HBVCI-16, to *N* = 233 for the CMSQ, to *N* = 230 for the CNAAQ-2, and to *N* = 230 for the CD-RISC. For the baseball specific items, the total sample was reduced from *N* = 256 to *N* = 215 for the BMI-HBVCI-16, to *N* = 218 for the BMI-CMSQ, to *N* = 217 for the BMI-CNAAQ-2, and to *N* = 216 for the BMI-CD-RISC.

Table 7. Sample by Year of Eligibility and Collegiate Division

	NCAA		NAIA	NJCAA	NWAACC	Total	%
	Division I	Division II					
Freshman	16	5	4	9	91	125	.54
Sophomore	10	4	3	2	49	68	.29
Junior	8	3	12	-	-	23	.10
Senior	7	5	5	-	-	17	.07
Total	41	17	24	11	140	233	1.00
%	.18	.07	.10	.05	.60	1.00	-

Hahm-Beller Values Choice Inventory-16. Complete scores by year and division are presented in Table 8. The overall average score was 24.62±7.1 (*N* =233) which when compared to the normative data provided by Beller and Stoll (2004) for the original HBVCI suggest professional baseball prospects are comparable their moral considerations to other

athletes and behind their non-athlete peers. The comparison is difficult to make directly, however, because HBVCI-16 normative data was not provided. Beller and Stoll (2004) have consistently found scores decrease as a function of time spent in competitive sport increases. The current data is inconclusive in this regard as scores were consistent between years of eligibility. No significant differences were found between the groups by division, year, and division by year.

Table 8. HBVCI-16 Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	Division I	Division II				
Freshman	23.75±4.0	21.00±5.4	25.75±4.3	24.00±8.0	24.30±7.0	24.12±6.6
Sophomore	25.20±6.4	26.50±3.5	19.33±6.5	26.00±2.8	25.27±7.4	25.09±6.9
Junior	23.25±4.1	25.67±18.9	27.00±10.6			25.52±9.8
Senior	24.71±6.6	24.60±7.8	26.60±9.0			25.24±7.2
$\bar{x}$	24.17±5.0	24.18±8.6	25.75±8.9	24.36±7.3	24.64±7.1	24.62±7.1

Competitive Motivational Styles Questionnaire. Complete subscale means by year and division are presented in Table 9. Subscale scores for the sample population were consistent with preferred motivational style conceptualized by Gillham et al. (2012) with DF and WF scores being greater than DO and FE scores, although there were no significant differences found between the groups by division, year, and division by year.

Table 9. CMSQ Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	D I	D II				
Freshman						
DF	5.29±.48	5.52±.27	5.05±1.5	5.13±.62	5.13±.67	5.17±.67
WF	4.66±1.1	4.80±.60	4.50±1.6	4.47±1.0	4.55±1.1	4.57±1.1
DO	3.23±1.0	3.07±5.1	2.62±.64	2.96±.95	3.37±1.1	3.29±1.0
FE	1.95±.78	1.76±.41	1.75±.97	1.98±.90	2.05±.67	2.01±.70
Sophomore						
DF	5.22±.57	5.30±.20	5.66±.12	5.00±.57	5.07±.67	5.13±.626
WF	5.10±.99	4.12±1.2	4.08±1.0	4.38±1.6	4.66±1.1	4.52±1.11
DO	2.97±.94	3.13±.86	3.00±.93	3.50±.71	3.07±.91	3.07±.88
FE	1.80±.60	1.70±.38	1.67±.23	2.40±.28	1.97±.70	1.94±.65
Junior						
DF	5.30±.34	5.13±.90	4.97±.66			5.10±.59
WF	4.93±.84	4.83±1.4	4.35±.73			4.62±.87
DO	3.04±.67	3.11±.75	3.26±.90			3.17±.78
FE	1.85±1.0	2.00±1.4	2.15±.38			2.03±.81
Senior						
DF	5.17±.37	5.33±.50	4.32±.98			4.95±.76
WF	4.68±1.26	4.25±1.0	3.60±.74			4.24±1.1
DO	2.95±.81	3.77±1.5	3.50±.26			3.25±.98
FE	1.51±.56	2.36±1.1	2.60±.75			2.08±886
$\bar{x}$						
DF	5.25±.45	5.33±.50	4.93±.91	5.11±.59	5.11±.67	5.13±.66
WF	4.82±1.0	4.49±.98	4.19±.93	4.45±1.0	4.52±1.1	4.54±1.1
DO	3.08±.88	3.29±.97	3.17±.78	3.06±.90	3.27±1.0	3.22±.96
FE	1.84±.77	1.96±.82	2.12±.63	2.05±.83	2.02±.68	2.00±.71

Pearson's correlations were run to examine the relationships between the subscales with the expectation that DF and WF would have a positive correlation and be negatively correlated with both DO and FE, and DO and FE would share a positive correlation as per Gillham et al., (2012). Results (see Table 10) revealed significant correlations in each expected relationship with the exception of the WF and DO relationship. The relationship was negative, as expected, however, it was not found to be significant.

Table 10. Bivariate Correlation Matrix for CMSQ

Subscale	DF	WF	DO
DF			
WF	.42[a]		
DO	-.29[a]	-.12	
FE	-.49[a]	-.17[a]	.41[a]

[a] = $p < 0.01$

Conceptions of the Nature of Athletic Ability Questionnaire-2. Complete subscale scores can be found in Table 11. Results are presented by Incremental and Entity dimensions which were created by combining the Learning and Improvement subscales to represent Incremental and combining the Stable and Gift subscales to represent Entity.

Significant differences for Incremental were found between divisions with NCAA Division I (M = 4.02) being significantly lower than NCAA Division II (M = 4.45) and NWAACC (M = 4.29). Additionally, NCAA Division II (M = 4.45) was significantly higher than the NAIA (M = 4.01). Results suggest that athletes in the lower divisions of college baseball generally have stronger incremental beliefs than athletes at the NCAA Division I level.

Table 11. CNAAQ-2 Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	D I	D II				
Freshman						
Incremental	4.08±.44	4.53±.40	4.08±1.1	4.44±.58	4.30±.54	4.28±.55
Entity	2.81±.62	2.83±.81	2.62±.28	2.08±.48	2.86±.74	2.66±.71
Sophomore						
Incremental	3.80±.43	4.71±.21	4.33±.50	4.42±.82	4.28±.44	4.24±.48
Entity	2.59±.51	2.45±.50	2.67±.17	2.08±.59	2.44±.64[a]	2.46±.60
Junior						
Incremental	4.33±.32	4.61±.67	4.02±.59			4.21±.54
Entity	2.98±.58	2.83±.44	2.93±.63			2.93±.57
Senior						
Incremental	3.81±.60	4.07±.45	3.73±.25			3.86±.47[c]
Entity	2.21±.66	2.80±.78	3.20±.46			2.68±.74
$\bar{x}$						
Incremental	4.02±.48	4.45±.47[a]	4.01±.61[b]	4.43±.77	4.29±.51[a]	4.24±.53
Entity	2.69±.63	2.74±.61	2.90±.53	2.08±.47	2.60±.71	2.64±.68

[a] = significantly different than NCAA DI; [b] = significantly different than NCAA DII, [c] = significantly different than Freshmen, $p < .05$

According to the model reported by Biddle et al. (2003) incremental beliefs tend to orient individuals towards a task orientation and entity beliefs tend to orient individuals toward an ego orientation, with the incremental—task relationship being stronger than the entity—ego relationship. The major differences between the baseball specific sample and the Biddle et al. (2003) sample is the significant, negative and weak relationship (-.19) between Incremental and Entity found by the bivariate correlation. The relationship was expected to be significant and negative but with a stronger magnitude. The result suggests collegiate baseball players have strong entity beliefs which do not seem to be impairing their incremental beliefs.

Conner-Davidson Resilience Scale. Complete scores by year and division are presented in Table 12. The overall score was 41.03 ± 5.6, and there were no significant differences between division, year, or division by year. Juniors reported the highest resilience

scores overall which coincide with eligibility for the First Year Player draft. NWAACC Sophomores reported higher resilience scores than NWAACC Freshmen as expected.

Table 12. CD-RISC Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	Division I	Division II				
Freshman	40.44±4.8	43.60±3.1	42.75±3.6	42.50±4.8	40.48±6.1	40.81±5.8
Sophomore	39.00±5.8	44.50±3.8	40.33±3.5	37.00±5.7	41.02±5.6	40.80±5.5
Junior	42.50±3.1	41.67±6.0	43.58±4.4			42.96±4.1
Senior	41.29±4.2	40.80±8.8	40.40±7.3			40.88±6.3
$\bar{x}$	40.67±4.7	42.65±5.6	42.38±4.8	41.40±5.2	40.67±5.9	41.03±5.6

Original item correlation. Results from each instrument were compared using Pearson's correlations to examine relationships between variables (see Table 13). Of the four subscales of the CMSQ, DF and WF were expected to share a significant, positive relationship with each other and a significant, negative relationship with DO and FE. The relationship between WF and DO was nonsignificant, negative and weak and the relationship between WF and FE was significant, negative but also weak. The DO and FE subscales were also expected to share a significant, positive relationship and did. The DF subscale was expected to share a significant, positive relationship with Incremental, CD-RISC and HBVCI-16 and a significant, negative relationship with Entity. The DF subscale and HBVCI-16 shared a significant, negative relationship with a moderate magnitude and DF shared a nonsignificant, negative relationship with Entity, with a weak magnitude. The WF subscale was expected to share a significant and negative relationship with Entity beliefs and a significant and positive relationship with Incremental beliefs, CD-RISC, and HBVCI-16. The WF subscale and Entity beliefs shared a nonsignificant, positive relationship of weak magnitude and a significant, negative relationship of moderate magnitude with HBVCI-16.

The Incremental and Entity beliefs dimensions of the CNAAQ-2 were expected to share a significant, negative relationship and did but the magnitude was weak. Incremental beliefs were expected to share a significant, positive relationship with CD-RISC and HBVCI-16, but results produced a significant weak negative relationship with HBVCI-16. Entity beliefs was expected to share a significant, negative relationship with CD-RISC and HBVCI-16, but results produced a weak nonsignificant, negative relationship with CD-RISC. Additionally, CD-RISC and HBVCI-16 were expected to share a significant, positive relationship however results produced a significant, negative relationship with a weak magnitude.

Table 13. Bivariate Correlations for Subscales and Total Scores

Subscales	1	2	3	4	5	6	7
1. DF							
2. WF	.42[a]						
3. DO	-.29[a]	-.12					
4. FE	-.49[a]	-.17[b]	.41[a]				
5. Incremental	.41[a]	.25[a]	-.22[a]	-.39[a]			
6. Entity	-.08	.01	.42[a]	.13[a]	-.19[a]		
7. CD-RISC	.52[a]	.23[a]	-.48[a]	-.38[a]	.39[a]	-.13	
8. HBVCI-16	-.22[a]	-.30[a]	-.04	.13[b]	-.17[b]	-.15[b]	-.19[a]

[a] = $p < .01$, [b] = $p < .05$

Proposed overall makeup model. Complete subscale scores for the items included in the reduced subscales by year and division are provided in Table 14. Significant differences were found between Freshmen and Seniors as well as between NCAA Division I athletes and NWAACC athletes on the reduced Incremental scale. Sophomores also reported significantly lower scores on the reduced Entity beliefs subscale than Juniors. Caution should be used before making generalizations however as sample sizes by division and year are small.

Table 14. Subscale Means and Standard Deviations for Proposed Overall Makeup Model

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	D I	D II				
Freshman						
DF	5.39±.57	5.67±.33	5.17±1.45	5.16±.65	5.30±.74	5.34±.72
WF	4.65±1.1	4.80±.60	4.50±1.6	4.47±1.0	4.56±1.1	4.57±1.1
DO	2.90±.99	2.50±.61	2.06±1.1	2.53±1.3	3.06±1.2	2.95±1.2
FE	2.00±.84	2.07±.64	1.75±.88	1.89±.87	6.12±2.5	2.02±.82
Incremental	3.98±.49	4.56±.33	4.05±1.1	4.40±.61	4.27±.58	4.25±.59
Entity	2.79±.59	2.84±.79	2.60±.23	2.10±.41	2.68±.79	2.66±.75
CDRISC	16.25±1.9	18.4±1.3	15.75±2.1	16.88±1.8	16.12±3.0	16.14±3.1
HBVCI-16	7.25±1.5	6.80±2.3	10.00±4.3	7.78±3.6	7.60±2.7	7.62±2.7
Sophomore						
DF	5.40±.58	5.58±.63	5.89±.19	5.00±.57	5.19±.72	5.27±.69
WF	5.10±.99	4.13±1.2	4.08±.73	4.38±1.6	4.47±1.1	4.52±1.1
DO	2.65±1.1	2.63±1.2	3.00±1.0	3.25±.71	2.87±1.1	2.84±1.1
FE	2.07±.89	1.75±.69	1.89±.38	1.67±.47	5.84±2.1	1.94±.71
Incremental	3.62±.46	4.65±.25	4.27±.50	4.40±.85	4.28±.46	4.22±.52
Entity	2.53±.57	2.50±.62	2.60±.00	2.10±.71	2.47±.64	2.47±.61
CDRISC	15.00±3.2	18.0±2.2	16.00±1.0	13.50±3.5	16.54±2.8	15.82±3.9
HBVCI-16	8.40±2.3	6.80±1.3	6.67±3.1	7.50±.71	7.88±3.0	7.82±2.8
Junior						
DF	5.50±.57	5.67±.33	4.89±.69			5.20±.76
WF	4.97±.84	4.83±1.4	4.35±.73			4.62±.87
DO	2.81±.88	3.50±.87	3.15±1.1			3.08±.96
FE	1.92±.88	1.56±.69	2.11±.64			1.97±.83
Incremental	4.35±.33	4.60±.69	4.00±.58			4.20±.55
Entity	3.05±.53	3.00±.53	2.98±.62			3.01±.56[b]
CDRISC	17.25±1.0	17.00±2.0	17.67±1.8			17.43±1.6
HBVCI-16	6.75±1.7	8.33±7.5	9.25±3.9			8.26±3.9
Senior						
DF	5.42±.53	5.40±.72	4.47±.69			5.14±.76
WF	4.68±1.3	4.25±1.0	3.60±.74			4.24±1.1
DO	2.68±1.1	3.70±1.6	3.70±45			3.28±1.2
FE	1.47±.47	2.47±1.3	2.67±.97			2.12±1.0
Incremental	3.71±.72	4.00±.47	3.68±.18			3.79±.53[a]
Entity	2.31±.81	2.84±.75	3.20±.49			2.73±.77
CDRISC	16.86±2.2	16.6±4.3	15.40±3.7			16.35±3.2
HBVCI-16	8.35±2.4	7.00±2.0	9.40±.2.0			8.35±2.4

(*Table 14 continues*)

(*Table 14 continued*)

	NCAA D I	NCAA D II	NAIA	NJCAA	NWAACC	$\bar{x}$
$\bar{x}$						
DF	5.42±.53	5.57±.51	4.97±.95	5.13±.61	5.26±.73	5.29±.72
WF	4.82±1.0	4.49±.98	4.19±.93	4.45±1.1	4.52±1.1	4.54±1.1
DO	2.79±.98	3.06±1.2	3.06±1.0	2.66±1.2	2.99±1.2	2.95±1.1
FE	1.91±.86	2.02±.89	2.14±.75	1.85±.79	6.02±2.4	2.00±.80
Incremental	3.93±.55	4.42±.48	3.98±.62	4.40±.61	4.28±.54[a]	4.20±.57
Entity	2.70±.64	2.79±.66	2.92±.53	2.10±.43	2.61±.75	2.65±.70
CDRISC	16.28±.63	17.23±2.7	16.67±2.39	16.20±2.4	16.27±2.9	16.19±3.2
HBVCI	7.66±2.0	7.11±3.2	9.08±3.5	7.73±3.2	7.70±2.8	7.79±2.8

[a] = significantly different than Freshmen, [b] = significantly different than Sophomore, $p < .05$

Baseball makeup inventory HBVCI-16. The BMI-HBVCI-16 used an adjusted Likert-type scale (i.e., 1-6) to match the scales used in the other three instruments. According to Dillman, Smyth, and Christian (2009), maintaining scale dimensions increases the quality of the responses and reduces participant fatigue. The change is noteworthy as a direct comparison of scores with the original version of the HBVCI-16 cannot be made without converting the scores to reflect the change using a prediction equation (i.e., dividing the maximum score of the new scales by the maximum score of the original scale and multiplying by the quotient; $5 = 5 \times \frac{6}{5} = 1.2$; Agresti & Finlay, 2009). Therefore, scores (see Table 15) generated by the BMI version of the HBVCI-16 were derived by summing the totals of the 12 items with moral significance and dividing them by 1.2. The results were then compared to scores of the original HBVCI-16 using a paired t-test and found to be significantly lower (i.e., overall mean BMI HBVCI-16 = 19.21±6.7, overall mean HBVCI-16 = 24.62±7.1).

Table 15. BMI HBVCI-16 Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	Division I	Division II				
Freshman	15.33±7.8	18.33±7.8	19.17±8.2	19.86±4.6	19.18±6.6	18.69±6.7
Sophomore	19.35±9.5	24.17±2.0	19.44±.96	28.33±7.1	19.15±5.9	19.78±6.4[a]
Junior	22.19±7.0	18.75±7.6	18.26±6.2			19.80±6.6
Senior	19.58±6.0	24.79±7.5	16.83±10.1			20.06±8.0
$\bar{x}$	18.40±8.0	21.67±5.5	18.26±6.8	21.98±6.2	19.17±6.4	19.21±6.7

[a] = significantly different than Freshman, $p < .05$

Baseball Makeup Inventory CMSQ. One significant difference was found in the baseball version (see Table 16) by division, year, and division by year. The FE mean score reported by NAIA Seniors (M = 3.03) was significantly higher than all of the other divisions by year. The significance of this finding is somewhat trivial because there were only five NAIA Seniors. A paired t-test revealed baseball players reported significantly higher WF scores on the BMI subscale and significantly lower scores on the DO and FE subscales than the original subscales.

Table 16. BMI CMSQ Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	D I	D II				
Freshman						
DF	5.33±.42	5.32±.27	5.30±1.3	5.23±.67	5.09±.70	5.15±.68
WF	4.93±.63	5.07±.72	4.83±1.5	4.93±1.0	4.92±1.0	4.92±.98
DO	2.72±1.1	2.57±.46	2.29±.61	2.18±1.2	2.84±.94	2.76±.95
FE	1.56±.56[a]	1.67±.26[a]	1.17±.36[a]	1.26±.66[a]	1.83±.78[a]	1.74±.75
Sophomore						
DF	5.02±.54	5.40±.20	5.47±.31	4.90±1.3	5.10±.72	5.11±.68
WF	4.81±.97	3.89±.77	4.11±1.17	5.00±1.41	4.82±.92	4.75±.95
DO	2.38±.75	2.19±.72	2.52±.64	2.64±.30	2.50±.77	2.47±.74
FE	1.65±.47[a]	1.22±.10[a]	1.44±.42[a]	1.33±.71[a]	1.75±.58[a]	1.68±.55
Junior						
DF	5.19±.66	5.80±.28	4.98±.80			5.13±.74
WF	5.25±.68	5.50±.71	4.47±1.2			4.85±1.1
DO	2.41±.55	3.07±.10	2.63±.82			2.59±.70
FE	1.42±.79[a]	1.58±.12[a]	1.56±.45[a]			1.51±.56
Senior						
DF	5.29±.46	5.35±.91	4.88±.44			5.18±.59
WF	4.62±1.3	5.08±.69	4.40±.92			4.67±1.0
DO	2.41±.62	2.43±1.23	2.86±.46			2.55±.75
FE	1.36±.56[a]	1.58±.88[a]	3.03±.49			1.94±.97
$\bar{x}$						
DF	5.22±.51	5.41±.51	5.08±.78	5.15±.76	5.10±.70	5.14±.67
WF	4.91±.85	4.88±.84	4.47±1.1	4.95±1.0	4.88±.99	4.85±.98
DO	2.52±.82	2.52±.76	2.61±.69	2.29±1.0	2.72±.90	2.64±.86
FE	1.51±.58	1.54±.48	1.78±.79	1.28±.62	1.80±.72	1.71±.70

[a] = Significantly different than NAIA Juniors

Expectations were that the baseball version would produce the same subscale relationships as the original CMSQ. Correlation results (see Table 17) showed the expected results with one exception. WF and DO are negatively correlated, as expected, however not significantly, which match results from the original scale. Results provide further evidence that a baseball specific effect is not due to item modification and may not be necessary.

