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The psychology of performance in elite youth soccer players

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The Psychology of Performance in Elite Youth Soccer Players

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Dedication

I dedicate this thesis project to Kenn, my mentor and thesis advisor. Kenn is the individual who has made the greatest impact on my life over the past three and a half years. I have learned more from him than I could ever imagine during this time, and he has pushed me to be the best version of myself. He is a principled man who consistently puts others and a deeper purpose ahead of himself, which is something that I have grown to deeply appreciate and follow tirelessly. He has done more for me than he will ever know, and I will be forever grateful.

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Abstract

This study is a holistic assessment of psychological mindsets, which are one's attitudes, beliefs, and perceptions, in elite youth male soccer players between the ages of 13 and 18 and the exploration of the relationships between these mindsets and performance outcomes. The mindsets that were assessed were expectancy, growth mindset, value, goals, belongingness, grit, and self-regulation, and the performance outcomes were minutes played, goals scored, and goals allowed. The mindsets were selected through a review of research in education and sport. I conducted Exploratory Factor Analyses (EFA) and Cronbach's alpha coefficient analyses to assess the validity and reliability of the scales used, and then conducted descriptive and correlational analyses to describe the players' ratings of the mindsets and the relationships between mindsets and performance outcomes. I also conducted Analyses of Variance (ANOVA) to explore the differences in mindsets between demographic groups (age, professional versus non-professional club, position, ethnicity, and scouting level). Eleven out of the 16 scales had a Cronbach's alpha coefficient that was greater than or equal to .70. Fifteen out of the 16 mindsets that were assessed had a statistically significant relationship with at least one of the performance outcomes. Fifty-one of the 80 ANOVAs overall that I ran were significant. Finally, I conducted multiple regression analyses and found that mindsets combined to predict up to nine percent of the variance in performance outcomes. This work is significant because of its holistic and applied approach, and the tools developed in this study can be used to study mindsets and performance in many contexts beyond soccer.

The Psychology of Performance in Elite Youth Soccer Players

In the world of sport, researchers from various disciplines have studied many factors that relate to performance, such as physiology, technical skill, and tactical knowledge. However, one area not as extensively studied is the relationship between psychological factors and elite performance, even though coaches frequently report that psychological factors of players are critical for their success (Strudwick, 2016). I will refer to these psychological factors as psychological mindsets, which is a term that is common amongst practitioners and coaches in the sport context (i.e., "Does a player have the right mindset to be successful?"). A psychological mindset is any psychological characteristic, belief, attitude, or perception that a person has that affects his or her behavior.

When researchers have investigated psychological mindsets in sports, the focus is often on one type of psychological mindset (e.g., a player's goals) motivated by a particular psychological theory (e.g., achievement goal theory). What is missing is a more holistic approach that simultaneously investigates a wider array of psychological mindsets to determine which mindsets are most important for performance and how different mindsets may combine and interact with each other to further impact performance. The purpose of the current project therefore is twofold. First, I will review past research conducted on psychological mindsets to see which mindsets should be included in a more comprehensive investigation. Second, I will report a new study of psychological mindsets conducted with elite youth soccer players that assesses a richer number of mindsets at the same time to investigate their impact on various performance outcomes.

An Initial Example of a Comprehensive Model of Psychological Mindsets

Although most of the current sport research literature focuses on only one or two psychological mindsets, there is a model that measured multiple psychological mindsets and explored their relationships with performance outcomes. This model is a pair of studies (Feichtinger & Höner, 2014; Höner & Feichtinger, 2016) by a German research team that examined elite German youth soccer players' psychological mindsets. They assessed 17 different psychological mindsets of players by using a combination of known psychological scales used in sport. They selected these mindsets through a literature review of German studies focused on psychological mindsets in performance in which they found evidence for significant differences in these mindsets between youth players who performed at different levels (e.g., elite versus non-elite). The scales that they used to measure these mindsets were validated in past studies in sport. These mindsets were: hope for success, fear of failure, competition orientation, win orientation, goal orientation, task orientation, ego orientation, self-optimization, self-impediment, lack of initiation, loss of focus, general self-concept, specific self-concept, self-efficacy, somatic anxiety, worry, and concentration disruption (see Table 1 for a more in-depth summary of each mindset). They used each of these psychological mindsets to predict players' current and future performance. They assessed current performance through individual scout ratings by licensed coaches, in which the coaches rated the player as "highly promotion worthy," "promotion worthy," or "partly promotion worthy." They assessed players' current motor performance through specific drills in non-game environments that assessed speed, agility and dribbling, ball control, and shooting. Then they used psychological mindsets and current performance to predict which players successfully would become youth academy players at the U16 level in their respective professional clubs as their future performance measure.