Table 17. Bivariate Correlations for the BMI-CMSQ

Subscale	DF	WF	DO
DF			
WF	.42[a]		
DO	-.29[a]	-.10	
FE	-.49[a]	-.16[b]	.49[a]

[a] = $p < 0.01$, [b] = $p < 0.05$

Baseball Makeup Inventory CNAAQ-2. The baseball version of the CNAAQ-2 was also analyzed similarly to the original, despite the items being presented in random order with CMSQ and CD-RISC items (see Table 18). Incremental and entity beliefs scores were computed consistently with the original data. Significant differences were found regarding Incremental belief scores, with NCAA Division I sophomores scoring significantly lower (M = 4.31) than NAIA freshmen (M = 5.33), NJCAA freshmen (M = 5.33), and NWAACC freshmen (M = 5.07) and sophomores (M = 5.14).

Table 18. BMI-CNAAQ-2 Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	D I	D II				
Freshman						
Incremental	4.93±.42	4.93±.72	5.33±.81[a]	5.33±.64[a]	5.07±.66[a]	5.07±.64
Entity	3.65±.79	3.40±.55	3.08±.32	2.63±.56	3.33±1.0	3.33±.95
Sophomore						
Incremental	4.31±.60	5.44±.42	5.17±.73	5.25±1.1	5.14±.62	5.04±.68
Entity	3.35±.68	3.00±.29	3.33±.17	2.17±.24	3.07±.92	3.09±.85
Junior						
Incremental	5.21±.31	5.25±1.1	4.74±.87			4.95±.73
Entity	3.60±.70	4.33±.00	3.64±1.0			3.69±.85
Senior						
Incremental	4.79±.64	5.21±.57	4.33±.49			4.75±.64
Entity	3.12±.99	3.17±1.6	3.80±.32			3.34±1.0
$\bar{x}$						
Incremental	4.82±.57	5.17±.62	4.81±.80	5.31±.68	5.10±.65	5.03±.66
Entity	3.47±.79	3.38±.94	3.54±.76	2.50±.52	3.24±.98	3.30±.93

[a] = Significantly different than NCAA DI Sophomore, $p < .05$

Paired t-tests were used to test the difference between the original CNAAQ-2 subscales and the modified CNAAQ-2. Each modified subscale produced significantly greater scores than its respective original subscale. Results continue to provide evidence of collegiate baseball players inflating their responses on items written in baseball specific terms.

Correlation results examined the relationships between Incremental and Entity belief scores, with the expectation they would share a significant, negative relationship and match the relationship produced with original items. The baseball items produced a significant, weak negative relationship (-.18) that was nearly identical to the relationship produced with original items.

Baseball Makeup Inventory CD-RISC. CD-RISC items were not modified but were randomly mixed with the baseball versions of the CMSQ and CNAAQ-2. Complete scores by year and division are presented in Table 19. The overall score was 41.03 ± 5.6 on the original items, but when randomly mixed with other baseball related items, the score significantly ($p < 0.05$) increased to 47.96±7.4. No significant differences were found between scores by division, year, or division by year. Paired t-tests again showed significant inflation in responses to baseball specific items. Recall that CD-RISC items were unchanged and randomly mixed with the baseball specific items. Despite the items not being changed, a 6.91 increase was evident between the original version (M = 41.05) and the items when randomly mixed with baseball specific items (M = 47.96).

Table 19. BMI CD-RISC Scores by Year and Division

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	Division I	Division II				
Freshman	49.29±5.2	52.60±4.4	47.00±11.0	45.33±17.4	46.93±8.0	47.37±8.4
Sophomore	5.89±8.4	55.33±3.8	50.33±2.3	47.00±4.2	48.88±5.8	48.77±6.2
Junior	49.00±3.0	48.00±14.1	49.08±6.7			48.95±6.0
Senior	49.57±5.3	50.50±7.8	43.00±4.6			47.75±6.4
$\bar{x}$	48.47±5.8	51.93±6.6	47.63±7.0	45.75±17.8	47.61±7.4	47.96±7.4

Baseball modified subscale correlations. Results from each modified instrument were examined by correlational analysis to assess relationships between subscales and total scores (see Table 20) and expected to match the correlations produced by original analysis. Considering the CMSQ, the DF and WF subscales were again expected to share significant, positive relationships with each other and significant, negative relationships with the DO and FE subscales, which were expected to share a significant, positive correlation. The WF subscale demonstrated a weak nonsignificant, negative relationship with the DO subscale. The WF and FE subscales shared a weak significant, negative relationship. Whereas the DF subscale was expected to share a significant, positive relationship with Incremental beliefs, CD-RISC, and HBVCI-16 as well as a significant, negative relationship with Entity beliefs. The DF subscale and HBVCI-16 shared a significant, moderate negative relationship as well as a weak and nonsignificant, positive relationship with Entity beliefs,. The WF subscale was expected to share a significant, positive relationship with Incremental beliefs, CD-RISC, and HBVCI-16 as well as a significant, negative relationship with Entity beliefs. The WF subscale shared a significant moderate, negative relationship with HBVCI-16 as well as a weak nonsignificant, positive relationship with Entity beliefs.

The incremental and entity beliefs dimensions of the CNAAQ-2 were expected to share a significant, negative relationship and results supported this hypothesis, although the magnitude was weak. Incremental beliefs were expected to share a significant, positive

relationship with CD-RISC and HBVCI-16. Incremental beliefs shared a weak significant, negative relationship with HBVCI-16, whereas entity beliefs were expected to share a significant, negative relationship with CD-RISC and HBVCI-16. Results revealed a weak nonsignificant, negative relationship between entity beliefs and CD-RISC. Additionally, CD-RISC and HBVCI-16 were expected to share a significant, positive relationship, however the relationship produced was significant, negative and had a moderate magnitude.

Table 20. Baseball Modified Item Bivariate Correlation

Subscales	1	2	3	4	5	6	7
1. DF							
2. WF	.42[a]						
3. DO	-.29[a]	-.10					
4. FE	-.49[a]	-.16[b]	.49[a]				
5. Incremental	.48[a]	.37[a]	-.30[a]	-.35[a]			
6. Entity	.01	.09	.39[a]	.41[a]	-.18 [a]		
7. CD-RISC	.55[a]	.44[a]	-.36[a]	-.30[a]	.53[a]	-.03	
8. HBVCI-16	-.26[a]	-.30[a]	-.03	-.05	-.14[b]	-.21[a]	-.29[a]

[a] = $p < 0.01$, [b] = $p < 0.05$

Baseball Makeup Inventory proposed model. Complete subscale scores are presented in Table 21. The overall model produced no significant differences between divisions, year, or division by year.

Table 21. Subscale Means and Standard Deviations for Proposed Overall Baseball Makeup Model

	NCAA		NAIA	NJCAA	NWAACC	$\bar{x}$
	D I	D II				
Freshman						
DF	5.50±.45	5.53±.30	5.17±1.7	5.60±.28	5.13±.83	5.21±.81
WF	4.93±.63	5.07±.72	4.83±1.5	4.93±1.0	4.92±1.0	4.92±.98
DO	2.91±1.1	2.60±.72	2.25±1.3	3.00±1.1	3.03±1.2	3.27±1.3
FE	1.93±.83	1.87±.18	1.25±.50	1.83±.46	2.10±.96	2.03±.91
Incremental	4.80±.49	4.84±.70	5.30±.77	5.27±.85	5.00±.76	4.99±.74
Entity	3.67±.78	3.40±.68	3.30±.48	2.68±.70	3.36±1.1	3.36±1.0
CDRISC	17.63±7.3	21.40±2.3	18.25±5.6	18.17±7.2	18.75±4.2	18.22±.56
HBVCI-16	4.69±2.0	3.80±.84	3.50±.57	4.17±1.3	5.15±2.3	4.93±2.1

(*Table 21 continues*)

(*Table 21 continued*)

	NCAA		NAIA	NJCAA	NAIA	$\bar{x}$
	D I	D II				
Sophomore						
DF	5.19±.69	5.67±.33	5.44±.69	5.17±1.2	5.10±.91	5.15±.85
WF	4.81±.97	3.89±.77	4.11±1.2	5.00±1.4	4.82±.92	4.75±.95
DO	2.41±.91	2.50±.75	2.78±.96	3.00±.71	2.65±.98	2.93±1.1
FE	1.89±.73	1.56±.19	1.78±.38	1.50±.71	2.07±.72	1.99±.70
Incremental	4.13±.71	5.33±.50	5.07±.81	5.20±1.1	5.08±.67	4.96±.75
Entity	3.29±.77	3.13±.42	3.40±.20	2.20±.00	3.15±1.0	3.15±.92
CDRISC	16.70±6.9	23.00±1.7	21.00±1.0	18.50±2.1	19.45±3.9	18.96±4.9
HBVCI-16	5.33±1.7	5.75±2.2	5.00±2.0	8.00±2.8	4.98±2.0	5.16±2.0
Junior						
DF	5.38±.68	5.83±.24	5.06±.94			5.24±.82
WF	5.25±.68	5.50±.71	4.47±1.2			4.85±1.1
DO	2.50±.67	3.88±.88	2.81±1.0			3.24±1.1
FE	1.75±.89	2.50±.24	1.86±.66			1.88±.73
Incremental	5.15±.33	5.20±1.1	4.63±.91			4.87±.78
Entity	3.83±.67	4.00±.00	3.67±1.0			3.75±.85
CDRISC	20.63±1.5	20.00±5.7	20.00±3.0			19.35±4.9
HBVCI-16	6.50±2.8	6.00±4.2	5.18±2.4			5.76±2.6
Senior						
DF	5.57±.37	5.33±.90	4.87±.56			5.29±.63
WF	4.62±1.3	5.08±.69	4.40±.92			4.670±1.0
DO	2.43±.98	2.44±1.1	2.93±.72			3.13±1.0
FE	1.52±.50	1.92±1.3	3.67±1.1			2.29±1.3
Incremental	4.69±.72	5.10±.62	4.42±.38			4.65±.66
Entity	3.11±1.1	3.25±1.6	3.88±.30			3.39±1.0
CDRISC	20.43±2.0	21.00±3.6	17.20±2.5			18.41±5.5
HBVCI-16	5.50±2.3	5.75±1.9	6.75±2.4			5.93±2.1[c]
$\bar{x}$						
DF	5.41±.55	5.55±.52	5.08±.95	5.48±.57	5.12±.86	5.20±.81
WF	4.91±.85	4.88±.84	4.47±1.1	4.95±1.0	4.88±.99	4.85±.98
DO	2.58±.92	2.71±.91	2.74±.96	3.00±.97	2.89±1.2	3.16±1.2
FE	1.81±.75	1.90±.68	2.13±1.1	1.75±.50	2.09±.89	2.02±.87
Incremental	4.69±.65	5.07±.65	4.72±.83	5.25±.84	5.02±.73	4.95±.74
Entity	3.51±.83	3.39±.90	3.62±.77	2.54±.62	3.29±1.0	3.34±.97
CDRISC	18.46±5.8	21.43±2.9	19.25±3.3	18.25±6.1	18.99±4.1	18.56±5.3
HBVCI-16	5.39±2.2	5.13±2.1	5.14±2.2	5.13±2.4	5.09±2.2	5.15±2.17

Overall descriptive results suggest that the baseball specific items are not producing benefits over, and above, the original instruments. Each subscale except DF, reported greater scores when compared against the respective original subscales, but correlation and CFA

analyses results were similar. Therefore, the baseball specific items have been determined to be of minimal benefit in identifying baseball makeup and will not be considered in further analyses.

Cluster Analysis

Both hierarchical and non-hierarchical cluster analyses were completed to better conceptualize makeup motivational style profiles for the sample population. The advantages of using cluster analysis is to allow researchers to inductively examine different solutions based on theory to determine the best fit for the data (Hodge & Petlichkoff, 2000). The main purpose of using cluster analysis in sport psychology is to provide homogeneous groups of individuals based on predetermined criteria (Harwood, Cumming, & Fletcher, 2004). In this case, the CMSQ was chosen as the criteria to determine the clusters because it has been psychometrically developed to assess the most complex psychological construct (i.e., motivational styles). Once clusters were developed, a MANOVA was calculated to compare clusters differences on the CNAAQ-2 dimensions and HBVCI-16, and CD-RISC total scores. Scheffé post-hoc tests were used to find specific differences between clusters.

Procedures commonly found in the sport psychology literature using cluster analysis were followed to complete the two step process (Gaudreau & Blondin, 2004; Harwood, Cumming, & Fletcher, 2004; Hodge & Petlichkoff, 2000; Wang & Biddle, 2003; Wang et al., 2002). The cleaned data set (N = 230) was standardized to z-scores and a hierarchical cluster analysis was completed using a Ward's method with the squared Euclidean distance to reduce the differences within clusters. The resulting agglomeration schedule suggested between two and five clusters were present.

A k-means cluster procedure was then run to explore the suggested cluster solutions. The k-means cluster provides the mean score (in z-scores) of the CMSQ subscales in each cluster (i.e., clusters centers), with the goal of finding the best fit of the data determined by cases in the distribution (i.e., number of participants in each cluster). The three cluster solution was chosen as it produced a better distribution of participants in each group (i.e. ≥ 20) than the four and five cluster solution and the two cluster solution simply provided the extremes (i.e., high and low scores) leaving too much variance unexplained. Means and standard deviations were calculated for each CMSQ subscale and z-scores are presented in Table 24.

Cluster results. Cluster 1 contained 63 athletes with a low DF/WF scores approaching one standard deviation (SD) below the mean and high DO/FE scores .4 and .8 SD's above the mean, Cluster 2 contained 72 athletes with all scores above the mean, with DO and DF .5 and .7 DS's above the mean and DF and FE .25 and .15 SD's above the mean. Cluster 3 contained 95 athletes with DF/WF scores .5 and .25 SD's above the mean and DO/FE scores .8 and .7 SD's below the mean (see Table 22 and Figure 7). Cluster 1 was labeled "Poor Makeup" because of its low DF/WF and high DO/FE relationships which conceptually are considered to be debilitative in competitive situations (Gillham, et al., 2012). Individuals in this cluster are hypothesized to have lower incremental beliefs and weak resilience, both of which have negative impacts on performance and development (Biddle, et al., 2003; Campbell-Sills & Stein, 2007). The group was also predicted to have the highest moral reasoning scores. Overall, the Poor Makeup group should be motivated to protect against perceptions of incompetence related to winning or outperforming others, and

their strong entity beliefs make them less resilient as they prefer not to be challenged or develop new skills and strategies.

Cluster 2 was named "Win-Fixated Makeup" because of its positive motivational styles. This cluster had the highest WF and DO scores and moderate DF and FE scores indicative of a win-fixated makeup. Cluster 3 was named "Development Makeup" because it was highest on DF, lowest on DO and FE and moderate on WF. Of the sample population (N = 230), four of the six participants who reported being previously selected in MLB's First Year Player Draft were found in this cluster. Overall the Development Makeup group is motivated to consistently improve their skills and strategies as means to win or outperform others. Athletes in this group believe they can always get better and seek challenges to find ways to improve.

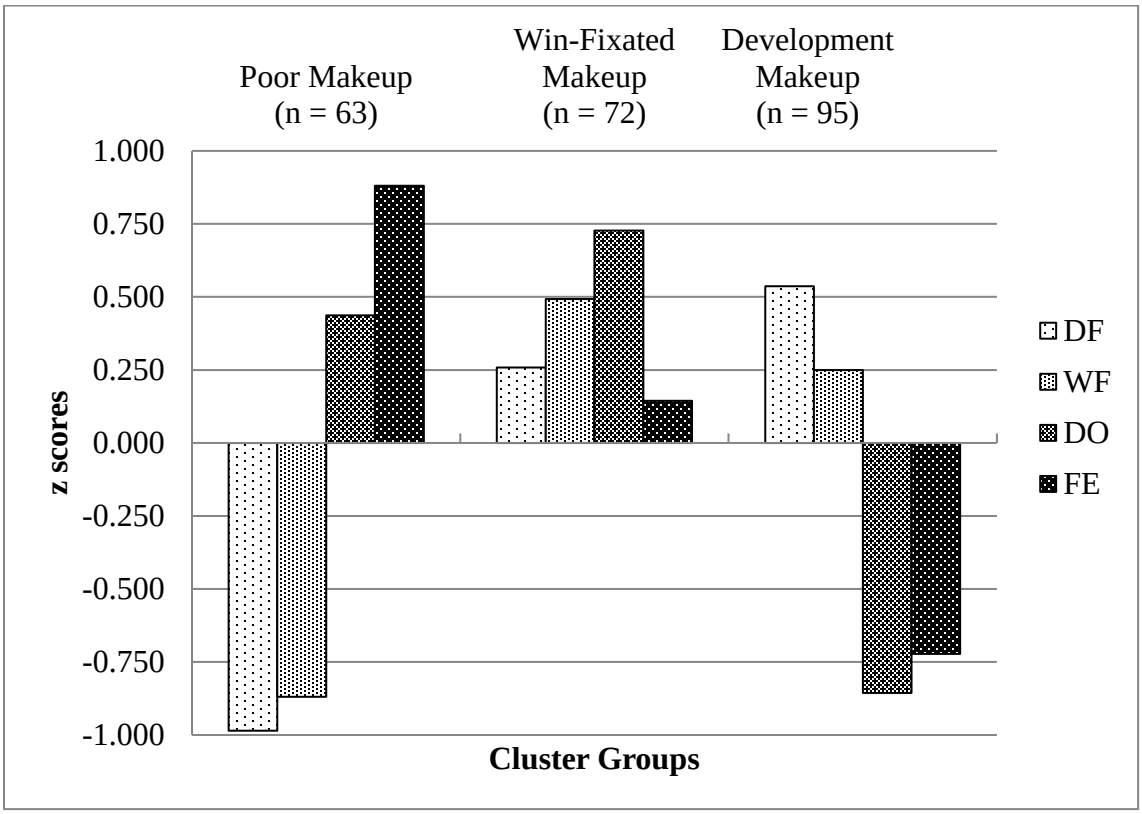

Figure 7. K-Mean Cluster Groups.

Multivariate analysis of the variance results. A MANOVA was conducted to confirm significant differences between the cluster groups on incremental and entity beliefs (i.e., CNAAQ-2), moral reasoning, (i.e., HBVCI-16), and resilience (i.e., CD-RISC). A significant multivariate main effect was found Wilk's $\lambda = 0.539$, $F(12,442) = 13.319$, $p < .0005$; partial $\varepsilon^2 = .27$. Scheffé's post hoc results revealed the Poor Makeup profile had significantly lower incremental beliefs, and CD-RISC scores than did the Win-Fixated and Developmental Makeup groups, significantly lower HBVCI-16 scores than did the Win-Fixated Makeup cluster, and significantly higher Entity belief scores than did the Development Makeup group. The Win-Fixated Makeup profile had significantly higher entity beliefs and significantly lower CD-RISC scores than did the Development Makeup group. Overall, the Development Makeup cluster seemed most facilitative to mental toughness and performance, the Poor Makeup profile seemed to be the most debilitative and the Win-Fixated Makeup cluster seemed to fall between these extremes but be more facilitative than debilitative.

Table 22. Cluster Means, Standard Deviations, and Z-scores for Three-cluster K-Means Solution

	Cluster 1 (N = 63) "Poor Makeup"			Cluster 2 (N = 72) "Win-Fixated Makeup"			Cluster 3 (N = 95) "Development Makeup"		
Variables	$\bar{x}$	SD	z	$\bar{x}$	SD	z	$\bar{x}$	SD	z
Criterion Variables									
Incremental	3.89[ab]	0.48	-.51	4.30	0.47	.04	4.41	0.50	.36
Entity	2.77 [b]	0.62	.05	2.94[c]	0.67	.42	2.31	0.59	-.32
CD-RISC	37.19[ab]	5.80	-.69	40.19[c]	4.90	-.15	44.20	3.90	.57
HBVCI-16	26.33[a]	6.60	.28	22.92	5.40	-.25	24.64	8.00	.00
Clustering Variables									
DF	4.43	0.65	-.99	5.30	0.41	.26	5.50	0.38	.54
WF	3.58	0.90	-.87	5.06	0.76	.49	4.79	0.94	.25
DO	3.64	0.80	.44	3.91	0.62	.73	2.40	0.61	-.86
FE	2.63	0.68	.88	2.10	0.56	.14	1.49	0.37	-.72

[a] = Cluster 1 significantly different than Cluster 2, [b] = Cluster 1 significantly different than Cluster 3, [c] = Cluster 2 significantly different than Cluster 3; $p < .05$

Canonical Correlation Analysis

Canonical correlation analysis is a statistical strategy to examine relationships between two sets of variables. Canonical variates are produced for each set of variables and several measures are produced for each variate including raw and standardized canonical coefficients, canonical loadings, percent of variance, and redundancy (Tabachnick & Fidell, 2007). The canonical variates produced are in order of significance strength, the first variate compares all variables in each set, the second variate is a test of variables with the first and most important pair of canonical variates removed, and the process is continued until all variance is considered (Tabachnick & Fidell, 2007). Because variance is removed after each canonical variate, it is common to have multiple canonical variates in the results, with only a few reaching significance (Tabachnick & Fidell, 2007). The canonical correlations are determined by the overlapping variance between a pair of canonical variates and therefore

most researchers only interpret canonical loadings greater than .30 as they represent less than a 10% overlap in variance. However decisions to interpret are generally left to the discretion of the researcher (Tabachnick & Fidell, 2007). Canonical loadings represent the correlations between one set of variables and the canonical variates of the other set (Tabachnick & Fidell, 2007). The percent of variance represents the variance a canonical variate extracts from its own set of variables and is totaled to illustrate the percent of variance considered in the analysis (Tabachnick & Fidell, 2007). Redundancy represents the variance a canonical variate from one set extracts from the variables in the other set, and because canonical variates are independent, redundancies may be equal but are added across canonical variates as well to get a total for each set of variables (Tabachnick & Fidell, 2007). According to Tabachnick and Fidell (2007), interpretation of canonical correlations can be difficult, especially with several significant canonical variates. The analysis is a powerful tool to examine relationships between sets of variables, and because the manner in which variance is removed, interpreting the relationships can be difficult as they are often unexpected and/or beyond conceptual frameworks.

Canonical correlation results. The first set of variables included the four subscales of the CMSQ (i.e., DF, WF, DO, and FE) and the second set included incremental and entity beliefs (i.e., CNAAQ-2), resilience (CD-RISC), and moral reasoning (i.e., HBVCI-16). Results produced three significant canonical correlations (see Table 23), with Wilk's λ values of .38 ($p < .0005$), .74 ($p < .0005$), and .91 ($p < .0005$) respectively. The canonical correlations for the first significant variate was excellent, .70 (49% of the variance), the second significant variate was fair, .43 (18% of the variance), and the third significant variate was questionable, .28 (8% of the variance).

The first canonical variate included the DO, FE, and DF variables from the first set and the variables which correlated with them from the second set included CD-RISC and incremental, and entity beliefs. The first pair of canonical variates indicated that players DO (.81) and FE (.76) motivational styles and low on DF (-.72) are associated with low resilience (-.85) and incremental beliefs (-.60), and high entity beliefs (.57).

The second canonical variate included the DF, WF, and DO variables from the first set and HBVCI-16 and entity, and incremental beliefs from the second set. The second pair of canonical variates indicated that high on WF (.66), DF (.60), and DO (.44) motivational styles are associated with high entity beliefs (.65) and incremental beliefs (.42), and low moral reasoning (-.71).

The third canonical variate included FE from the first set and entity beliefs, CD-RISC, HBVCI-16 and incremental beliefs from the second set. The third pair of canonical variates indicated that high on FE (.54) motivational style are associated with high moderate entity beliefs (.50) and resilience (.45), and moral reasoning (.37), and low incremental beliefs (-.34). The fourth canonical correlation was not significant, which is common in canonical correlations and therefore should not be interpreted (Tabachnick & Fidell, 2007).

Table 23. Canonical Correlation Coefficients, Canonical loadings, Within-Set Variance, and Across-Set Redundancies

	Canonical Variate #1		Canonical Variate #2		Canonical Variate #3		Canonical Variate #4	
Subscale	Canonical Coefficients (Standardized)	Canonical Loadings	Canonical Coefficients (Standardized)	Canonical Loadings	Canonical Coefficients (Standardized)	Canonical Loadings	Canonical Coefficients (Standardized)	Canonical Loadings
Canonical Analysis Set 1: CMSQ								
DF	-.39 (-.36)	-.72	.73 (.68)	.60	.92 (.85)	.23	.59 (.55)	.94
WF	-.06 (-.06)	-.33	.49 (.48)	.66	-.52 (-.50)	-.26	-.87 (-.85)	.32
DO	.56 (.56)	.81	.61 (.62)	.44	-.45 (-.46)	-.21	.55 (.55)	-.29
FE	.35 (.34)	.76	.19 (.19)	.02	1.1 (1.0)	.54	-.45 (-.44)	.73
% Variance	.46		.25		.11		.17	Total = .99
Redundancy	.23		.05		.01		.00	Total = .29
Canonical Analysis Set 2: CNAAQ-2, CD-RISC, and HBVCI-16								
Incremental	-.26 (-.24)	-.60	.48 (.45)	.42	-.48 (-.45)	-.34	.94 (.88)	.58
Entity	.44 (.44)	.57	.66 (.66)	.65	.59 (.59)	.50	.32 (.32)	.08
CD-RISC	-.70 (-.70)	-.85	.03 (.03)	.22	.80 (.80)	.45	-.29 (-.29)	-.13
HBVCI-16	.03 (.03)	.14	-.53 (-.53)	-.71	.53 (.53)	.37	.73 (.73)	.59
% Variance	.36		.28		.18		.17	Total = .99
Redundancy	.18		.05		.01		.00	Total = .24

CHAPTER V: Discussion

The purpose of this exploratory study was to gain a better understanding of baseball specific makeup and begin development of a valid and reliable instrument designed for use by Major League Baseball (MLB) to objectively assess baseball-specific personality characteristics (i.e., makeup) of professional baseball prospects.

Discussion is presented in the order of the following research questions:

Research Questions:

Research Question One:

Can a package of instruments be identified to measure baseball makeup?

Research Question Two:

Will modifying items to be baseball specific allow for greater success in identifying baseball makeup?

Research Question Three:

Will the psychological constructs presented in the package of instruments relate to each other in conceptually relevant ways?

Research Question Four:

Can meaningful motivational style profiles for baseball makeup be created?

Research Question Five:

Will there be conceptually relevant differences between motivational style profiles for baseball makeup?

Research Question One:

Can a package of instruments be identified to measure baseball makeup?

The first hypothesis was confirmed. The package of instruments proposed to measure baseball makeup did produce an acceptable fit using CFA when latent variables were reduced and combined. Despite the sound fit indexes, observable variables (i.e., items) were removed from the original constructs for the overall analysis. The results support the use of the package of instruments but do not produce a valid instrument for use. Therefore further investigation is warranted into sport-specific aspects of each subscale.

Hahm-Beller Values Choice Inventory-16 (HBVCI-16). The HBVCI-16 was intended to be used as an instructional tool to assess deontic reasoning for purposes of measuring moral growth in educational settings. Therefore psychometric properties should not be expected and fit indexes produced via CFA should be expected to be poor, as they were not considered in the design of the instrument. Confirmatory factor analysis was used to measure the strength of each item for the purpose of reducing items in the overall model. Despite EFA results suggesting a single factor instrument, individual items were written to emphasize one of three moral principles common in deontology. The contradiction is noteworthy for several reasons. First, if there are three clear moral principles being tested as well as a group of four consistency check items, then four clear factors should become apparent through either exploratory factor analysis (EFA) or CFA, however neither case occurs, as expected. The justification for this result is that under the deontic framework, decisions with moral relevancy are assessed using all, or at least a combination of, moral principles and therefore no factors should be expected. The argument is conceptually sound because if the instrument were psychometrically sound, then path coefficients would be

expected to be stronger than the average reported here to validate the effectiveness of the items. Beller and Stoll (2004) reduced the instrument from 25 items to the current 16 item version as a result of EFA, even though only prime factor loadings were reported. In the current data, EFA loadings were consistently cross loaded (> .20) in most of the factors produced. Additionally, the instrument contains four items depicting scenarios with no moral relevancy which should clearly be all strongly agreed with and therefore provide at least one clear factor, but none was produced.

The second reason the contradiction is noteworthy here is the items with the strongest path coefficients (≥ .60) were all designed to emphasize the moral principle justice. Justice is of particular interest because it is the central tenant of Kohlberg's (1981) theory of moral development and tends to be mostly perceived as rule bound (i.e. Level 3 – Conventional). The source of interest for this finding is baseball's tradition is steeped in rules, both written and unwritten. According to Kohlberg (1981), few people develop beyond the Conventional stage. Therefore, as justice was clearly identified by the sample population the four items written to emphasize justice were included in the overall proposed model of baseball makeup.

When grouped and tested as a latent variable, with the remaining items containing morally relevant scenarios, the four Justice items produced an average path coefficient of 0.65 and as a latent variable, produced a correlation with the latent variable created by the remaining eight items, of .88 (see Figure 8). The correlation supports the use of the four items because they are virtually measuring the same construct as the other eight items. The four items produced a Cronbach alpha value of .75, which is generally acceptable in psychology research.

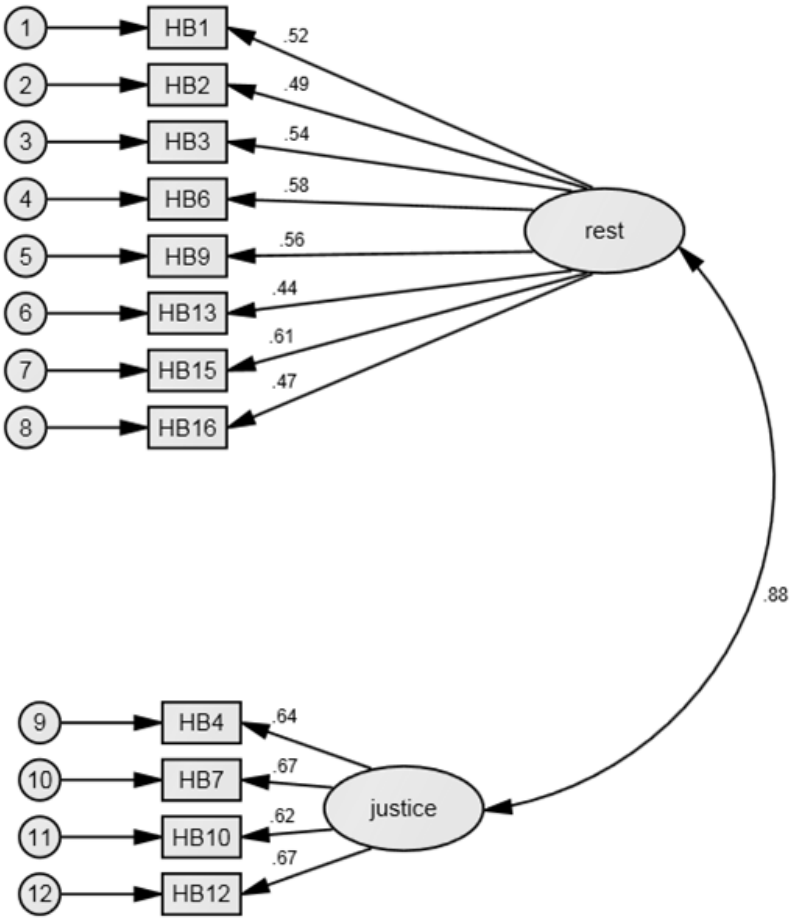

Figure 8. Selected Justice Items from HBVCI-16 Correlation with Remaining Items

Overall the nature of the HBVCI-16 items is not conducive to effective instrument development, yet again, the purpose of designing the instrument was theoretical and its use intended for educational purposes. Dillman et al. (2009) suggest that items for instrumentation should contain as few words as possible and maintain a low (e.g., fifth grade) reading level to ensure conceptual understanding and prevent fatigue. Items on the HBVCI-16 are routinely above an eighth grade reading level and exceed 40 words per scenario. If the purpose of the instrument was to assess moral knowing in a deontic framework, items could be written to be more direct and focus on specific violations of moral principles. Eliminating confusing distractors in the items would likely strengthen statistical evaluations of the

instrument. Fit indexes suggest that the instrument is measuring a level of moral knowing, and although item modification and reduction would likely create better fit indexes and latent variables for each stage of Kohlberg's (1981) model of moral development (i.e., Preconventional, Conventional, and Postconventional), the instrument performed its expected role in the current study as the colloquial definition of moral reasoning used by professional baseball scouts differs from the conceptual understanding presented in various theoretical constructs (Fox & DeMarco, 2001; Kohlberg, 1981; Lumpkin, Stoll, & Beller, 2003).

Competitive Motivational Style Questionnaire (CMSQ). The CMSQ was designed to examine motivational styles in competitive populations, and of the four instruments employed here, it is attempting to examine the most complex construct. Motivation styles are thought to be more trait, or dispositional than the state or situational, such as task and ego involvement presented by Nicholls (1984) and the implicit theories of ability presented by Dweck (2000) which provide the styles' foundation.

Residual fit indexes were similar to those reported by Gillham et al. (2012) and fell within the acceptable ranges. Target and null indexes in this sample were lower than the original, falling just below the generally accepted ≥ .90 cutoff. Reasoning for this is likely due to sample size, as the generally accepted 1:10 ratio was met but only by 33 participants. The NNFI fit index is generally considered to be largely independent of sample size and the CFI is generally the most accepting of fit. The NNFI value for the current sample was 0.08 less than the data reported by Gillham et al. (2012) and the CFI was 0.07 less. Both values are within range to argue goodness of fit as fit indexes are still being debated in the literature. Ultimately a larger sample size would likely reproduce results more similar to the original.

A theoretical reasoning for the slight difference is provided by the positive kurtoic values in three of the five DF items which suggest these items were all responded to in a positive manner. Each item focuses on effort expenditure either for its own sake, as a response to failure, or as a task choice. Work ethic is a core social value often established and attributed through the socialization process as athletes progress throughout their competitive sport experiences (as cited by Coakley, 2009; as cited by Sage & Eitzen, 2012), and therefore it should be of little surprise that collegiate baseball players are strongly agreeing with these items. Additionally, collegiate baseball players are sensitive to anything regarding their stock in the First Year Player Draft. The participants studied in the development of the CMSQ were diverse in age (i.e., all collegiate or older), sex, and level of competition. The fact that all collegiate baseball players are evaluated by MLB scouts infers a new variable in motivation, which is likely different for the populations studied during instrument development. The interaction between intentions, implications, and environmental climate could have substantial influence on the motivational styles of collegiate baseball players (Roberts, 2012).

Considering path coefficients, item DF5 (i.e., “I choose goals that focus on how I perform.”) was the lowest of the subscale and likely the most abstract from the participants’ perspective. It is not surprising that collegiate baseball players struggled with this item because it seems to assume participants understand the difference between process, performance, and outcome goals, which from personal experience teaching and coaching at the collegiate level is unlikely. The path coefficient (.39) supports difficulty and for these reasons the item was not included in the overall proposed model.

Both DF 1 (i.e “I always give my best effort.”) and DF18 (i.e., “I am willing to work a long time to reach my ultimate goal.”) had factor loadings of 0.57. Considering the proposed model, latent variables need to have at least three observed items to be valid, however, as the number of items is reduced, reliability is also typically reduced. Because the items produced the same values, DF1was eliminated from the model because it was deemed more vulnerable to social desirability bias and state involvement. The reduced DF subscale changed the Cronbach alpha value from .71 to .69 which is not as important in CFA because the fit indexes supersede reliability values (Hu & Bentler, 1999).

The WF subscale was not altered despite item WF9 (i.e., “Winning is more important than how I perform.”) having a path coefficient of .48. Theoretical support for the decision to keep the item, despite its low path coefficient, is that the item reflects a goal priority antecedent and DF5, which had the same antecedent, had already been eliminated. Further, WF9 is a much better item in terms of getting participants with no prior knowledge of goal setting strategies to indicate their goal type preference. Giving the participants’ options, the item separates winning from playing well, forces them to choose between outcome (e.g., ego involvement; win; therefore “strongly agree”) goals and at least performance if not process (i.e., task involvement; play well but lose; therefore “strongly disagree”) goals. Item DF5 only provides one choice for goal focus (i.e., “perform”) which can be translated in a variety of ways but likely as winning, losing, or outperforming others, none of which are development focused.

The DO subscale had relatively consistent factor loadings with one exception, item DO2 (.16). The item (i.e., “Public failures are hard to handle.”) is the only one in the original set with a social antecedent which fits Coakley’s (2009) performance ethic that such an

admission would be indicative of weakness and therefore agreement is inherently discouraged. Item DO10 (i.e., “I feel like a failure when others think I am not skilled.”) was also eliminated for the proposed model of baseball makeup with a path coefficient of (.55). The first theoretical explanation to support the statistical results is both of the DO items eliminated addressed doubt but in an external manner (i.e., conflict with “public” and “others”), whereas the items with stronger coefficients addressed doubt internally. While these differences are clearly conceptually sound as representing doubt, the literature in sport sociology (as cited by Coakley, 2009; as cited by Sage & Eitzen, 2012) is clear regarding the general disapproval of these concepts. Therefore, while conceptually sound, they create problems in instrument development and were eliminated from the proposed model resulting in a Cronbach alpha value increasing from .76 to .79.