In an initial study, Feichtinger and Höner (2014) evaluated the validity and reliability of the scales that they used to measure psychological mindsets. They found 14 of the 17 measures had Cronbach's alpha levels greater than or equal to .70. Beyond reliability, they also conducted an exploratory factor analysis of all 17 measures and found that the measures were separated into four major constructs, which they labeled as motivation, volition, self-referential cognition, and emotion (see Table 1 for how the 17 individual mindsets loaded on to these four higher order constructs). They picked the labels for the four constructs based on the terminology they used to organize the psychological mindsets related to performance that they observed in their literature review.

Following these initial reliability and validity analyses, Höner and Feichtinger (2016) examined the correlational relationships between the players' self-reported psychological mindsets and their current motor performance outcomes. Fourteen of the 17 individual mindsets produced statistically significant correlations with small effect sizes in their predicted directions, with one of them producing a medium effect size. The relationships between psychological mindsets and the overall performance ratings given by the certified coaches showed significant differences with small effect sizes between the "highly promotion worthy," "promotion worthy," and "partly promotion worthy" groups of players for 10 of the 17 mindsets through an analysis of variance (ANOVA). The German researchers then assessed the relationships between psychological mindsets and the players' future success to follow up their analyses of current performance outcomes. In this analysis, 10 of the 17 mindsets significantly predicted players' success in making the U16 team in their club's academy with small effect sizes ($.01 > \eta^2 > .09$).

These results provide evidence that psychological mindsets do play a role in player performance and development. The researchers showcased how a wide array of mindsets relate

to performance outcomes and that the psychological mindsets they selected reflected one of four overarching constructs. On the other hand, they did not examine how mindsets combined to predict performance outcomes. Additionally, given the effect sizes were small and the researchers mentioned that previous research on these psychological mindsets had inconsistent results (Feichtinger & Höner, 2014), more research on the relationships between psychological mindsets and performance outcomes is needed.

The empirical exploration of several mindsets in the studies that the German researchers conducted is a model for the current study (Höner & Feichtinger, 2016). To complement and extend their research, the current study will assess a wider array of mindsets and their impact on performance outcomes. To search for additional relevant psychological mindsets in sport, I conducted a literature review in the sport context to examine other potential mindsets.

Past Research in Sport

To go beyond the initial psychological mindsets that Höner and Feichtinger (2016) assessed, I reviewed research on psychological mindsets most extensively studied in the world of sport. There is not a great breadth of research conducted specifically on the relationships between psychological mindsets and performance outcomes in sport environments, but there are some examples where scales have been used to predict various outcomes. Each of the psychological mindsets that I will address in the review of past sport research is defined in Table 2.

An example of one of these scales is the Athletic Coping Skills Inventory-28 (ACSI-28; Smith, Schutz, Smoll, & Ptacek, 1995), which is used to measure self-regulation in athletes. The scale has seven dimensions that assess athlete self-regulation (coping with adversity, peaking under pressure, goal setting/preparation, concentration, freedom from worry, confidence, and

coachability). The self-reported scores on these scales are also added up to a total score to assess the athlete's overall athletic coping skills. After having players rate their self-regulation on the ACSI-28, Smith et al. had coaches of 762 high school athletes rate the physical ability and performance of their players. Specifically, coaches were asked to rate each athlete's level of physical ability and skills in comparison with other high school athletes in his or her sport using a 1 (far below average) to 6 (superior) scale. Coaches were also asked how well each athlete performed during the season in comparison with other high school athletes in his or her sport, using the same 1-to-6 scale. The researchers then used these differences to distinguish the athletes as either overachievers (performance rating was greater than their physical ability rating), normal achievers (performance and physical ability ratings were equal), or underachievers (performance rating was lower than their physical ability rating). They found that high self-report scores on the psychological measures were related to overachievement and that scores for coping with adversity, concentration, and coachability, along with the total score, were all significantly different between overachievers and normal or underachievers.