The FE subscale was also reduced by two items. “Sometimes I try my best, sometimes I don’t try at all.” (i.e., FE3) was eliminated because of its low path coefficient (.33). The item seems to refer to a consistent, and even accepted, idea that maximum effort expenditure should be reserved for special occasions, especially considering the pace of baseball. Item FE8 (i.e., “After a loss, it’s difficult to push myself.”) was the last CMSQ item chosen to be eliminated from the overall proposed baseball model. The path coefficient for FE8 (.56) was similar to FE17 (.59) and FE17 (i.e., “I don’t like to work on my weaknesses.”) was included because it is a more direct measure and therefore less vulnerable to social desirability bias. Again, the socialization process experienced by male, team sport athletes in the United States is well documented by prominent sport sociologists (Coakley, 2009; Sage & Eitzen, 2012) and clearly suggests terms which implicitly or explicitly agree with poor work ethic and not primarily wanting to win should not be considered desirable.

Item reduction increased the validity of the latent variable and had produced no meaningful effect on the Cronbach alpha value, increasing it by only two thousandths.

Overall, CFA analysis of the CMSQ results supported the revision of the CMSQ for this sample and allowed for further exploratory analysis. The sample population showed strongest connections with the WF subscale, with the remaining three essentially even. Latent variables correlated as expected considering both value and valence. Despite target fit indexes lower than reported at development, it could be argued an acceptable fit was obtained because of the complexity of predicting motivational styles.

Conceptions of the Nature of Athletic Ability Questionnaire -2 (CNAAQ-2). The CNAAQ-2 was the best fitting model from the sample. The model reported by Biddle et al. (2003) had the best fit indexes of the instruments employed in the battery. The result was expected as the CNAAQ-2 was designed to examine the implicit theories provided by Dweck (2000, 2006), and while complex in their own right, it provides an important aspect of the foundation used to create the more complex motivational styles. The learning and improvement latent variables are considered aspects, that when combined, represent incremental beliefs and the stable and gift latent variables are combined to represent entity beliefs. Considering the latent variables independently provides more specific insight regarding the antecedents of each implicit theory.

The nature of incremental beliefs is thought to be products of perceptions regarding the relative importance of learning and improvement as measures of success and personal assessments of ability. It is important to note that according to Nicholls' (1984) theory of achievement goals, these beliefs are produced through the socialization process humans experience as they age. The key element in the process is the point at which children become

what Nicholls' (1984) refers to as "differentiated", or in other words, the point in the socialization process when children can differentiate between the concepts of ability and effort.

Generally before the age of seven, children do not differentiate between ability and effort (i.e., are "undifferentiated"), and effort is viewed as means to accomplish a difficult task and define the relative difficulty of tasks by the perceived amount of effort required to complete them. Thus, ability is positively correlated with effort, which conceptually is ideal, especially regarding performance (Nicholls, 1984). However as children continue to be socialized, they begin to acknowledge the concept of ability as capacity which changes their perception of effort. Once children become differentiated, they define ability by the relative amount of perceived effort required to accomplish any task, and difficult tasks become a function of the differences between their perceived ability and the estimated effort required to accomplish the task. Therefore the relationship between effort and ability become negatively correlated because ability is considered the capacity which sets the limit on what effort can accomplish (Harwood, Spray, & Keegan, 2008).

Once children become undifferentiated and begin to recognize ability as their capacity, they are susceptible to entity beliefs which are represented in the CNAAQ-2 by the stable and gift latent variables. In the current data, the stable subscale did not produce acceptable Cronbach alpha values and therefore the four subscales of the CNAAQ-2 were combined to obtain acceptable alpha values and represent entity and incremental beliefs dimensions. Canonical results suggest all collegiate baseball players have strong entity beliefs, and when associated with other factors, namely incremental beliefs and WF motivational style, entity beliefs are strongest and associated positively with development.

Therefore, some discussion of the relationship between the subscales of the CNAAQ-2 is appropriate for understanding the entity beliefs of professional baseball prospects.

Stable refers to the perception that ability, particularly in sport, is relatively unchangeable despite efforts to learn and improve skills and strategies, as well as mental and physical conditioning. The stable subscale is designed to examine these perceptions. Problems associated with measuring stable beliefs involve the complex interactions between the relative and subjective degrees of stable beliefs of an individual and the various motivational and achievement climates they encounter (Nicholls, 1984). Stable beliefs can be debilitative to performance when encountering a situation which the individual perceives low expectations of success (i.e., high effort indicating low ability via social comparison) and development as the notion of ability in the stable belief is highly situational and therefore dependent upon social comparisons of each specific achievement situation. Thus, a reasonable explanation for the low stable subscale alpha in the current data is the sample population has yet to encounter a situation (i.e., level of competitive baseball) which prevented desirable social comparisons, prompting them to do not relate to the items in the stable subscale.

Gift beliefs are similar but seem to have a stronger valence and be more dispositional. Gift beliefs are generally adhered to as a result of a perceived genetic factor that “naturally” produces a higher, or lower, capacity to achieve with less effort than those who are not “gifted”. Therefore when sampling successful athletes, high gift scores should be expected because at this point of their athletic career, they have been the “gifted” ones considering the socialization processes outlined in the sport sociology literature (Coakley, 2009; Sage & Eitzen, 2012). The relationship of gift beliefs regarding the nature of ability in baseball is

historically strong because it is generally accepted that players either have certain physical tools, especially arm strength and running speed, that can be slightly refined or they do not possess them and no amount of learning, effort, or improvement will create major changes. In other words, collegiate baseball players believe they were selected, or recruited, to continue to higher levels of competition because of they have worked hard to develop their natural talent.

Collegiate baseball players do not relate to the stable subscale because they still perceive their natural ability as an entity that can be honed, or improved, and therefore unstable but still an entity that will be measured by the level of competition they reach in their playing career. Dweck (2000) reports entity beliefs are more difficult to assess than incremental beliefs, because until a student with strong entity beliefs experiences significant or prolonged failure, they will seem to be incremental theorists. Dweck's (2000) theory supports the explanation that an entity theorist would share all of the same behaviors in achievement settings as an incremental theorist as long as social comparisons are favorable. Baseball players who are recruited to play at a higher level of competition are still comparing well against the peers from their previous level and yet to make normative references for social comparison at their current level. The fact they were recruited, or made the team, fosters their belief they can still hone their natural ability and maintain desired social comparisons.

While the poor stable subscale prevented statistical relevance, the gift subscale reported the strongest path coefficients (M = .76), highest Cronbach alpha value (α = .80) and the stable reported the weakest path coefficients (M = .57) and poorest alpha value (α = .59). Considering the proposed model of baseball makeup, five of the six items from the Gift and

Stable subscales of CNAAQ-2 with the strongest path coefficients were retained to represent the entity beliefs dimension and five of the six items from the Learning and Improvement subscales were retained to represent the incremental beliefs dimension.

For the entity beliefs dimension, item ST10 (i.e., “It is difficult to change how good you are at sport.”) was eliminated because it had the lowest path coefficient (.49) of the stable and gift subscale items. A possible explanation for the low path coefficient could be attributed to the language of the item combined with the strength of the path coefficients of the items in the Gift subscale. The three Gift items seem to offer “either/or” propositions which include the phrase “to be good… you need…” whereas ST10 starts with the term “difficult” which, as previously discussed relating achievement goal theory, is relative because its meaning is determined by perceptions of current ability and estimated levels of effort to prevent displaying incompetence. Because the sample population reported strong, positive entity beliefs, it could be that ST10 performed poorly because the sample population has yet to experience significant or long term failure and therefore players still expect to be successful.

For the incremental beliefs dimension, item LN5 (i.e., “You need to learn and work hard to be good at sport.”) was eliminated because it had the lowest path coefficient of the learning and improvement items. A possible explanation could be that because of the sample populations’ strong entity beliefs, they have not had to work hard to maintain desirable social comparison so they feel they can get by on their natural talents.

Connor-Davidson Resilience Scale (CD-RISC). The CD-RISC examines resilience, which for the purposes of this study, is considered a general ability to consistently respond proactivity and constructively to setbacks and repeated failures. The model has been

well established as a one factor scale, with no subscales, across diverse populations (Campbell-Sills & Stein, 2007; Pickering & Hammermeister, 2012). The current sample population produced an acceptable fit considering the indexes (i.e., one target index and one residual index) produced with CFA, however the fit was not as strong as previous studies using the instrument.

Personal experience provides theoretical support for an explanation regarding the use of self-assessments with collegiate baseball players. After six years of asking collegiate baseball players to complete a depth chart for each position, including their own, it became clear that collegiate baseball players struggle with perspective related to assessing their ability. Results of the depth chart were always consistent with their peers' and coaches' assessments with the exception of their own ranking, which was always inflated. When collegiate baseball players struggle, they rationalize their struggles to believe they are not performing as poorly as they actually are because they use what Elliot and Thrash (2001) refer to as self-referencing measures of success. Self-referencing is a construct used to evaluate performance based on improvement and effort which is considered conceptually facilitative to development (Elliott & Thrash, 2001). The lack of perspective is attributed to the individual ranking themselves on a self-referencing scale and their teammates on a normative referencing scale. Normative referencing is a construct in which success is measured against expected performance, in this case within the team (Elliot & Thrash, 2001).

In this case, athletes would use self-referencing to attribute their performance to controllable factors (i.e., effort, technique, and selection of strategy) and use normative referencing to attribute their teammates' performances to ability via social comparison. Therefore, self-assessments of undesirable performances were always perceived as a "work

in progress" and peer assessments of performance were always perceived as measures of players' ability compared to teammates. Combined with the fact that at this point in their life, they have faced little adversity regarding baseball, their general lack of perspective, and the socialization process typical of American, male team sports, the items in the CD-RISC are subject to social desirability bias.

For these reasons as well as a desire to make the proposed model of baseball makeup as concise as possible, the strongest four items (< .65) were retained for the proposed model and maintained a Cronbach alpha value of 0.80. The four retained items (i.e., CD4, CD5, CD9, and CD10) are generally stated and seemed to be the least likely to encounter social desirability bias. Each of the items presents a factor that can be evaluated with both self and normative referencing. For example, item CD4 (i.e., "My ability to cope with stress strengthens me.") includes two concepts that are subject to evaluation, ability and stress. Both concepts can be evaluated from a personal and social perspective and therefore should be less vulnerable to bias.

When grouped and tested as a latent variable (see Figure 9), the selected items produced an average path coefficient of 0.71, and as a latent variable, they produced a correlation with the latent variable created by the remaining six items of .99. The correlation supports the use of the four items because they are virtually measuring the same construct as the other six. The four items produced a Cronbach alpha value of .80, which is generally acceptable in psychological research.

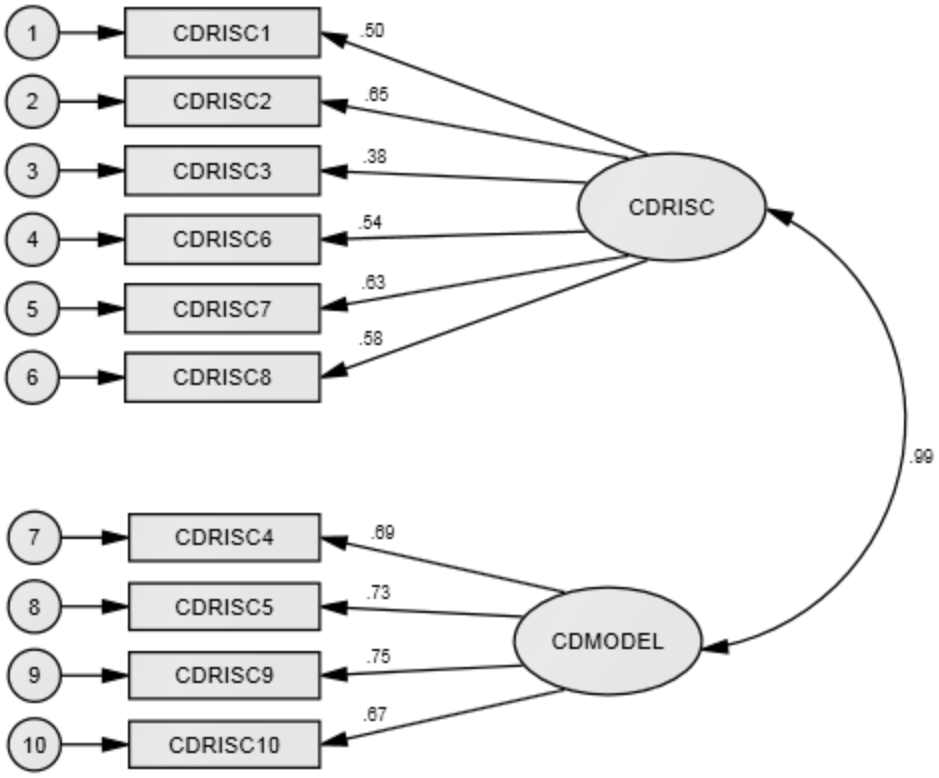

Figure 9. Selected CD-RISC Items Correlation with Remaining Items

Model for the proposed model of baseball makeup. Fit indexes for the proposed model were all within the acceptable ranges generally described in the literature (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004; Tabachnick & Fidell, 2007) suggesting the reduced latent variables, when combined, are an accurate representation of the relationships between the latent variables of makeup according the descriptions of makeup provided. Only seven of the 28 latent variable correlations within the model were unexpected. The WF subscale shared a positive, expected but weaker correlation with Entity (.09). Results from the HBVCI-16 demonstrated moderate negative correlations with the DF (-.25), WF (-.37), and, incremental (-.29) subscales, and CD-RISC total score (-.23). Scores on the HBVCI-16 also shared weak positive correlations with the DO (.06) and FE (.12) subscales.

In conclusion, the overall proposed model of baseball makeup is supported by the results but warrants further investigation before making generalizable claims regarding its efficacy across populations and validity as a separate instrument. The variables examined here have not been explicitly employed to examine the effect of cultural differences which could have important implications for professional baseball because the numbers of Hispanic and Japanese players are steadily increasing. Further investigation should include qualitative methods including follow up interviews and focus groups, ideally including MLB players which were selected in the later rounds (i.e., post round 10) of the First Year Player Draft.

Research Question Two:

Will modifying items to be baseball-specific allow for greater success in identifying baseball makeup?

The second hypothesis was rejected. Following the same procedure to produce a combined model used with the original items, fit indexes were not as strong. The modified items did produce almost identical correlations between variables, but when subscale mean results of the original and modified items were compared, each modified variable, with the exception of the DF subscale, demonstrated significantly larger scores than the original variable. In other words, the modified items produced a weaker model and inflated mean thus prompting them to be of little relevance in measuring baseball makeup.

Baseball Makeup Inventory confirmatory factor analysis. Items from the HBVCI-16, CMSQ, and CNAAQ-2 were modified to be baseball specific in order to examine if collegiate baseball players would have different responses to items geared toward baseball than items using general terminology. The items were presented in two sections. The first included only the modified HBVCI-16 items and the second section included modified

items from the CMSQ, CNAAQ-2, and the original items from the CD-RISC all presented together, however in a randomized order. In this section of the discussion, "original" refers to the results produced by this sample population via the unmodified versions of each instrument.

BMI-HBVCI-16. Responses to the modified HBVCI-16 created a poor fitting model in both EFA and CFA. Path coefficients and Cronbach alpha scores were lower than the original items, despite nearly identical fit indexes. The results are rather uninteresting from a CFA perspective. As discussed in the following section of this chapter, the BMI items were not as precise as the original HBVCI-16 items. Previously, it was suggested the original HBVCI-16 items could be improved to enhance their psychometric properties despite the original purpose of the instrument. However the modified items performed worse than the original items when assessed using CFA. The standard deviations were considerably larger than the original, suggesting the baseball items are not precise and the ethos of baseball is affecting the results.

The literature pertaining to the philosophy of play, game, and sport has a common theme centered on the idea that humans play, participate in games, and compete in sport because it presents an alternate reality with specific rules and values which are separated from everyday life (Fraleigh, 1982; Huizinga, 1988; Kretchmar, 2005; Lasch, 1977; Meier, 1988; Metheny, 1968; Thomas, 1983). It could be argued the imprecision of the modified HBVCI-16 items are evidence of a bracketed morality (Bredemeier & Shields, 1986), and collegiate baseball players use a different process to make moral decisions in a baseball context than they would in a general sport context. However, it is more likely, especially based on CFA results, that the difference is attributed to the modified items being poorly

crafted (i.e., too redundant), making it a struggle to elicit specific and consistent responses, possibly as a result of fatigue caused by completing the entire battery of items. Additionally, because there were no non-athletes involved in the study, it may be difficult to determine accurate reasoning for the poor statistical performance of the modified items. A non-athlete control group may provide evidence regarding item length and clarity as well as support for or against the notion of a bracketed morality. For the proposed model of baseball makeup, only three items were included (i.e., BMIHB3, BMIHB4, and BMI16; M = .61, α = .60). The general weakness of the modified HBVCI-16 items provided little support for their inclusion and therefore only three items were kept as required to establish a latent variable.

BMI-CMSQ. The BMI-CMSQ produced almost identical fit indexes and latent variable correlations as the original items but the path coefficients and Cronbach alpha values were stronger in the BMI items in all but one subscale (i.e., DF). The BMI-FE subscale was the strongest by path coefficient mean, followed by subscales BMI-WF and BMI-DO. The strongest subscale for the original items was WF, followed by DO and FE. Results support the concept that when in a baseball mindset, collegiate players tend to be stronger FE than they would be otherwise. It is interesting, however, that WF and FE were both stronger in the modified baseball items and had similar path coefficient means. These results suggest there may be a specific motivational style within baseball populations based in conventional definitions of competition. Generally in American sport, competition is defined mostly by events that produce winners and losers, as opposed to the classic philosophical definition that includes a cooperation designed to test opponents (Coakley, 2009; Lasch, 1977; Sage & Eitzen, 2012). Therefore, the socialization process used to transfer social and moral values could be affecting responses to generate an athletic motivation profile, centered on winning

and avoiding losing (Elliott & Thrash, 2001; Harwood, Spray, & Keegan, 2008). Additionally, in both the original and modified CMSQ results, the DF subscale was the weakest latent variable which supports the previous discussion of strong entity beliefs in baseball, and perhaps the mastery-avoidance goals forwarded by Elliot (1999) and Elliot and Thrash (2001).

Mastery-avoidance is not intuitive conceptually, because it would seem that if an individual is mastery oriented, they could not, by definition, be avoidance oriented. According to Elliot and Thrash (2001), mastery-avoidance is characterized by fear of failure, incremental beliefs, low perceptions of competence, situational cues that highlight self and task improvement, and viewing competition as a possibility to fail rather than succeed. It could be argued that focusing on winning (i.e., WF) creates the perception that losing is unacceptable and therefore failure should be avoided in competition (i.e., FE), despite the possible orthogonal relationship between entity beliefs and incremental beliefs previously discussed.

For the proposed model of baseball makeup, three items from DF, WF and FE were included and four from DO. Items were chosen solely based on CFA path coefficients because there seemed to be little support for the modified items creating relevant differences in the results.

BMI-CNAAQ-2. The modified items of the CNAAQ-2 produced nearly identical fit indexes and latent variable correlations as the original results. The latent variable gift was still the strongest by coefficient mean and Cronbach alpha, followed by improvement, learning, and stable. The pattern was nearly identical to the original results. The modified stable subscale also failed to produce an acceptable Cronbach alpha value. The main

difference made by item modification was the increased values found in the path coefficients and Cronbach alpha coefficients of the modified items for the gift, improvement, and learning latent variables. The result would seem to be evidence supporting the use of baseball specific items in this scale, but the stable latent variable still did not reach acceptable reliability values and therefore the subscales were combined to represent entity and incremental beliefs dimensions. The strength of CFA is generally associated with the fit indexes, and therefore increased path coefficients and Cronbach alpha values while nice, do not support item modification because of the reliability issues with the stable subscale.