Smith et al. (1995) also conducted a study with 104 professional minor league baseball players who took the ACSI-28 before the start of the season and found significant correlations between the players' psychological ratings and performance (batting average for position players and earned run average for pitchers). Specifically, they found that high confidence was significantly correlated with batting average (r=.44) and high confidence and peaking under pressure significantly correlated with a lower earned run average (r=-.47; r=-.37, respectively).

Moritz, Feltz, Fahrbach, and Mack (2000) conducted a review of sport psychology literature that focused on the relationship between self-efficacy and performance. Self-efficacy is the psychological mindset of believing that you are competent and can do a specific task. The

review examined 45 correlational studies that aggregated over 3,000 participants. To measure performance, the studies used both subjective (player and coach ratings) and objective (in-game statistics and career outcomes) measures. The researchers found that the average correlation between self-efficacy and performance was r=.38, which is a moderate effect. This result was comparable to the correlation that has been found between self-efficacy and performance in education and in the workplace (r=.38) (Multon, Brown, & Lent, 1991; Stajkovic & Luthans, 1998).

There are studies that investigated the relationship between value and performance outcomes as well, even though the breadth of research on value is not as great as it is for self-efficacy. For example, a study by Vansteenkiste, Simons, Soenens, and Lens (2004) examined the relationship between different types of value (extrinsic and intrinsic) and exercise outcomes in high school students in a physical education class. When motivated by intrinsic value, an individual is oriented toward the enjoyment of the activity and the personal growth that results from engaging in it. In contrast, when motivated by extrinsic value, an individual is oriented toward judging oneself compared to others and obtaining external rewards (Deci & Ryan, 2000). They found that students with intrinsic value for the activity exhibited greater effort, were rated higher on their performance by their instructors, and persisted for longer than students with extrinsic values for the activity or who had no value for it.

Van Yperen and Duda (1999) conducted a study to understand the relationship between players' achievement goal orientations and performance outcomes with 75 elite youth soccer players in an elite academy in the Netherlands. To assess players' goal orientations, they used the Task and Ego Orientation in Sport Questionnaire (TEOSQ), which focuses on whether players' goals are oriented around skill development (a task goal) or around being better than others (an

ego goal). To assess performance outcomes, they collected coach assessments of player performance at the beginning and end of the season, and they created a difference score from these ratings to examine player performance development. They assessed performance outcomes on various dimensions, including tactical skills, technical skills, and other soccer-specific skills. The results of their study showed statistically significant relationships between task orientation and coach ratings of improved performance through the course of the season.

Van Yperen (2009) conducted another study on the relationship between soccer players' goals and performance outcomes. However, his study assessed goal commitment instead of goal orientation, which he measured 15 years before the assessment of career performance outcomes. The assessment of performance outcomes was also different in the study. He assessed performance by dividing players into two groups: (1) players who successfully achieved the goals of playing professional soccer to which they were committed and (2) players who did not successfully achieve their goals. The results showed significant differences in initial goal commitment between the group of players who successfully achieved their goals and the group of players who did not, which produced a moderate effect size.

Another psychological mindset that has been linked to performance outcomes in past sport research is effort attribution, which is the belief that one's success is a product of the effort that one invests into it (Van Yperen & Duda, 1999). Van Yperen and Duda (1999) assessed players' effort attributions and their relationships with goals and performance outcomes. They found that elite Dutch academy players' effort attributions for success were positively correlated with both task goals and coach ratings of improved performance through the season.

In sum, a review of the sport psychology literature reveals a number of studies that demonstrate relationships between psychological mindsets and performance outcomes. For

example, the psychological mindsets of self-regulation, self-efficacy, value, goals, and effort attributions all were found to be significantly related to improved performance outcomes. and highlight other potential mindsets that should be included in a comprehensive study of what mindsets matter. However, there are other psychological mindsets that are studied outside of the sport context that are positively correlated with improved performance outcomes that also may be worthwhile adding to a more comprehensive study of what mindsets matter.

Past Education Research

In particular, a setting where the relationships between psychological mindsets and performance have been studied even more is education. Educational researchers have proposed a number of overarching frameworks to organize various psychological mindsets and how they relate to performance. They also have measured some psychological mindsets that sport psychology researchers have not yet explored.

For example, Farrington and colleagues (2012) developed an initial framework of psychological mindsets in an attempt to better understand and synthesize these psychological mindsets in education. Instead of using the term psychological mindsets, they referred to these as "noncognitive factors," which they defined as the "behaviors, attitudes, and strategies that are critical for success in school and in later life" (p. 3). They also noted other terms that can be substituted for noncognitive factors, like "21st Century Skills," "soft skills," and "socio-emotional skills," which have been used interchangeably in past research literature.

Farrington and colleagues (2012) highlighted that academic performance outcomes directly result from academic behaviors (such as attendance, study habits, and homework completion), which are influenced by key psychological mindsets. They divided psychological mindsets into two categories: academic mindsets and academic perseverance. Farrington and

colleagues (2012) described academic mindsets as "the psycho-social attitudes or beliefs one has about oneself in relation to academic work" (p. 9). They included a number of psychological mindsets under this label: self-efficacy, growth mindset, value, and belongingness (see Table 2). All of the mindsets are individual beliefs and attitudes that affect academic behaviors and outcomes. These mindsets are correlated with many positive outcomes, like increased engagement, effort, perseverance, self-motivation, and academic achievement (Dweck, 2007; Lee & Anderson, 1993; Pajares, 1996; Walton & Cohen, 2007).

Farrington and colleagues (2012) defined academic perseverance as "a student's tendency to complete school assignments in a timely and thorough manner, to the best of one's ability, despite distractions, obstacles, or level of challenge" (p. 9). Under the label of academic perseverance, they first discussed the psychological mindset of grit (Duckworth, 2016). Paired with grit, they added self-control, which is the ability to control one's impulsive behaviors in the short-term in a given situation (Duckworth, Peterson, Matthews, & Kelly, 2007). These mindsets are correlated with better grades and GPA, as well as an increased quality of work in the short term (Duckworth, 2016).

Dweck, Walton, and Cohen (2014) proposed a second framework to organize psychological mindsets titled "Academic Tenacity," which is "the mindsets and skills that allow students to look beyond short-term concerns to higher order goals, and withstand challenges and setbacks to persevere toward these goals" (p. 4). In this framework, they included self-efficacy, growth mindset, belongingness, grit, and self-control, but also added other psychological mindsets that added onto the model in Farrington et al. (2012). The other mindsets that Dweck, Walton, and Cohen added were learning goals, which are oriented around mastery and building competence instead of proving one's own ability, and self-regulation, which is the ability to rise

above distractions and temptations of the moment, stay on task, and navigate obstacles to long-term achievement (Mischel, Shoda, & Rodriguez, 1989; Pintrich, 2000).

Hulleman, Wormington, and Beattie (2017) developed a third framework to organize psychological mindsets. Although they discussed many similar concepts to Farrington et al. (2012) and Dweck et al. (2014), the approach that they used to do so was different. Instead of engaging in the approach of conducting a narrative review of past psychological mindsets that matter in education, Hulleman and colleagues used a translational synthesis approach. This approach, borrowed from improvement science (Bryk et al., 2009), is focused on solving a problem by using the ideas with the greatest likelihood of making an impact on an outcome. Their translational synthesis approach follows a five-step process to develop a practical theory. This approach consists of identifying a problem, examining previous theory and research to develop a conceptual understanding of the topic, identifying the high-leverage mindsets from that review, aligning the high-leverage mindsets with the problems of practice, and then developing core concepts to address that problem. The problems that they focused on were high dropout rates, low academic performance, low graduation rates, and low college-going rates.

Hulleman et al. (2017) identified many of the mindsets mentioned by Farrington et al. (2012) and Dweck et al. (2014) to be important to academic success. These overlapping mindsets were self-efficacy, growth mindset, value, goals, and belonging. Beyond these mindsets, there were others that Hulleman et al. also found to be important. One of these mindsets was cost, which encompasses the loss of valued alternatives, the amount of effort and time needed, and the negative psychological states that the individual experiences when engaging in the activity. Research on cost has shown that it is related to negative student learning outcomes (Hulleman, Barron, Kosovich, & Lozowski, 2016). They also discussed the effects of the students'

interactions with their teachers and peers in the learning context and how these interactions can affect students' academic performance.