BMI-CD-RISC. Recall again that the CD-RISC items were not modified because Campbell-Sill and Stein (2007) state responses can be dependent on situational climates regarding motivation, performance, and in general, mood. The items were randomly inserted along with modified items of the CMSQ and CNAAQ-2 and when separated and tested using CFA produced a better fitting model than the original on most fit indexes. Explanations for the better fit are similar to the discussion of the original results, with the effect of the socialization process greater as the items were randomly mixed with modified baseball specific items from the CMSQ and CNAAQ-2, providing further evidence of social desirability bias when in the baseball mindset. For the proposed model of baseball makeup there was one discrepancy in the items included. BMICD32 was included in the place of BMICD34 (i.e., CD4) because in the CFA of the BMI items, BMICD32 had a path coefficient of .70 and BMICD34 coefficient dropped from 0.69 to 0.64. Further support for the item change between overall models is provided by evidence suggesting a lack of effectiveness regarding the baseball specific items.

Proposed Model of Baseball Makeup. The model produced almost identical fit indexes as the proposed model using original items. However, items included in this model differed from the items included in the original overall model because the modified model was based on the strength of each latent variable as determined by path coefficient loadings. Overall, CFA analysis for the modified items is relatively inconclusive. Therefore, descriptive statistics were employed to examine more specifically how the modified items affected responses.

Participants. The majority of the sample (60%) consisted of junior college baseball players competing in the Northwest Athletic Association of Community Colleges (NWAACC) which with the exception of the 10 participants competing in the state of Texas and one competing in California, is representative of collegiate baseball in the Northwest United States. Therefore, 83% of the population competing in their freshman (54%) or sophomore (29%) year is also representative of collegiate baseball in the Northwest. The National Junior College Athletic Association (NJCAA) comprised the smallest portion of the sample (5%), followed by the National Collegiate Athletic Association (NCAA) Division II (7%).

Sample sizes were considered independently by instrument to maximize result effect and because the difference between the largest and smallest sample size was only three participants (i.e., N = 233; CMSQ; N = 230 CNAAQ-2 and CD-RISC), the effect on the results will not be significant. The sample size was noticeably smaller for the modified items likely due to fatigue from reading the original scenarios and items then repeating the process in the modified section of the package of instruments. The modified instruments were also

considered independently for analysis as the greatest difference in sample size was three participants (i.e., *N* = 215 BMI HBVCI-16; *N* = 218 BMI CMSQ).

Demographic data was relatively brief to protect the anonymity of the participants as most demographic information is published on team websites and therefore collecting too much demographic data could easily violate the anonymous condition approved by the University of Idaho's Institutional Review Board (IRB). Demographic data was collected to determine division of competition (i.e., participants entered the name of their current institution), year of eligibility, total years played, total years of private instruction, and previous history of being selected in the First Year Player Draft.

Participants were asked to enter the name of their institution to determine division of competition and to more effectively communicate with coaches agreeing to encourage their players to participate. The procedure was done this way to ensure data was successfully collected as all data was collected electronically. In most cases, the coach would indicate when their team was scheduled to complete the battery of instruments and the principle investigator could then confirm the data was collected successfully by monitoring the Survey Monkey account provided by the department of Movement Sciences.

Subscale mean score comparisons. Correlation results were similar between the original and modified items and provided little evidence to support the use of modified items. Paired t-tests were employed to detect differences between original and modified items to examine any possible effects created with the modified items. Comparisons were made between the original and modified results of HBVCI-16 and CD-RISC, each subscale score of the CMSQ, and the subscale and dimension scores of the CNAAQ-2. Results showed

significant but not relevant differences between the original and modified items in most comparisons.

The DF subscale of the CMSQ produced almost identical means between original and modified, however the sample responded with significantly higher means on the modified items than the original for the WF subscale and significantly lower on the modified items than the original items for both the DO and FE. Results suggest the baseball language in the items may be merely producing overestimation of responses, because significant results match the conceptual framework of the CMSQ.

All four subscales of the CNAAQ-2 produced significantly greater means for the baseball items than the original items. Results could be considered relevant because the differences do not match the conceptual framework of the CNAAQ-2. However as seen in the correlation analysis, the sample population has strong entity beliefs and therefore could be expected to overestimate their responses to the gift and stable subscales as participants would perceive these two subscales as a reflection of reality rather than being debilitative to their development. The entity and incremental beliefs dimensions of the modified items demonstrated significantly higher mean scores than did the original items. In other words, the sample population responded more positively to all scales of the CNAAQ-2 that were modified. Interpretation supports strong entity beliefs because the modified items produced stronger, positive responses in both entity and incremental beliefs dimensions. Professional baseball players seem to believe their abilities are inherent, natural gifts that can be improved. Interpretation also supports the rejection of the modified items producing greater success in identifying makeup because all responses to modified items were inflated but maintained similar correlations.

Despite no modifications, results produced by the sample population were significantly higher regarding the CD-RISC items randomly mixed with modified items than results of the CD-RISC items when presented as a single instrument. The finding supports previous explanations of overestimation of positive responses when in a baseball mindset. Responses to the original HBVCI-16 items were compared to scaled responses to the modified items because the Likert-type scales were different. Results revealed the sample population scored significantly lower in response to the modified items than the original items. The result may support the previous bracketed morality explanation which could also be argued as an overestimation due to game reasoning in the baseball specific items. As seen in the cluster analysis, most of the participants were found to have either a Win-Fixated or Development makeup profile, and therefore lower scores regarding the modified items quite likely indicate overestimation when responding to baseball specific scenarios designed to create tension between a moral principle and the social value of winning or positive social comparisons.

Overall, descriptive analysis provided sufficient results to discontinue analysis of the modified items because there was no evidence of a significant effect due to baseball specific item modification. In every individual instrument, the baseball modified subscale results were significantly greater than subscales with original language and the correlational relationships remained the same between original and modified items. The one specific effect that can be attributed to the baseball specific population was the unique relationship collegiate baseball players have with entity beliefs, with the gift aspect being especially strong. The effect was seen throughout the data and therefore the greater scores reflected in the baseball items did not create the effect and have been shown to be unnecessary.

Research Question Three:

Will the psychological constructs presented in the package of instruments relate to each other in conceptually relevant ways?

The third hypothesis was accepted despite the sample population reporting two unexpected, but explainable relationships regarding entity beliefs and moral reasoning. Support for acceptance is found in both Nicholl's (1984) and Dweck's (2000) theories of achievement goals which suggest an orthogonal relationship between ego and task goal orientation and entity and incremental beliefs. Support for acceptance is also provided by Beller and Stoll (2004) consistent findings that athletes generally report lower moral reasoning scores than their non-athlete peers as well as Campbell-Sills and Stein's (2007) findings which describe resilience as a situational attribute.

Bivariate, latent variable, and canonical correlations. Results from the CD-RISC, HBVCI-16, subscale results from the CMSQ, and the entity and incremental beliefs dimensions of the CNAAQ-2 for both the original and modified items were tested using Pearson's correlation analysis to examine how variables were related compared to hypothesized conceptual predictions. Ideal makeup, as described by professional scouts, MLB general managers and coaches was determined to consist of the facilitative aspects of each construct. Therefore a prospect with ideal makeup would have incremental beliefs and use learning and improvement as measures of success while maintaining the positive aspects of ego orientation in competition. The ideal prospect would be resilient in the face of failure and have sound understanding of MLB's concept of moral reasoning to make constructive decisions regarding risk taking.

For experimental purposes, the participants were asked to complete the original scales as well as scales modified to be baseball specific. The purpose was to examine if any relevant differences would be found in the relationships between variables due to the language of the items. Pearson's correlation results produced only two unexpected relationships which were apparent in both the original and modified instruments. The first unexpected relationship was found regarding the entity dimension of the CNAAQ-2.

Entity shared a nonsignificant, positive relationship with WF in bivariate and latent correlations in both the original and modified versions of the items. Entity also produced strong, positive canonical loadings in each of the significant canonical variate pairs. Canonical correlations reveal that individuals with strong, positive DF and WF motivational styles are associated with strong, positive entity beliefs as well as moderate incremental beliefs. The relationship does not match conceptual predictions completely, but it does match conventional thinking inside baseball circles and can easily be explained for the current sample population.

Within the culture of baseball, it is generally accepted that certain tools are only attainable through genetics. Throwing velocity and running speed are the two physical tools most often considered "natural talent", and are consistent with entity beliefs. Players who can run faster than 4.1 from contact to first base and pitchers and infielders that can throw consistently harder than 90 miles per hour (mph) are automatically considered prospects under the assumption that those tools "just can't be taught". One of the most recent success stories of a player in this category is Niger Morgan of the Milwaukee Brewers (Miller, 2012). The Pittsburg Pirates drafted Morgan from Walla Walla Community College solely based on the fact he could get to first base in less than four seconds (Scout, personal communication,

2012a). Traditional thinking in baseball is focused on drafting athletes and teaching them how to play baseball and for this reason, the physical attributes are referred to as “tools” instead of “skills” or “abilities”. Therefore, strong entity beliefs should be expected from baseball players, especially players competing at higher levels of competition.

Collegiate baseball players should also be expected to have strong entity beliefs despite their relative MLB potential. Collegiate baseball players have consistently progressed to higher competitive levels in their careers than their peers (i.e., from lower levels who were not selected or recruited to continue playing), and because their draft prospects remain undetermined, they should be expected to attribute their success at this point in their playing careers to their “natural” abilities. Further support for this reasoning comes from Dweck’s (2000) description of entity theorists as being difficult to recognize, because as long as normative references are in their favor, their behavior in achievement settings is similar to incremental theorists. The reason for this is until entity theorists experience significant and/or long term failure, they have no reason to question their ability beliefs and will use mastery oriented strategies to improve their natural abilities until they experience substantial and/or long term failure (Dweck, 2000). Professional baseball prospects fit this explanation as they have consistently outperformed their peers at each competitive level to this point in their career and have yet to face substantial and/or long term failure. Further investigation of this explanation would be interesting and require the involvement of former college baseball players who have faced the failure of not being selected to move on to either higher levels of college baseball (i.e., junior college players not recruited to play at the four year level), or professional baseball (i.e., four year players who are cut from the team and/or do not sign professional contracts).

Collegiate baseball players at four year institutions are not eligible to be selected in the First Year Player Draft until their junior year of participation. The increase in the incremental beliefs dimension indicates those players are focused on improving what they believe are their natural gifts. Overall, the finding clearly supports a need for mental skills training to promote development as well as the importance of creating a mastery climate in collegiate baseball settings.

The second unexpected relationship was found between HBVCI-16 scores and the facilitative aspects of the CMSQ, CNAAQ-2, and CD-RISC. Bivariate correlations reveal moral reasoning scores shared a moderate, negative relationship with the DF and WF of the CMSQ, and latent variable correlations produced with CFA revealed almost identical relationships. Moral reasoning shared a weak significant, negative relationship with the CD-RISC for the original items and a moderate significant, negative relationship using modified items. Moral reasoning shared a weak significant, negative relationship with incremental beliefs in bivariate correlations for both original and modified items, and latent variable relationships produced in CFA were nearly identical. Canonical correlation also associated the most facilitative correlation regarding motivational styles with the most negative levels of moral reasoning.

Results support the findings of Beller and Stoll (2004) who consistently report athletic populations have lower moral reasoning scores than their non-athlete peers, and the current results show players with preferred motivational profiles have lower moral reasoning scores. If the best baseball players also have preferred motivational styles, then findings of low moral reasoning scores in the preferred makeup group may indicate what Bredemeier and Shields' (1986) refer to as a bracketed morality. However, the concept of game reasoning

has only been presented by Bredemeier and Shields (1986) and therefore further investigation is warranted regarding the antecedents of this moral reasoning strategy.

Pragmatically, game reasoning is a feasible explanation because behavior with moral implications can easily be modified with rules. Ideologically, it is unlikely that college athletes practice the principled thinking required to separate the moral principles in the way Bredemeier and Shields (1986) suggest in their description of game reasoning because Kohlberg's (1981) theory of moral development suggests there are few people that reach the Postconventional level of moral development. It is more likely that college athletes are in the Conventional stage of moral development (Kohlberg, 1981), and they modify their behavior based on consequences presented by rules of various social settings. In other words, it is likely that college athletes will modify their behavior based on the rules of the specific social setting and not the principles of morality.

Descriptions of ideal baseball makeup provided by scouts inferred moral reasoning was an important aspect of makeup because they wanted "good kids" that have the capacity to make better decisions regarding risk taking off the field. In this study, the sample population provided significantly higher scores on the original items in the HBVCI-16 than the modified items, suggesting they either make better decisions outside of baseball or the baseball items were not crafted well enough to deal with the ethos of the game. The determination is difficult to make because the results from the original HBVCI-16 were still lower than non-athletes and the baseball items were experimental. Clearly, results support moral reasoning interventions designed to teach athletes how to separate a game reasoning system used in competition from a moral reasoning system used outside sport to improve the moral character of athletes as part of sport development. Prominent neuroscientists suggest

that participants of this age (i.e., 18 to 22 years old) are capable of learning this type of principled thinking because they are in the stage of biological brain development in which the moral brain is developed (Gazzaniga, 2005; Tancredi, 2005).

Research Question Four:

Can meaningful motivational style profiles for baseball makeup be created?

The fourth hypothesis was accepted. Profiles inductively created based on the motivational styles presented in the CMSQ were meaningful both conceptually and pragmatically. The respective groupings of motivational styles can be conceptually explained and are relevant for evaluating present baseball makeup for professional baseball prospects.

Cluster analysis results. The subscales of the CMSQ were chosen as the clustering variables because they were designed to examine the most complex motivational construct. Complexity arises from the multitude of state or situational factors required to function consistently before a trait or dispositional factor can be identified. Because situations change almost continuously and allegorically, especially in sport, consistent dispositional factors are difficult to capture. For example, in baseball a hitter's situational state of involvement (i.e., task and/or ego) can change as a consequence of every pitch. Each pitch changes the count, which changes strategies of the hitter, the running game, the pitcher's approach, and the defensive alignment. Clustering on the CMSQ allows a blended approach to motivational style profiling supported by Masters (2012) and meets the "either/and" aspect of character proposed in contemporary baseball (Bowden, 2011) and ancient Greek philosophy (Homiak, 2011). The blended approach is argued to address the complexity of capturing dispositional traits as "either/and" is more practical and forgiving way than the "either/or" approach (Masters, 2012).

The HBVCI-16 and the CD-RISC are single factor instruments and would provide cluster groups that are very difficult to differentiate and relatively uninteresting. For example, clustering on the CD-RISC or HBVCI-16 and asking for three clusters provides three clusters, one low, one moderate, and one high. Therefore, one factor instruments are better used to examine the differences between clusters compared to instruments with multiple subscales because they will produce more complex clusters.

Clustering on the CNAAQ-2 could produce viable clusters which could then be argued to explain the antecedents of the motivational styles the CMSQ was designed to examine for a baseball specific population. However, there were few significant differences found in the descriptive statistics of the CMSQ and the Entity and Incremental dimensions of the CNAAQ-2 produced interesting correlations. The result is noteworthy as dispositional characteristics should be consistent, particularly within a homogenous sample population (i.e., collegiate baseball players), and because most of the differences found involved CNAAQ-2 dimensions, those results should be an effective measure to explain the differences between the cluster groups. Additionally, the CNAAQ-2 is designed to examine beliefs which have been shown to be situational (Biddle, et al., 2003; Dweck, 2000) and were used as part of the foundation of the motivational styles examined in the CMSQ. Therefore, the CMSQ is the best measurement to determine clusters.

The three group model was selected as the best fit for the data for two reasons. The primary reason was sample size distribution. When requesting both four and five clusters, one group would consist of less than 20 members, preventing identification of primary profiles and leaving significant variance unexplained. When requesting two clusters, participants are grouped based on high and low scores, creating two relatively evenly

matched but very large groups. Considering the number of variables (i.e., subscales) measured in the current study, two groups representing high and low scores also leaves considerable variance unexplained despite Bowden's (2011) idealistic descriptions of ideal makeup. Therefore, the three cluster model was chosen because it provided the best distribution of participants while maximizing the ability to examine interesting differences between the groups.

The three groups were named according to the explanation of their respective profiles. Profile 1 was labeled "Poor Makeup" because it best reflected the debilitative aspects of all but one of the motivational styles examined. Profile 2 was named "Win-Fixated Makeup" because of its high DO/WF relationship. Profile 3 was designated "Development Makeup" because it contained the most facilitative aspects of the conceptual frameworks examined.

Based on Nicholl's (1986) task and ego states of involvement, the Poor Makeup group is generally high ego and low task involved, suggesting they are motivated to play baseball because they perceive it to be a good way to maintain social status by displaying superiority through social comparison and may use moral implications as excuses to avoid displaying incompetence. These participants are mostly likely to have low self-esteem because they believe their talent is a gift and avoid challenges that will test their abilities to prevent risking a loss of social status. Generally, these players are so busy evaluating their status, they have opportunity to be concerned about learning and improvement (Harwood, Spray, & Keegan, 2008).

According to Dweck's (2000) implicit self-theories, the Poor Makeup group are entity theorists. The Poor Makeup group also had the lowest Incremental beliefs, and drawing from

the previous discussion, suggests that their entity beliefs are rooted in a belief that their natural ability is unchangeable. Although the stable subscale of the CNAAQ-2 was not reliable in the current data, the conceptual framework of which it was developed is applicable. The stable aspect could be an important indicator as stable beliefs can be more debilitative than gift beliefs, because one can believe they are more gifted than others, allowing them to accept learning and improvement to hone their gift. Conversely, if stable beliefs indicate ability is unchangeable, no amount of learning or improvement will create change because their perceived competence is low, triggering a helpless orientation when encountering challenge and failure.

Based on Elliott and Thrash's (2001) trichotomous model of achievement goal theory, the Poor Makeup group sets performance-avoidance goals which are characterized by normative referencing comparisons to define success and avoiding situations which allow opportunities to display incompetence and expose their lack of ability. Therefore, the Poor Makeup group is motivated to compare well when positive comparisons are relatively easy to achieve (i.e., outcome goals) and will choose to spend their energy away from consequences they perceive as a threat to their status, indicating their low resilience. Thus, the Poor Makeup group is low DF/WF and high DO/FE and the least facilitative makeup profile.

The Win-Fixated Makeup group seems to be high ego and task involved, with high entity and incremental beliefs, suggesting they are also motivated to play baseball for social status and define success as outperforming others (Harwood, Spray, & Keegan, 2008; Nicholls, 1984). These participants probably have the most variability in terms of self-esteem because they have intense responses to success and failure which are mostly situational. In other words, when they are comparing well, they will exhibit facilitative behaviors, and when

they are comparing poorly, they exhibit debilitative behaviors (i.e., including cheating), because their perceived competence is situational. Because of their high ego and task involvement, they should prefer to use emotion-focused coping strategies when experiencing anxiety which can be either facilitative or debilitative and the consequence is dependent on the situational antecedent (Harwood, Spray, & Keegan, 2008).

The Win-Fixated group has strong entity beliefs characterized by an overriding belief their natural talent serves them well in social comparison situations although they generally believe that effort is a sign of weakness or incompetence (Dweck, 2000). Their situational disposition should prevent them from making adjustments in the moment, meaning they will likely respond to failure with a helpless orientation during competition and be mostly mastery oriented during practice, an indicator of their moderate resilience and incremental beliefs.

Performance-approach goals aim to direct the Win-Fixated Makeup group's energy to situations which they can demonstrate normatively referenced competence (Elliot, 1999). Participants in this group are predicted to be highly ego-involved in competition, which when outperforming others should enhance their motivation to win. However, when unable to outperform others, they should decrease their motivation because they become exceedingly frustrated with their lack of ability to compare well, which they view as "compete". They will likely be high task-involved in practice conditions which allow them to relax their desire to socially compare and will likely be more receptive to feedback, embracing challenges as means of improving their chances of winning or outperforming others during competition (i.e., outcome goals). Due to this combination, members of this group can be difficult to coach because they expect to adapt new skills quickly, which is particularly difficult as they

progress through the levels of competition. Therefore, the Win-Fixated group has moderate to high scores on all CMSQ subscales, particularly in DO and WF, with stronger DF than FE.

The Development Makeup group is high task and ego involved and understand their ability to perform is dependent upon the effort they expend into improving their skills and strategies (Nicholls, 1984). They should generally be motivated to play baseball because they enjoy the activity. Success is defined by increases in improvement and skill mastery which is perceived to be a product of effort, learning, and teamwork which is reflected in their high perceived competence. Their modestly high ego state of involvement should be reflected in their problem-focused response to anxiety, because they seek to cope with the source of anxiety, opposed to the symptoms of anxiety. Because they are not consumed with social comparison, they generally learn and adapt new skills quickly because they are able to process new information in detail (Harwood, Spray, & Keegan, 2008) and use WF for motivation to prepare.

The Development Makeup group has strong incremental beliefs and perceives their ability as a malleable and temporary-state dependent based on consistent and directed effort (Dweck, 2000). Learning is the foundation of their incremental belief, and they perceive it as means to improvement and measure success accordingly. Participants in this group should be the most resilient, as indicated by their willingness to seek new information as means of improving, which is a key element in the mastery orientation response to challenge and failure.

Mastery-approach goals to demonstrate self-referenced competence would likely be preferred by the Development Makeup group (Elliot, 1999). The aim of their goals is to seek situations which provide learning as means of improvement. These participants should be

most likely to be successful in situations the other two groups perceive as high pressure. However their performance is consistent in these situations because they perceive these situations as learning moments and are motivated by their high ego which is self-referencing and directed at challenging themselves to constantly strive to improve. The Development Profile can be mischaracterized by coaches and scouts as apathetic due to the lack of emotional outbursts in response to failure. Therefore this high DF/WF and low DO/FE profile looks to provide the most optimal overall makeup.

Research Question Five:

Will there be conceptually relevant differences between motivational style profiles for baseball makeup be evident for this sample?

The fifth hypothesis was accepted. The motivational style profiles produced with the CMSQ are the only dispositional variables included in the study. Based on the profiles developed, results from the HBVCI-16, CNAAQ-2, and CD-RISC produced conceptually sound profile differences in this study.

Multivariate analysis of the variance results. A MANOVA produced significant main effects between cluster profiles. Results of Scheffe's post hoc revealed eight significant differences between the profiles which support profile relevance. Distinctions between the profiles are important results considering the practice of assessing makeup for professional baseball. Membership in any group does not determine athletic ability. Makeup profiles simply imply the relative likelihood of development and success in increasingly selective levels of competition. Conceptually, professional scouts should be most interested in athletes with Developmental Makeup because they possess the most facilitative aspects in the proposed makeup model. Professional scouts should also be interesting in the Win-Fixated

Makeup profile because their entity beliefs are tempered by their desire to improve their odds of outperforming others, typically by any means necessary because they reported the lowest HBVCI-16 scores. Individuals in the Poor Makeup group will be the most resistant to development, and thus professional scouts need to carefully consider their current physical abilities because they are the least likely to change.

The relationship between entity and incremental beliefs in combination with resilience seems to be the most influential group differences. The Poor Makeup group had significantly lower resilience scores than the other two groups, and the Win-Fixated Makeup group had significantly lower resilience scores than the Development Makeup group. Considering entity beliefs, the Poor and Win-Fixated makeup groups had significantly higher entity scores than the Development Makeup group. However, the difference between the Poor Makeup and Win-Fixated Makeup groups was not significant. These results support facilitative makeup consisting of relatively strong entity beliefs, with the Development and Win-Fixated Makeup groups being more inclined to embrace mastery orientation than the Poor Makeup group.

The Development Makeup group reported only slightly higher incremental beliefs mean scores than the Win-Fixated Makeup group but had significantly lower entity beliefs mean scores. These results suggest the Win-Fixated Makeup group is situationally more focused on normative referenced measures of success than are the Development Makeup group and will be more likely to be motivated to compare well in the moment but will not be as resilient as the Development Makeup group when facing situations in which positive, normative comparisons are determined to be difficult to achieve. Also, the Win-Fixated profile is more likely to employ gamesmanship or cheating strategies to achieve than the

Poor Makeup group. While this may be facilitative to gain social approval and relatively well accepted in sport, it supports the need for moral reasoning interventions in competitive populations.

When considered as a set, the differences between the makeup profiles are conceptually sound and practically useful for a person unfamiliar with the theoretical frameworks to understand baseball makeup. Based on the findings in this study, professional baseball scouts can use a simple package of instruments and gain a much more complex understanding of a professional prospect's makeup.

Recommendations

When doing research in an inductive manner, it is important to note the limitations of the study design, the implications of the findings, and make suggestions for future researchers interested in the subject to aid them in expanding knowledge of the field. Therefore the recommendations section of the discussion will address internal recommendations that would have made the study stronger, external recommendations which will address the implications of the study, and recommend a line of study for the future.

Internal recommendations. In hindsight, the researcher would have preferred to collect more performance criteria of the participants as means of validating the results, particularly the cluster analysis. Even though there were no participants who reported being previously selected in the First Year Player Draft found in the Poor Makeup group, it is still difficult to substantiate the relevancy of the clusters. Conceptually, the best players would have the Development Makeup profile, and while this may in fact not be the case, including more performance criteria would provide stronger analysis and interpretation. Doing so

would create problems with anonymity and careful consideration will be needed to ensure honest responses.

The researcher would have also preferred to administer each test in person, either at each individual school or at tournament sites. Personal administration presents clearer and more consistent instructions while allowing participants to ask questions. Overall personal administration is more likely to produce better completion percentages and more consistent data.

The researcher would have preferred to use a more precise moral reasoning instrument that includes subscales for deeper understanding of how the aspects of moral reasoning and development are related to motivational styles.

External recommendations. The researcher provided an executive summary of the study including profiles for each participating team. The executive summary included some basic strategies and resources for teaching mental skills and affecting the situational aspects of makeup. The executive summary was also forwarded to the Major League Baseball Scouting Bureau's director for evaluation, consideration, and suggestions for future research.

Recommendations for future research. Clear evidence was produced that a relationship between entity beliefs and facilitative aspects of motivational styles is present that does not completely fit the current conceptual framework. The relationship should be examined to determine if this result is a core component of baseball specific character. Further, former collegiate baseball players should be included to serve as a control group to explore any changes in the relationship between entity beliefs and the DF and WF motivational styles.

Future research should focus on the DF and DO subscales of the CMSQ to determine the antecedents of those motivational styles in a baseball population. The strong entity beliefs are easily explainable, but there is little evidence here that readily explains the relationship between DF and entity beliefs as well as DO and entity beliefs. Personal administration of the CMSQ and CNAAQ-2 with follow up qualitative probes is recommended.

Research investigating achievement goal theories, particularly studies which include an examination of the determining antecedent of selecting achievement goals, is warranted, however it will be difficult to capture.

Future research should aim to focus on higher levels of competition. While these populations can be difficult to access, the results would be more meaningful. Hopefully this study will add to the argument that makeup is an important aspect of performance and will help future researchers gain access. Most of the scales used here were not developed using a specific, competitive population with probable intentions of gaining professional status in their sport. The distinction may be important considering the populations which were examined to develop the respective conceptual frameworks.

Cultural differences should also be considered in future research. Various interpretations of moral principles, purposes of participating in collegiate baseball, and ontological and/or religious beliefs may affect the definitions of the variables presented here therefore affecting the results. The recent influx of Hispanic and Asian cultures in professional baseball support cultural differences as important factors to consider.

Finally, it is recommended that a more user friendly instrument be developed to assess moral development with subscales relating to Kohlberg's (1981) preconventional, conventional, and postconventional stages. Assessing the stage of development would be a

better descriptor for profiling. The Defining Issues Test 2 (DIT-2) is a well-established instrument. However, as the battery of instruments is clearly lengthy, creating a fatiguing factor, including the DIT-2 would certainly produce a higher dropout rate.

Conclusion

Results of the current study are an important addition to the body of knowledge regarding competitive populations in sport. Specifically, instrumentation designed to assess motivational styles, resilience, and moral reasoning should target competitive populations with intentions to further their competitive careers in professional organizations. Individuals within this population hold perceptions regarding the nature of their ability, their motivational style, and reasoning systems used to navigate situations with moral implications that differ from common perception and the conceptual frameworks employed here.

REFERENCES

Agresti, A., & Finlay, B. (2009). *Statistical methods for the social sciences*. (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

America, B. (2012). Draft Database. Retrieved from http://www.baseballamerica.com/today/draft/

Aristotle. (2001). Nicomachean ethics. In R. McKeon (Ed.), *The basic works of Aristotle* (W. D. Ross, Trans., pp. 928-1112). New York: Random House.

Bandura, M., & Dweck, C. S. (1985). The relationship of conceptions of intellegence and achievement goals to achievement-related cognition, affect, and behaivor. *Unpublished manuscript*, Harvard University.

Baseball Almanac. (2012, September 3). *Straight to the major leagues*. Retrieved from Baseball Almanac.com: http://www.baseball-almanac.com/feats/feats9.shtml

Beauducel, A., & Wittmann, W. W. (2005). Simulation study on fit indexes in CFA based on data with slightly distorted simple structure. *Structural Equation Modeling, 12*(1), 41-75.

Beller, J. M., & Stoll, S. K. (2004). *Manual and guide for the HBVCI.* (2nd ed.). Moscow, ID: Center for ETHICS*.

Biddle, S. J., Wang, C. J., Chatzisarantis, N. L., & Spray, C. M. (2003). Motivation for physical activity in young people: Entity and incremental beliefs about athletic ability. *Journal of Sports Sciences, 21*, 973-989.

Bonanno, G. A. (2004). Loss, trauma, and human resilience. *American Psychologist, 59*, 20-28.

Bowden, J. (2011, June 4). *Rose, Clemens and Bonds had great 'baseball makeup'.* Retrieved from Insider ESPN The GM's Office: http://insider.espn.go.com/blog/the-gms-office/post/_/id/219/rose-clemens-and-bonds-had-great-baseball-makeup

Boyd, J. (1998). *Welcome to scout school.* Retrieved from Baseball America Features ESPN: http://www.baseballamerica.com/today/features/scoutschool0123.html

Bredemeier, B. J., & Shields, D. L. (1986). Game reasoning and interactional morality. *The Journal of Genetic Psychology: Research and Theory on Human Development, 147*(2), 257-275.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research.* New York: Guilford Press.

Bull, S. J., Shambrook, C. J., James, W., & Brooks, J. E. (2005). Towards an understanding of mental toughness in elite English cricketers. *Journal of Applied Sports Psychology, 17*, 209-227.

Burton, D., & Raedeke, T. D. (2008). *Sports psychology for coaches.* Champaign, IL: Human Kinetics.

Burton, D., & Weiss, C. (2008). The fundamental goal concept: The path to process and performance success. In T. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 339-375). Champaign, IL: Human Kinetics.

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress, 20*(6), 1019-1028.

Carver, C. S. (1998). Resilience and thriving: Issues, models, and linkages. *Journal of Social Issues, 54*(2), 245-266.

Center for ETHICS*. (2005). *Moral reasoning in athlete populations - A 20 year review.* Retrieved from The Center for ETHICS*: http://www.webpages.uidaho.edu/center_for_ethics/research_fact_sheet.htm

character. (2012). *character.* Retrieved from Merriam-Webster.com: http://www.merriam-webster.com/medical/character

Clotfelter, C. T. (2011). *Big time sports in American universities.* New York: Cambridge University Press.

Clough, P., Earle, K., & Sewell, D. (2002). Mental toughness: The concept and it's measurement. In I. Cockerill (Ed.), *Solutions in sport psychology* (pp. 32-45). London: Thompson.

Coakley, J. (2009). *Sports in society: Issues and controversies.* (10th ed.). New York: McGraw-Hill.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education.* (6th ed.). New York: Routledge.

Connaughton, D., & Hanton, S. (2008). Mental toughness in sport: Conceptual and practical issues. In S. Mellalieu, & S. Hanton (Eds.), *Advances in applied sport psychology: A review* (pp. 317-346). London: Routledge.

Connaughton, D., Wadey, R., Hanton, S., & Jones, G. (2008). The development and maintenance of mental toughness: Perceptions of elite performers. *Journal of Sports Sciences, 26*(1), 83-95.

Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18,* 76-82.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis.* New York: Pearson Press.

Cote, J., Strachan, L., & Fraser-Thomas, J. (2008). Participation, personal development, and performance through youth sport. In N. L. Holt (Ed.), *Positive youth development through sport* (pp. 34-46). New York: Routledge.

Crust, L. (2008). A review and conceptual re-examination of mental toughness: Implications for future researchers. *Personality and Individual Differences, 45*, 576-583.

D'Andrade, R. (2008). *A study of personal and cultural values: American, Japanese, and Vietnamese.* New York: Palgrave Macmillian.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-detemination theory in human behavior.* New York: Plenum Press.

Devettere, R. J. (2002). *Introduction to virtue ethics: Insights of the ancient Greeks.* Washington, DC: Georgetown University Press.

Dewey, J. (1975). *Experience and education.* New York: Macmillan.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed mode surveys: The tailored design method.* (3rd ed.). Hoboken, NJ: John Wiley & Sons.

Duda, J. L., & Treasure, D. C. (2010). Motivational processes and the faciliation of quality engagement in sport. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (6th ed., pp. 59-80). New York: McGraw-Hill.

Dweck, C. S. (2000). *Self-theories: Their role in motivaiton, personality, and development.* New York: Psychology Press.

Dweck, C. S. (2006). *Mindset: The new psychology of success.* New York: Ballantine Books.

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In P. Mussen, & E. M. Hetherington (Eds.), *Handbook of child psychology* (pp. 643-692). New York: Wiley.

Dweck, C. S., & Legget, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*(4), 267-285.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implict theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*(4), 267-285.

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34*(3), 169-189.

Elliott, A. J., & Thrash, T. M. (2001). Achievement goals and hierarchical model of achievement motivation. *Educational Psychology Review, 13*(2), 139-156.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*(1), 5-12.

Emmert, M. (2012). *Who we are*. Retrieved from National Collegiate Athletic Association: http://www.ncaa.org/wps/wcm/connect/public/NCAA/About+the+NCAA/Who+We+Are/

Eys, M. A., Burke, S. M., Carron, A. V., & Dennis, P. W. (2010). The sport team as an effective group. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (6th ed., pp. 132-148). New York: McGraw-Hill.

Ford, M. (1992). *Motivating humans: Goal, emotions, and personal agency beliefs.* Boston: Sage.

Fox, R. M., & DeMarco, J. P. (2001). *Moral reasoning. A philosophic approach to applied ethics.* (2nd ed.). Orlando, FL: Harcourt, Inc.

Fraleigh, W. (1982). Why the good foul is not good. *Journal of Physical Education, Recreation, and Dance.*, 41-42.

Frankena, W. K. (1973). *Ethics* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Gaudreau, P., & Blondin, J. P. (2004). Different athletes cope differently during a sport competition: A cluster analysis of coping. *Personality and Individual Differences, 36*, 1865-1877.

Gazzaniga, M. S. (2005). *The ethical brain: The science of our moral dilemmas.* New York: HarperCollins Publishers.

Gerdy, J. R. (2009). An experiment justified. In S. D. Eitzen (Ed.), *Sport in contemporary society* (8th ed., pp. 231-7). Boulder, CO: Paradigm Publishers.

Gibbs, J. (2003). *Moral development & reality: Beyond the theories of Kohlberg and Hoffman.* Thousand Oaks, CA: Sage Publications.

Gill, J. H. (1995). *Learning to learn: Toward a philosophy of education.* Atlantic Highlands, NJ: Humanities Press International.

Gillham, E., Gillham, A. D., & Burton, D. (2013). *Competitive motivational styles questionnaire (CSMQ): Development and preliminary validation.* Manuscript in preparation.

Gorn, E. J., & Goldstein, W. (1993). *A brief history of American sports.* Urbana, IL: University of Illinois Press.

Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology, 14*(2), 172-204.

Grabiner, D. (1994). *The Sabermetric manifesto.* Retrieved from SeanLahman.com: http://www.seanlahman.com/baseball-archive/sabermetrics/sabermetric-manifesto/

Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology., 85*(3), 541-553.

Gucciardi, D. F. (2010). Mental toughness profiles and their relations with achievement goals and sport motivation in adolescent Australian footballers. *Journal of Sport Sciences, 28*(6), 615-625.

Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2008). Towards an understanding of mental toughness in Australian football. *Journal of Applied Sports Psychology, 20*(3), 261-281.

Gucciardi, D. F., Gordon, S., Dimmock, J. A., & Mallett, C. J. (2009). Understanding the coach's role in the devleopment of mental toughness: Perspectives of elite Australian football coaches. *Journal of Sport Sciences, 27*(13), 1483-1496.

Harwood, C., Cumming, J., & Fletcher, D. (2004). Motivational profiles and psychological skills use within elite youth sport. *Journal of Applied Sport Psychology, 16*, 318-332.

Harwood, C., Spray, C. M., & Keegan, R. (2008). Achievement goal theories in sport. In T. S. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 157-185). Champaign, IL: Human Kinetics.

Hodge, K., & Petlichkoff, L. (2000). Goal profiles in sport motivation: A cluster analysis. *Journal of Sport and Exercise Psychology, 22*, 256-272.

Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice* . New York: Cambridge University Press.

Homiak, M. (2011). *Moral character.* (E. N. Zalta, Ed.) Retrieved from The Stanford Encyclopedia of Philosophy: <http://plato.stanford.edu/archives/spr2011/entries/moral-character/>.

Horn, T. S. (Ed.). (2008). *Advances in sport psychology.* (3rd ed.). Champaign, IL: Human Kinetics.

Howdeshell, B. (2012). *Professional scouting: How it works.* Retrieved from High School Baseball Web : http://www.hsbaseballweb.com/pro-scouting/scouting_ranks.htm

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structrual Equation Modeling, 6*(1), 1-55.

Huizinga, J. (1988). The nature of play. In W. J. Morgan (Ed.), *Philosophic inquiry in sport* (2nd ed., pp. 5-8). Champaign, IL: Human Kinetics.

intangible. (2012). *intangible.* Retrieved from The Free Dictionary by Farlex: http://www.thefreedictionary.com/intangible

intangible. (2012). *intangible.* Retrieved from Merriam-Webster.com: http://www.merriam-webster.com/dictionary/intangible

Johnson, B., & Christensen, L. (2004). *Educational research: Quantitative, qualitative, and mixed approaches* (2nd ed.). Boston: Pearson Education.

Johnson, T. (1995). *Discipleship or pilgrimage? The educator's quest for philosophy.* Albany, NY: State University of New York Press.

Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology, 14*(2), 205-218.

Kant, I. (1983). *Ethical philosophy.* (J. W. Ellington, Trans.) Indianapolis, IN: Hackett Publishing Company.