After reviewing the literature and identifying high-leverage mindsets, Hulleman, et al. (2017) identified four "core concepts of practice improvement" (p. 17), which consisted of the individual belief that within the learning context: the student believes he/she can succeed, the student finds value, the student feels like he/she belongs, and the student has the "know-how" necessary to learn and achieve. Following these core concepts, they discussed the ways in which these can be reinforced and improved in students through interventions. An example of one of these interventions is the utility value intervention (Hulleman et al., 2017) in which students make connections between things that they value and the current material in their class, which helps students relate classroom material to their own lives to increase the value they have for their schoolwork. Another intervention example is the growth mindset intervention, which helps students understand how their abilities improve through increasing their effort and facing challenge (Yeager et al., 2016).

In sum, research on psychological mindsets in education highlights key mindsets and offers additional models on how to organize multiple mindsets into distinct categories to promote academic performance and success. Past education research provides evidence on the relationship between psychological mindsets and performance that complements past sport research and the initial model by Höner & Feichtinger (2016).

This Study's Framework of Mindsets

Based on the review of mindsets in sport psychology and educational psychology, my team decided to assess over 30 different psychological mindsets. However, this Honors thesis project will focus on the mindsets found to be most prominent in past education research. In

particular, I reviewed all of the psychological mindsets discussed in the three reviews of past education research and selected the mindsets that appeared in all or two of the three reviews described. The mindsets that met this criterion were expectancy, growth mindset, value, goals, belongingness, grit, and self-regulation. I reviewed most of these mindsets in the past sport research as well, but included additional mindsets from the past education research to further explore the breadth of psychological mindsets and their relationships with performance outcomes in the context of soccer.

Purpose and Goals of the Current Study

As stated at the outset of the introduction, the purpose of the current project was to conduct a more holistic investigation of a wide array of psychological mindsets to assess which mindsets are most important for performance and how mindsets can combine with each other to further impact performance. The approach in the current study will differ from most of the past research that was reviewed in that I will explore a much greater number of psychological mindsets instead of focusing on a few. In particular, I am partnering with a team of researchers who are measuring the relationships between many of the mindsets I reviewed in the past sport and education literature and their relationships with performance outcomes in an elite soccer organization in the United States.

The first goal of the current study is to develop a pool of items to assess each of the mindsets (based on items in existing research or by writing new items) and to conduct initial analyses to establish the construct validity and reliability of the measures for each mindset. The second goal of the current study is to describe the psychological mindsets of elite youth players in a large soccer organization in the United States through a descriptive analysis of their ratings on each of the psychological mindsets. The third goal is to understand the relationships between

mindsets and performance outcomes among the sample of elite youth players through correlational analyses. These correlational analyses will allow us to understand the directionality and strength of the relationships between mindsets and performance outcomes. The fourth goal is to understand how the psychological mindsets combine to account for the differences in performance outcomes through multivariate analyses. Following these analyses, the fifth goal of the study is to use these data to identify the psychological mindsets that are low and need to be improved in the academy, which can then be addressed through establishing core concepts and conducting targeted interventions (Hulleman et al., 2017).

Method

Participants

Over 4,000 male players between the ages of 13 and 18 who are playing for clubs in a large soccer organization in the United States participated in the survey. These players comprise about 50% of the overall population of players within the soccer organization. The players play for many different clubs within the soccer organization, and these clubs are located all throughout the country. Overall, the players varied across multiple demographics. In terms of age group, there were 1113 (26.5%) 13-year-olds, 1263 (30.0%) 14-year-olds, 1136 (27.0%) 15/16-year-olds, and, 693 (16.5%) 17/18-year-olds. In terms of players' ethnicity, there were 1876 (48.2%) Caucasian players, 974 (25%) Hispanic players, 316 (8.1%) mixed background players, 271 (7.0%) African-American players, 161 (4.1%) Asian players, 44 (1.1%) African players, 15 (0.4%) Pacific Islander players, 8 (0.2%) American Indian/Alaska Native players, 158 (4.1%) others, and 69 (1.8%) preferred not to say. However, players' ethnicities will be assessed in this study as a two-group variable (majority and underrepresented minority (URM) players). The players' clubs differed as well, with 859 (20.3%) players playing for professional clubs (clubs that have youth academy teams to develop youth talent for their senior team who plays in a professional league) and 3368 (79.7%) players playing for non-professional clubs. Players also differed by whether they were scouted by the soccer organization as potential national team players. 1049 (24.8%) players were scouted and 3178 (75.2%) players were not scouted. Lastly, the players differed by position, with 414 (9.9%) goalkeepers, 1445 (34.5%) defenders, 1174 (28.1%) midfielders, and 1148 (27.5%) attacking players.