Kohlberg, L. (1981). *Essays on moral development. Volume I. The philosophy of moral development.* New York: Harper & Row.

Krane, V., & Williams, J. M. (2010). Psychological characteristics of peak performance. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (6th ed., pp. 169-188). New York: McGraw-Hill.

Kreiner-Phillips, K., & Orlick, T. (1993). Winning after winning: The psychology of ongoing excellence. *The Sport Psychologist, 7*, 31-48.

Kretchmar, R. S. (2005). *Practical philosophy of sport and physical activity*. (2nd ed.). Champaign, IL: Human Kinetics.

Lasch, C. (1977, April 28). *The corruption of sports*. Retrieved from The New York Review of Books: http://www.nybooks.com/articles/archives/1977/apr/28/the-corruption-of-sports/?pagination=false

Lewis, M. (2004). *Moneyball. The art of winning an unfair game.* New York: Norton.

Lickona, T. (1992). *Educating for character: How our schools can teach respect and responsiblity.* New York: Bantam Books.

Loehr, J. E. (1982). *Athletic excellence: Mental toughness training for sports.* New York: Plume.

Loehr, J. E. (1995). *The new toughness training for sports.* New York: Plume.

Lumpkin, A., Stoll, S. K., & Beller, J. (2003). *Sport ethics: Applications for fair play* (3rd ed.). New York: McGraw-Hill.

Lumpkin, A., Stoll, S. K., & Beller, J. M. (2012). *Practical ethics in sport management.* Jefferson, NC: McFarland & Company, Inc.

Luthar, S. S. (1993). Annotation: Methodological and conceptual issues in the study of resilience. *Journal of Child Psychology and Psychiatry, 34*, 441-453.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidlines for future work. *Child Development, 71*(3), 543-562.

MacIntyre, A. (2008). *After virtue.* Notre Dame, IN: University of Notre Dame Press.

Maehr, M. L., & Zusho, A. (2009). Achivement goal theory: The past, present, and future. In K. Wentzel, & A. Wigfield (Eds.), *Handbook of motivation in school* (pp. 77-104). New York: Routledge.

Major League Baseball. (2012a). Retrieved from Major League Baseball: www.mlb.com

Major League Baseball. (2012b). *2012 MLB Draft: Round 1.* Retrieved from Baseball America.com: http://www.baseballamerica.com/draftdb/2012xrnd.php?rnd=1

Mamassis, G., & Doganis, G. (2004). The effects of a mental training program on juniors pre-competitive anxiety, self-confidence, and tennis performance. *Journal of Applied Sport Psychology, 16*(2), 118-137.

Marcos, F. (2012). *Major League Baseball Scouting Bureau Q&A.* Retrieved from Major League Baseball.com: http://mlb.mlb.com/mlb/official_info/about_mlb/scouting_overview.jsp

Marsh, H. W., Hau, K., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis testing approaches to setting cutoff values for fit indexes and dangers in

overgeneralizing Hu and Bentler's (1999) findings. *Structual Equation Modeling, 11*(3), 320-341.

Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist, 53*(2), 205-220.

Masters, T. J. (2012). A mental toughness development intervention in collegiate ice hockey: Examining a working model. *Unpublished doctoral dissertation*. University of Idaho, Moscow ID.

McCormack, J. B., & Chalip, L. (1988). Sport as socialization: A critique of methodological premises. *Social Science Journal, 25*(1), 83-92.

Meier, K. V. (1988). An affair of flutes: An appreciation of play. In W. J. Morgan, & K. V. Meier (Eds.), *Philosophic inquiry in sport* (pp. 120-35). Champaign, IL: Human Kinetics.

Metheny, E. (1968). *Movement and meaning.* New York: McGraw-Hill.

Miller, G. (2012). *Intangibles. Big-league stories and strategies for winning the mental game in baseball and life.* Ashland, OR: Byte Level Books.

Miller, K. E. (2009). Sport-related identities and the "Toxic Jock". *Journal of Sport Behavior, 32*(1), 69-91.

Minor League Baseball. (2012). *Minor League Baseball*. Retrieved from www.minorleaguebaseball.com

Narvaez, D., & Rest, J. R. (1995). The four components of acting morally. In W. M. Kurtines, & J. L. Gewirtz (Eds.), *Moral development: An introduction* (pp. 385-399). Boston: Allyn & Bacon.

National Association of Intercollegiate Athletics. (2012). *National Association of Intercollegiate Athletics (NAIA)*. Retrieved from Champions of Character: www.championsofcharacter.org

National Federation of State High School Associations. (2012). *NFHS Mission Statement*. Retrieved from National Federation of State High School Associations: http://www.nfhs.org/content.aspx?id=3264

National Junior College Athletic Association. (2012). *Today's NJCAA*. Retrieved from National Junior College Athletic Association: http://njcaa.org/todaysNJCAA.cfm

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*(3), 328-346.

Nyman, P. (2008). *Beyond Moneyball: Player development.* Retrieved from The Hardball Times: http://www.hardballtimes.com/main/article/beyond-moneyball-player-development/

Pickering, M. A., & Hammermeister, J. (2012). *Measuring self-reported resilience in soldiers: Structural validity of a revised 10-item Connor-Davidson Resilience Scale (CD-RISC).* Manuscript in preparation.

Pleskoff, B. (2012). *How scouts use formulas to evaluate tools.* Retrieved from MLB.com: http://mlb.mlb.com/news/article.jsp?ymd=20120522&content_id=31971604&vkey=news_mlb&c_id=mlb

Puerzer, R. J. (2003). Engineering baseball: Branch Rickey's innovative approach to baseball management. In W. M. Simmons, & A. L. Hall (Eds.), *Cooperstown symposium on baseball and the American culture* (pp. 75-88). Jefferson, NC: McFarland & Company.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of the American community.* New York: Simon & Schuster.

Ravizza, K. (2010). Increasing awareness for sport performance. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (6th ed., pp. 189-200). New York: McGraw-Hill.

Rawls, J. (1971). *A theory of justice.* Cambridge: Belknap Press of Harvard University Press.

Raykov, T. (1998). On the use of confirmatory factor analysis in personality research. *Personality and Individual Differences, 24*(2), 291-293.

Rest, J. (1980). Moral judgement research and the cognitive-developmental approach to moral education. *Personnel and Guidance Journal, 58*(9), 602-605.

Rest, J. (1988). *DIT Manual and Test* (3rd ed.). Tuscaloosa, AL.

Roberts, G. (2012). Motivation in sport and exercise from an achievement goal theory perspective: After 30 years, where are we? In G. C. Roberts, & D. C. Treasure (Eds.), *Advances in motivation in sport and exercise* (3rd ed., pp. 5-58). Champaign, IL: Human Kinetics.

Rosenbaum, M. (2012). *Examining the percentage of MLB draft picks that reach the Major Leagues*. Retrieved from www.bleacherreport.com: http://bleacherreport.com/articles/1219356-examining-the-percentage-of-mlb-draft-picks-that-reach-the-major-leagues

Rudd, A. (2005). Which "character" should sport develop? *Physical Educator, 62(4),* 205-211.

Rudd, A. K. (1998). Sport's perceived abilty to build character. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 59(5-A),* 1507.

Sage, G. H., & Eitzen, D. S. (2012). *Sociology of North American sport* (9th ed.). New York: Oxford University Press.

Sarrazin, P., Biddle, S., Famose, J. P., Cury, F., Fox, K., & Durand, M. (1996). Goal orientations and conceptions of the nature of sport ability in children: A social cognitive approach. *British Journal of Social Psychology, 35,* 399-414.

Scheaffer, R. L., Mendenhall, W., & Ott, L. (2006). *Elementary survey sampling* (6th ed.). Belmont: CA: Thomson Brooks/Cole.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research, 99*(6), 323-337.

Shields, D. L., Bredemeier, B. L., & Power, F. C. (2001). Can youth sport build character? *Zip Lines: The Voice for Adventure Education, 43,* 20-23.

Smith, J. J., & Harwood, C. G. (2001). The transiency of goal involvement states in matchplay: An elite player case study. *Paper presented at the BASES conference.* Newport, RI.

Stoll, S. K., & Beller, J. M. (1998). Can character be measured? *Journal of Physical Education, Recreation, and Dance, 69*(1), 18-24.

Stoll, S. K., & Beller, J. M. (2004). *SBH ethical standard: A unique teaching methodology for moral reasoning.* Moscow, ID: Center for ETHICS*, University of Idaho.

Stoll, S. K., & Beller, J. M. (2010). *Moral reasoning in athlete populations - a 20 year review.* Retrieved from Center for ETHICS* - University of Idaho: http://www.educ.uidaho.edu/center_for_ethics/research_fact_sheet.htm

Swanson, L. (2009). Soccer fields of cultural [Re] production: Creating "good boys" in suburban America. *Sociology of Sport Journal, 26*(3), 421.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education.

Tancredi, L. (2005). *Hardwired behavior: What neuroscience reveals about morality.* New York: Cambridge University Press.

Thelwell, R., Weston, N., & Greenlees, I. (2005). Defining and understanding mental toughness within soccer. *Journal of Applied Sport Psychology*, *17*, 326-332.

Thoma, S. J. (2006). Research on the Defining Issues Test. In M. Killen, & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 67-91). Mahwah, NJ: Erlbaum.

Thomas, C. E. (1983). *Sport in a philosophic context.* Philadelphia, PA: Lea & Febiger.

Wang, C. K., & Biddle, S. J. (2003). Intrinsic motivation towards sports in Singaporean students: The role of sport ability beliefs. *Journal of Health Psychology, 8*(5), 515-523.

Wang, C. K., Chatzisarantis, L. D., Spray, C. M., & Biddle, S. J. (2002). Acheivement goal profiles in school physical education: Differences in self-determination, sport ability beliefs, and physical activity. *British Journal of Educational Psychology, 72*, 433-445.

Weiss, M. R., & Amorose, A. J. (2008). Motivational orientations and sport behavior. In T. S. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 115-156). Champaign, IL: Human Kinetics.

Weiss, M. R., Smith, A. L., & Stuntz, C. P. (2008). Moral development in sport and physical activity. In T. S. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 188-212). Champaign, IL: Human Kinetics.

Williams, J. F. (1934). *The administration of health and physical education.* Philadelphia, PA: W. B. Saunders Company.

Williams, J. M. (Ed.). (2010). *Applied sport psychology: Personal growth to peak performance* (6th ed.). New York: McGraw-Hill.

Williams, J. M., & Krane, V. (2001). Psychological characteristics of peak performance. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (4th ed., pp. 162-178). Mountain View, CA: Mayfield Publishing Company.

Wilson, F. (2012). *John Stuart Mill.* (E. N. Zalta, Ed.) Retrieved from Stanford Encyclopedia of Philosophy: http://plato.stanford.edu/archives/spr2012/entries/mill/

Wooden, J., & Jamison, S. (2007). *The essential Wooden. A lifetime of lessons on leaders and leadership.* New York: McGraw-Hill.

Appendix A

University of Idaho
Office of Research Assurances (ORA)
Institutional Review Board (IRB)
PO Box 443010
Moscow ID 83844-3010

Phone: 208-885-6162
Fax: 208-885-5752
irb@uidaho.edu

To: Stoll, Sharon
Cc: Haselhuhn, Seth

From: IRB, University of Idaho Institutional Review Board

Subject: Exempt Certification for IRB project number 12-311

Determination: October 2, 2012
Certified as Exempt under category 2 at 45 CFR 46.101(b)(2)
IRB project number 12-311: Evaluating the "Sixth Tool". Constructing an instrument for Major League Baseball

---

This study may be conducted according to the protocol described in the Application without further review by the IRB. As specific instruments are developed, each should be forwarded to the ORA, in order to allow the IRB to maintain current records. Every effort should be made to ensure that the project is conducted in a manner consistent with the three fundamental principles identified in the Belmont Report: respect for persons; beneficence; and justice.

It is important to note that certification of exemption is NOT approval by the IRB. Do not include the statement that the UI IRB has reviewed and approved the study for human subject participation. Remove all statements of IRB Approval and IRB contact information from study materials that will be disseminated to participants. Instead please indicate, "The University of Idaho Institutional Review Board has Certified this project as Exempt."

Certification of exemption is not to be construed as authorization to recruit participants or conduct research in schools or other institutions, including on Native Reserved lands or within Native Institutions, which have their own policies that require approvals before Human Subjects Research Projects can begin. This authorization must be obtained from the appropriate Tribal Government (or equivalent) and/or Institutional Administration. This may include independent review by a tribal or institutional IRB or equivalent. It is the investigator's responsibility to obtain all such necessary approvals and provide copies of these approvals to ORA, in order to allow the IRB to maintain current records.

This certification is valid only for the study protocol as it was submitted to the ORA. Studies certified as Exempt are not subject to continuing review (this Certification does not expire). If any changes are made to the study protocol, you must submit the changes to the ORA for determination that the study remains Exempt before implementing the changes. The IRB Modification Request Form is available online at: http://www.uidaho.edu/ora/committees/irb/irbforms

October 18, 2012

University of Idaho
Office of Research Assurances (ORA)
Institutional Review Board (IRB)
PO Box 443010
Moscow ID 83844-3010

Phone: 208-885-6162
Fax: 208-885-5752
irb@uidaho.edu

To: Stoll, Sharon
Cc: Haselhuhn, Seth

From: IRB, University of Idaho Institutional Review Board

Subject: Exempt Certification for IRB project number 12-311

Determination: October 18, 2012
Certified as Exempt under category 2 at 45 CFR 46.101(b)(2)
IRB project number 12-311: Evaluating the "Sixth Tool". Constructing an instrument for Major League Baseball

---

The modification to the protocol has been determined to retain the exempt certification. This study may be conducted according to the protocol described in the Application without further review by the IRB. As specific instruments are developed, each should be forwarded to the ORA, in order to allow the IRB to maintain current records. Every effort should be made to ensure that the project is conducted in a manner consistent with the three fundamental principles identified in the Belmont Report: respect for persons; beneficence; and justice.

It is important to note that certification of exemption is NOT approval by the IRB. Do not include the statement that the UI IRB has reviewed and approved the study for human subject participation. Remove all statements of IRB Approval and IRB contact information from study materials that will be disseminated to participants. Instead please indicate, "The University of Idaho Institutional Review Board has Certified this project as Exempt."

Certification of exemption is not to be construed as authorization to recruit participants or conduct research in schools or other institutions, including on Native Reserved lands or within Native Institutions, which have their own policies that require approvals before Human Subjects Research Projects can begin. This authorization must be obtained from the appropriate Tribal Government (or equivalent) and/or Institutional Administration. This may include independent review by a tribal or institutional IRB or equivalent. It is the investigator's responsibility to obtain all such necessary approvals and provide copies of these approvals to ORA, in order to allow the IRB to maintain current records.

This certification is valid only for the study protocol as it was submitted to the ORA. Studies certified as Exempt are not subject to continuing review (this Certification does not expire). If any changes are made to the study protocol, you must submit the changes to the ORA for determination that the study remains Exempt before implementing the changes. The IRB Modification Request Form is available online at: http://www.uidaho.edu/ora/committees/irb/irbforms

Appendix B

Coach's Name
Head Baseball Coach
College/University
Address 1
City, State, Zip

University of Idaho
College of Education

Movement Sciences

Physical Education Building, Room 101
PO Box 442401
Moscow ID 83844–2401

Phone: 208-885-7921
Fax: 208-885-5929
movementsciences@uidaho.edu

Current Date

Seth Haselhuhn, MS, CSCS
University of Idaho
500 Memorial Gym
Moscow, ID 83844-3080

Coach Last Name,

I trust this letter finds your fall practice schedule going well. As part of my doctoral program, I am currently in the process of developing an instrument designed for Major League Baseball (MLB) scouts to objectively assess the specific characteristics of which baseball insiders refer to as "makeup". The foundation of the instrument is based on the literature of sport psychology, moral philosophy, and educational psychology. Additionally, I have consulted with professional scouts as well as college and MLB coaches to identify the key aspects of baseball specific character. The proposed "Baseball Makeup Inventory" assesses motivational styles, moral reasoning, and self-beliefs regarding intelligence and ability.

In order for this project to move forward, I need to collect responses from college baseball players. For the purpose of this study, I am focusing on college players in the Northwest and am contacting programs affiliated with the National Collegiate Athletic Association (NCAA), National Association of Intercollegiate Athletics (NAIA), Northwest Athletic Association of Community College (NWAACC), and National Junior College Athletic Association (NJCAA). A large sample size is imperative to assess the effectiveness of the proposed instrument and your assistance in this project is important to its success.

The instrument is available to be completed in both online and paper formats and will take your players about an hour to complete. Because the instrument is in the process of development, your players' identity will remain anonymous. However the results of the study will be made available in May. The project has received exempt approval from the University of Idaho's Institutional Review Board, indicating no risk to participants.

If you are interesting in assisting me in this endeavor, please contact me by replying to this email and I can set up online or paper access. Your assistance is greatly appreciated!

In baseball,

Seth Haselhuhn

Appendix C

Examining the "Sixth Tool"

Directions for Participants

Thank you for your participation in this study. Your insights will provide the means for the creation of an objective tool made specifically for Major League Baseball (MLB) organizations, including individual teams, scouts, and the Major League Baseball Scouting Bureau (MLSB) to measure baseball specific character (i.e., "makeup") of prospective professional baseball players. The baseball specific survey consists of questions developed from the literature of sport psychology, educational psychology, moral philosophy, and the input of various sources from MLB including scouts and mental skills coaches. As a prospective professional baseball player, your responses to the following surveys are important to the development of such a tool.

Before participating, there are a few things you should be aware of:

1. Your responses to the following survey(s) are anonymous. No one, including your coaches or the researchers can identify, assess, or evaluate you based on your responses.
2. Each page of your stapled packet lists your college name and is numbered to compare your responses from the various survey(s). These numbers provide no method of identifying you. The only purpose for them is to ensure the researchers' ability to compare your responses to different questions, statements, and scenarios.
3. Your character will not be identified or revealed. The survey(s) have been previously established as accurate measurements of various characteristics however none of them are capable of capturing your present characteristics.
4. You are asked to respond to each of the survey(s) completely. Even though some items may seem similar, the small differences and similarities are important. Please be careful to respond to each.
5. Your participation is voluntary. Your coach has asked you to participate, however you are not required to complete the survey(s).
6. If you are under the age of 18. Please do not complete the survey(s).

This study is being sponsored through the College of Education at the University of Idaho, and specifically the Doctoral Program in Sports Pedagogy and Character Education. The primary investigator is Seth Haselhuhn, a doctoral candidate, and the faculty member sponsoring the research is Sharon Kay Stoll, Ph.D., if you have any questions you may contact Seth at sethh@uidaho.edu or Dr. Stoll at sstoll@uidaho.edu.

Thank you again for your participation in this project. Your responses are invaluable. If you wish to receive results of this study in May, please contact me.

Best wishes on your upcoming season,

Seth Haselhuhn, MS, CSCS
University of Idaho
Center for ETHICS*
Moscow, ID 83844-3080
sethh@uidaho.edu

Demographic Information

Before beginning the survey, please provide us with some general information about yourself. Remember that your responses are anonymous. The information you are being asked to provide below is intended to tell us about college baseball players in general.