Measures

To measure the psychological mindsets that met the criterion for the current study, my team used 16 scales that have either been previously used in sport or education or scales that my team developed because of a lack of previous scales. These 16 scales measured expectancy, growth mindset, four dimensions of value, four dimensions of goals, belongingness, grit, and four dimensions of self-regulation (See Table 2 for the specific scales and items that we used to assess the mindsets). These 16 scales comprised 60 items. Our team also used short scales to assess these psychological mindsets to comply with design constraints that we had, which was creating a survey with a maximum of 100-125 items that would take around 30 minutes for players to complete. Given the players were all between the ages of 13 and 18, using full scales to assess each of the psychological mindsets would have been too time-consuming and risked players becoming disengaged. Therefore, we adopted a pragmatic approach to more efficiently measure psychological mindsets without requiring too much of the players' time to complete the survey. This approach focuses on being more economical in our assessment of mindsets while preserving the validity and reliability of the scales. (Kosovich, Hulleman, & Barron, 2017).

To assess performance outcomes, our team was provided data that the soccer organization collected, and we identified a number of individual and team performance outcomes. To measure individual performance, we used minutes played per game, scouting recommendation by the soccer organization, goals scored (more relevant for attacking players), and goals allowed (more relevant for defending players). I only analyzed individual performance outcomes in this study as they are the outcomes that are most controlled by the individual player compared to team outcomes.

My team also collected data on player demographics in the survey to explore potential differences in mindsets between demographic groups. In this study, I will discuss five demographic groups that were assessed: age, ethnicity, professional versus non-professional club, scouting level, and position. First, I decided to look at age to assess cohort differences over time to see if mindsets differ over time. Second, I assessed ethnicity to examine whether cultural differences shape players' mindsets. I then examined scouting level and players who play in professional versus non-professional clubs due to potential differences in ability. Players in professional clubs and players who have been scouted to play for a national team have been observed to have higher ability as a result of their recruitment. I also looked at position (goalkeeper, defender, midfielder, forward) to explore possible differences in mindsets shaped by playing their given position.

Procedure

The survey was conducted online using Qualtrics. All of the players completed the survey independently and either completed it individually or simultaneously at a time organized by their club. The players were given a two-month window to do the survey at the end of their season during the months of May and June. The performance outcomes were collected in each game played throughout the season and then aggregated at the end of the season.

In the survey, there was attrition as the players advanced through the survey, which is why some of the sample sizes differed for various analyses. Also, not all players who completed the survey were included in the data set. I used a decision rule of 12 minutes as a cut point for players' inclusion in the survey. This meant that players who completed the survey in under 12 minutes were excluded from the sample, as 12 minutes was decided on as the minimum time needed to sufficiently complete the entire survey while fully engaged. This time was decided

through trials completed by others and me. I also examined players' responses to fidelity items that they completed in the survey that assessed their honesty and how distracted they were when completing the survey. However, the players' responses indicated that they were overwhelmingly honest and not distracted while completing the survey, so these indicators were not considered when deciding which players to include and exclude from the survey.

Results

Exploratory Factor Analyses (EFA)

EFA Overview. I conducted an exploratory factor analysis (EFA) for each of the scales that we used to measure psychological mindsets to assess the underlying factor structure for the proposed items for each mindset. EFAs help determine if the proposed items better represented a construct unidimensionally or multidimensionally, as well as revealing items with poor factor loadings or cross-loadings on multiple factors. Although a case could be made to run confirmatory factor analyses (CFA), I wanted to maintain the exploratory nature of the development of these scales. Especially for more multidimensional mindsets, such as value, EFAs allow for the exploration of factors within a mindset, rather than using CFAs to confirm hypothesized factors within each mindset.