1. **How old are you?** _____Years **Gender**: Male Female (Circle one)
2. **What year are you in school?** (Circle one)

   Freshman Sophomore Junior Senior

3. **What year of eligibility are you currently in**? (Circle one)

   Freshman Sophomore Junior Senior

4. **Have you ever had private instruction?** (Circle one)
   (i.e., Hitting or Pitching lessons or Personal Training)

   Never Less than 1 year 1-2 years 2-3 years 3+ years

4. **How many years have you played organized baseball?** _____Years
5. **Have you ever been drafted by a MLB organization?** Yes No

HAHM - BELLER VALUES CHOICE INVENTORY*

In The Sport Milieu

The following questionnaire describes incidents that have occurred in sport settings. Each question addresses moral values. Because there are no right or wrong answers, please circle the answer that best describes your feelings.

SA = Strongly Agree; A = Agree, N = Neutral; D = Disagree; SD = Strongly Disagree

1 - 1. Two rival basketball teams in a well-known conference played a basketball game on team A's court. During the game, team B's star player was consistently heckled whenever she missed a basket, pass, or rebound. In the return game on team B's home court, the home crowd took revenge by heckling team A's players. Such action is fair because both crowds have equal opportunity to heckle players.	SA	A	N	D	SD
2 -2. During the double play in baseball, players must tag second base before throwing to first. However, some players deliberately fake the tag, thus delivering a quicker throw to first base. Pretending to tag second base is justified because it is a good strategy. Besides, the umpire's job is to call an illegal play.	SA	A	N	D	SD
4- 3. Swimmers are taught to stand completely still just before the gun shot that starts the race. Some coaches teach their swimmers to move their head and upper body slightly which possibly forces an opponent to false start. If swimmer B false starts he will probably stay in the blocks a fraction longer when the race starts. Consequently, swimmer A may have an advantage during the race. Because all competitors have equal opportunity for this strategy, this is an acceptable means for swimmers to increase their advantage	SA	A	N	D	SD
5- 4. Male Soccer players are allowed to play the ball with any part of their body except the hands or outstretched arms. A soccer player receives a chest high pass and taps the ball to the ground with his hand. The referee does not see this action and the play continues. Because it is the referee's job to see these actions, the player is not obligated to report the foul.	SA	A	N	D	SD
6 -5 . A female gymnast with Big Time U tries diligently to be a great athlete, but alas the gods are not with her. The more she works, the more she seems to ail at the most inappropriate times: the big meets. She decides to seek help for her mental shortcomings. She sets monthly appointments with her school's sport psychologist. In six months, the meetings prove fruitful, and she begins to see results.	SA	A	N	D	SD
8- 6 Basketball player A skillfully dribbled the ball around her opponents to the basket. Just as she moved toward the basket, she was tripped by played B, causing the basket to be missed. If player A had not been tripped, two points probably would have been made. Player B is charged with a foul and player A must shoot two free throws. Player A missed the two shots from the free throw line. Player B is demonstrating good strategy by forcing player A to shoot two foul shots instead of an easy lay-up.	SA	A	N	D	SD

10-7. Certain basketball teams are coached to run plays that cause the opponents to foul. Players and coaches believe this is clever strategy because the opponents may foul out of the game, giving their team an advantage. Because the coach orders this type of play, the players should follow his directions.	SA	A	N	D	SD
11-8. A highly recruited sprinter from Zimbabwe attends every practice, works diligently, and is highly respected by his peers and coaches. He is a good student, sits in the front of every class, and is an active participant. He is an NCAA finalist and must miss three days of class for the championships. As per university policy, he contacts all of his professors and receives permission to take his final exams at a different time and place.	SA	A	N	D	SD
15-9 Player A who is the center on an ice hockey team skated the puck down the ice, around several opponents. He had a clear shot at the net as he passed player B. Player B, while pretending to go for the puck, decided to turn at the last second to trip Player A with his stick. Consequently, Player A missed the goal. Because Player A must now attempt a penalty shot instead of an easy goal, this is demonstrating good strategy.	SA	A	N	D	SD
16-10. During a volleyball game player A hit the ball over the net. The ball barely grazed off player B's fingers and landed out of bounds. However the referee did not see player B touch the ball. Because the referee is responsible for calling rule violations, player B is not obligated to report the violation.	SA	A	N	D	SD
17-11. A starting linebacker for Big Time U is a good person, is known for his hard work and determination. He is also known as a fierce competitor and is aggressive on every play. The best part about him is that he is a consummate player. He loves the game and the experiences gained from it. He is also known as a good sport. He has won every team award for sportsmanlike conduct. After the big interstate rivalry, he shakes hands with all opposing players and coaches.	SA	A	N	D	SD
19-12. Football players are not allowed to move beyond the line of scrimmage until the ball is snapped. Some coaches encourage their players to charge across the line of scrimmage a fraction of a second before the ball is snapped. The officials have difficulty seeing the early movement, therefore, the team has an advantage compared to their opponents. Because the strategy is beneficial and the officials must call the infraction, the team's actions are fair..	SA	A	N	D	SD
20-13. During an intramural basketball game, a student official awarded one free throw shot instead of two to team A. Team B knew the call was wrong, however chose to remain silent, knowing the call was to their advantage. Because the official's job is to make the proper calls, and it is not a formal game, team B's action was acceptable.	SA	A	N	D	SD
23-14. The star of the swim team at Big Time U was 21 and had just	SA	A	N	D	SD

completed a great collegiate career by winning both of her events at the NCAA Championships. Her parents traveled over 200 miles to support her and cheer her on to victory. After the finals, they take her out to dinner to celebrate. She decides to have a glass of white wine with her fish filet entree.					
24-15. During a youth sport football game, an ineligible pass receiver catches a long touchdown pass and scores. The officials fail to determine that the player was ineligible. Because it is the referee's job to detect the ineligible receiver, the player or the coach does not have to declare an ineligible receiver	SA	A	N	D	SD
25-16. Ice hockey is often a violent game. Even though players are often hurt, hitting hard and smashing players into the boards is normal. Player A and B are opponents playing in a championship game. While trying to control the puck, player A smashed player B into the boards. Even though the puck is on the opposite side of the arena, player B, a few minutes later, retaliated by smashing player A into the boards. Because "hitting hard" and "smashing players into the boards" are an inherent part of the game, player B's action was acceptable	SA	A	N	D	SD

Competitive Motivational Styles Questionnaire

Directions: This questionnaire is designed to help us better understand how athlete's personality traits affect their motivation. Read each sentence below and circle the one number that shows how much you agree with it. There are no right or wrong answers. You will not be judged or evaluated on your responses. Your responses will be anonymous to your coaches and the researchers. Do not take too much time on any one sentence, answer with your first thought and please be honest.

Use the following scale to indicate your response:

1	**2**	**3**	**4**	**5**	**6**
Strongly Disagree	**Disagree**	**Mostly Disagree**	**Mostly Agree**	**Agree**	**Strongly Agree**

		SD	D	MD	MA	A	SA
1.	I always give my best effort.	1	2	3	4	5	6
2.	Public failures are hard to handle.	1	2	3	4	5	6
3.	Sometimes I try my best, sometimes I don't try at all.	1	2	3	4	5	6
4.	Success to me is winning.	1	2	3	4	5	6
5.	I choose goals that focus on how I perform.	1	2	3	4	5	6
6.	I doubt my ability.	1	2	3	4	5	6
7.	My most important goal is to always win.	1	2	3	4	5	6
8.	After a loss, it is difficult to push myself.	1	2	3	4	5	6
9.	Winning is more important than how I perform.	1	2	3	4	5	6
10.	I feel like a failure when others think I am not skilled.	1	2	3	4	5	6
11.	After a loss, I want to use practice as a way to improve.	1	2	3	4	5	6
12.	I worry that I won't perform my best.	1	2	3	4	5	6
13.	Goals don't work for me.	1	2	3	4	5	6
14.	I focus too much on the number of mistakes I make.	1	2	3	4	5	6
15.	I work hard in every practice.	1	2	3	4	5	6
16.	I am not as confident as I used to be.	1	2	3	4	5	6
17.	I don't like to work on my weaknesses.	1	2	3	4	5	6
18.	I am willing to work a long time to reach my ultimate goal.	1	2	3	4	5	6
19.	All my effort is focused on winning.	1	2	3	4	5	6
20.	I avoid setting goals.	1	2	3	4	5	6

Conceptions of the Nature of Athletic Ability Questionnaire – 2

Directions: Please answer each question below. We are interested in your opinions. There are no right or wrong answers. Please circle one number for each question which best represents your opinions.

Use the following scale to indicate your response:

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

		SD	D	N	A	SA
1.	You have a certain level of ability in sport and you cannot really do much to change that level.	1	2	3	4	5
2.	To be successful in sport you need to learn techniques and skills, and practice them regularly.	1	2	3	4	5
3.	Even if you try, the level you reach in sport will change very little.	1	2	3	4	5
4.	You need to have certain "gifts" to be good at sport.	1	2	3	4	5
5.	You need to learn and to work hard to be good at sport.	1	2	3	4	5
6.	In sport, if you work at it, you WILL ALWAYS get better.	1	2	3	4	5
7.	To be good at sport, you need to be born with the basic qualities which allow you success.	1	2	3	4	5
8.	To reach a high level of performance in sport, you must go through periods of learning and training.	1	2	3	4	5
9.	How good you are at sport will ALWAYS improve if you work at it.	1	2	3	4	5
10.	It is difficult to change how good you are at sport.	1	2	3	4	5
11.	To be good at sport you need to be naturally gifted.	1	2	3	4	5
12.	If you put enough effort into it, you will ALWAYS get better at sport.	1	2	3	4	5

Connor-Davidson Resilience Scale

Directions: Read each sentence below and select the one number that shows how much you agree with it. There are no right or wrong answers. You will not be judged or evaluated on your responses. Your responses will be anonymous to your coaches and the researchers. Do not take too much time on any one sentence, answer with your first thought and please be honest.

1 2 3 4 5
Not True At all **True Nearly All Of The Time**

		Not True At All				True Nearly All Of The Time
1.	I am able to adapt to change.	1	2	3	4	5
2.	I can deal with whatever comes.	1	2	3	4	5
3.	I tend to see the humorous side of things.	1	2	3	4	5
4.	My ability to cope with stress strengthens me.	1	2	3	4	5
5.	I tend to bounce back after illness or hardship.	1	2	3	4	5
6.	I believe I can achieve my goals.	1	2	3	4	5
7.	Under pressure, I focus and think clearly.	1	2	3	4	5
8.	I'm not easily discouraged by failure.	1	2	3	4	5
9.	I think of myself as a strong person.	1	2	3	4	5
10.	I can handle unpleasant feelings	1	2	3	4	5

Baseball Makeup Inventory

Section I

Directions: The following questionnaire describes incidents that have occurred in baseball. Read each incident below and circle the one number that shows how much you agree or disagree. There are no right or wrong answers. You will not be judged or evaluated on your responses. Your responses will be anonymous to your coaches and the researchers. Do not take too much time on any one incident, answer with your first thought and please be honest.

1 **Strongly Disagree**	**2** **Disagree**	**3** **Mostly Disagree**	**4** **Mostly Agree**	**5** **Agree**	**6** **Strongly Agree**

	A	D	MD	MA	A	SA
1. Two rival baseball teams played a home and home series. During the first game, the home crowd consistently heckled the visiting team's best players. When the series moved to the visiting team's field, their home crowd got revenge by heckling the visiting team's players. This action was fair because both crowds have equal opportunity to heckle the other team's players.	1	2	3	4	5	6
2. During a double play, a defensive player must tag second base before throwing to first. However, some players deliberately miss the bag to get the fall to first faster. Pretending to touch the base is justified because it is good strategy. Besides, the umpire's job is to call an illegal play.	1	2	3	4	5	6
3. In the stretch, pitchers are required to come completely set before delivering the pitch to the plate. Some pitchers are coached to nod their head or wiggle their glove in an effort to prevent base runners from being able to steal, effectively deceiving the runner. Because pitchers from both teams have an equal opportunity to do this, it is an acceptable manner to gain advantage.	1	2	3	4	5	6
4. When trying to avoid getting hit by a pitch, a hitter tries to move his hands and the ball strikes the knob of the bat. The umpire hears the sound and thinking the ball hit the batter's hands, he awards him first base. Because it is the umpire's job to see these actions, the player is not obligated to tell the umpire what the ball actually hit.	1	2	3	4	5	6
5. A pitcher at a major university has great stuff but can never seem to put together a consistent outing He decides to contact the athletic department's sport psychologist to get help with the mental side of his game. After a few months, his outings continue to improve.	1	2	3	4	5	6
6. Late in a close game the opposing team's best hitter comes to the plate with runners on second and third	1	2	3	4	5	6

with one out. The coach calls for the pitcher to intentionally walk the hitter to set up the double play. The pitcher decides to just hit the batter in the hip with the next pitch. Because hitting the batter saves pitches, and sends a message, it is an acceptable strategy.						
7. Certain coaches teach their first basemen to intentionally block the bag when holding runners and occasionally results in the first baseman stepping on the hand or landing on a shoulder of the runner when the pitcher picks to first. Because the coach orders this type of play, the first basemen should follow the coach's directions.	1	2	3	4	5	6
8. After a successful season on the field and in the classroom, a baseball team is ready to leave to compete in the championship tournament. In order to do so however, the team will miss three days of classes. In accordance with school policy, each player contacts his professors and receives permission to take their final exams at a different time and place.	1	2	3	4	5	6
9. A pitcher has been dominating a close game through seven innings. In the eighth, he has allowed two runners on and the opposing team's nine hole hitter has worked a 3-1 count. The next pitch is inside and the hitter pretends the pitch hit him. He fools the umpire and is awarded first base. Since getting hit is easier than getting a hit, especially against a good pitcher, this is demonstrating good strategy.	1	2	3	4	5	6
10. During the ninth inning of a close game a ball is hit down the right field line. The right fielder sees the ball hit the foul pole but umpire calls the ball foul. Because it is the umpire's responsibility to decide "fair" and "foul", the right fielder is not obligated to tell the umpire the ball was fair.	1	2	3	4	5	6
11. A four time All-Conference starting pitcher has been has only lost two games in the past three years. He has a reputation for being an intense and intimidating competitor. After giving up a walk off home run in his last college game, the conference championship, he watches the opponent's celebration then goes to congratulate the hitter for his accomplishment.	1	2	3	4	5	6
12. High school baseball games often use two man umpire crews. In a tight game, with runners on first and second, the coach calls a bunt down the first baseline. Because the typical play will be to first or second base, the two umpires have difficulty seeing action at third base. The coach instructs his base runners to cut inside third to get to the plate faster.	1	2	3	4	5	6

This is a good strategy because it gives the offense an advantage.						
13. During a fall scrimmage, the home plate umpire awards a hitter first base after only three balls. The offensive team knows this is wrong but since it is the umpire's responsibility and the other team wasn't keeping track, it is acceptable for the hitter to take first base.	1	2	3	4	5	6
14. After winning the national championship game, the team's star pitcher went to dinner with his parents who had traveled over five hours to see the game. At dinner, he orders a big 22 ounce beer to wash down his steak dinner.	1	2	3	4	5	6
15. Heading into the playoffs, a junior college coach knows his starting shortstop is ineligible because of poor grades but notices the Athletic Director failed to report the issue to the league. The coach asks the Athletic Director if everything is ready for the team to go to the playoffs and the Athletic Director replies, "Yes, good luck this weekend". Since it is the Athletic Director's job to report ineligible players and the shortstop will help them win, the coach keeps the shortstop in the starting lineup.	1	2	3	4	5	6
16. Early in a conference game, the opposing pitcher hits the opponent's best hitter in the knee with a fastball. Since the bases were empty and there was no score yet, it didn't appear to be intentional. Late in the game the hitter's team is up by six runs with a runner on first with one out and the best hitter on first. The next pitch is ground ball to second and the hitter intentionally takes out the shortstop, injuring him. Since breaking up double plays is part of the game, this is an acceptable play.	1	2	3	4	5	6

Section II

Directions: Read each sentence below and select the one number that shows how much you agree with it. There are no right or wrong answers. You will not be judged or evaluated on your responses. Your responses will be anonymous to your coaches and the researchers. Do not take too much time on any one sentence, answer with your first thought and please be honest.

1	2	3	4	5	6
Strongly Disagree	**Disagree**	**Mostly Disagree**	**Mostly Agree**	**Agree**	**Strongly Agree**

		SD	D	MD	MA	A	SA
1.	I choose baseball goals that focus on how I perform.	1	2	3	4	5	6
2.	I don't like to work on my weaknesses in practice.	1	2	3	4	5	6
3.	Winning is more important than how I perform in games.	1	2	3	4	5	6
4.	In baseball, if you work at it, you WILL ALWAYS get better.	1	2	3	4	5	6
5.	I tend to see the humorous side of things.	1	2	3	4	5	6
6.	I avoid setting goals for baseball.	1	2	3	4	5	6
7.	To be successful in baseball you need to learn techniques and skills, and practice them regularly.	1	2	3	4	5	6
8.	I think of myself as a strong person.	1	2	3	4	5	6
9.	I worry that I won't perform my best in practice and games.	1	2	3	4	5	6
10.	I believe I can achieve my goals.	1	2	3	4	5	6
11.	I doubt my baseball ability.	1	2	3	4	5	6
12.	I can handle unpleasant feelings.	1	2	3	4	5	6
13.	I feel like a failure when my teammates and coaches think I am not skilled.	1	2	3	4	5	6
14.	How good you are at baseball will ALWAYS improve if you work at it.	1	2	3	4	5	6
15.	You need to have certain "gifts" to be good at baseball.	1	2	3	4	5	6
16.	It is difficult to change how good you are at baseball.	1	2	3	4	5	6
17.	I am able to adapt to change.	1	2	3	4	5	6
18.	I'm not easily discouraged by failure.	1	2	3	4	5	6
19.	After a loss, I want to use baseball practice as a way to improve.	1	2	3	4	5	6
20.	To be good at baseball you need to be naturally gifted.	1	2	3	4	5	6
21.	I work hard in every baseball practice.	1	2	3	4	5	6
22.	I always give my best effort on the diamond.	1	2	3	4	5	6
23.	I am not as confident as I used to be.	1	2	3	4	5	6
24.	I tend to bounce back after illness or hardship.	1	2	3	4	5	6
25.	Under pressure, I focus and think clearly.	1	2	3	4	5	6
26.	All my effort is focused on winning games.	1	2	3	4	5	6
27.	After a loss, it is difficult to push myself in practice.	1	2	3	4	5	6
28.	My most important goal is to always win, both in practice and games.	1	2	3	4	5	6
29.	Success to me is winning in both practice and games.	1	2	3	4	5	6
30.	Failing in a game is hard to handle.	1	2	3	4	5	6
31.	Baseball goals don't work for me.	1	2	3	4	5	6
32.	I can deal with whatever comes.	1	2	3	4	5	6

33.	I focus too much on the number of mistakes I make especially in games.	1	2	3	4	5	6
34.	My ability to cope with stress strengthens me.	1	2	3	4	5	6
35.	Sometimes I try my best, sometimes I don't try at all.	1	2	3	4	5	6
36.	I am willing to work a long time to reach my ultimate baseball goals.	1	2	3	4	5	6
37.	If you put enough effort into it, you will ALWAYS get better at baseball.	1	2	3	4	5	6
38.	To be good at baseball, you need to be born with the basic qualities which allow you success.	1	2	3	4	5	6
39.	To reach a high level of performance in baseball, you must go through periods of learning and training.	1	2	3	4	5	6
40.	You need to learn and to work hard to be good at baseball.	1	2	3	4	5	6
41.	Even if you try, the level you reach in baseball will change very little.	1	2	3	4	5	6
42.	You have a certain level of ability in baseball and you cannot really do much to change that level.	1	2	3	4	5	6