I conducted two preliminary tests to help determine if EFAs were appropriate to conduct: Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) Test. Bartlett's Test of Sphericity evaluates the correlations between items to determine whether they are sufficient to conduct an EFA through a Chi-squared test. If $p < .001$ in this test, then the null hypothesis of there being no underlying relationships between the items is rejected, which supports running an EFA (Pett et al., 2003). KMO tests the strength of relationships between items on a zero to one scale where higher values connote stronger relationships between items, suggesting items would load on a common factor. Kaiser (1974) suggested values that are .90 or above are "marvelous," values around .80 are "meritorious," values around .70 are "middling," and values .60 and below are "unacceptable."

In terms of factor extraction and rotation methods for each EFA, I used Principle Axis Factoring, which is a part of Common Factor Analysis, because of my desire to discover the

underlying latent psychological factors that explain the responses on observed items and because it is the most often used method of this type of EFA (Pett et al., 2003). I then used an oblique rotation because of the supposition that the factors being analyzed were not independent of one another and were likely to be correlated. In an oblique rotation, the researcher must use both the factor pattern matrix and the factor structure matrix. These matrices both represent the relationships between each item and the factor; however, the factor pattern matrix controls for other factors when representing this relationship. For this reason, I focused on the factor pattern matrix. Within this oblique rotation, I used the Direct Oblimin rotation method because of its popularity and its attempts to satisfy the principles of simple structure with regard to the factor pattern matrix through the delta parameter, which controls the degree of obliqueness (correlation) permitted between factors (Pett et al., 2003).

To make decisions about unidimensionality versus multidimensionality and what items should be included for each mindset measure, I used multiple criteria. The first criterion was the eigenvalue greater than one rule, which is the rule that states that the number of factors that should be retained is equal to the number of factors where the eigenvalue is greater than one. Next, I examined the scree plot to count the number of points before it levels off, which is another indicator of the number of factors that should be retained. A third indicator was the percent of variance explained, in which a researcher only retains factors that explain greater than five percent of the variance of the factor. The final criterion was the consistency of the factor with theorized dimensions. Combining these criteria together will allow for more efficient decisions of which factors to retain (Pett et al., 2003).

After making decisions on which factors to retain, I revisited the factor pattern matrices to assess the factor loadings of each of the items within the factors. Values greater than .50 are

considered good as they support the convergent validity of the scale, while values less than that may need to be dropped depending on their consistency with the other items in the factor (Pett et al., 2003).

EFA Analyses. EFAs are presented in the order in which they were listed in the Method section. Therefore, the first EFA that is reported is for Expectancy items. The items used to measure Expectancy (as well as the other items used to measure each mindset) are reported in Table 3. The means and standard deviations of the Expectancy items (as well as the other items used in the survey) are reported in Table 4. When reporting each EFA below, I used a similar structure to discuss each of the mindsets to maintain coherency.

Expectancy. In my evaluation of the strength of the relationships between the Expectancy items, Bartlett's test of sphericity was significant ($\chi^2 = 10293.94$, $p < .001$), and the KMO statistic (.773) was "meritorious" according to Kaiser (1974). These statistics indicated that the strength of the relationships was strong enough to conduct an EFA. In the EFA, only one factor emerged, as there was only one eigenvalue greater than one (see Table 5), which made theoretical sense loading as one factor. Given that only one factor emerged, the scree plot and factor pattern matrix were not reported. The correlation matrix for the Expectancy items is displayed in Table 6.

Growth Mindset. The next EFA conducted assessed the items measuring Growth Mindset. In my evaluation of the strength of the relationships between the items, Bartlett's test of sphericity was significant ($\chi^2 = 2590.032$, $p < .001$); however the KMO statistic (.592) was "unacceptable" according to Kaiser (1974). These statistics, specifically the KMO, indicated that the strength of the relationships was not strong enough to conduct an EFA. Given that the EFA was not strong enough, the eigenvalues, scree plot, and the factor pattern matrix were not

reported. However, I ran the Cronbach's alpha analysis for the Growth Mindset items to test their internal consistency as a single factor. The correlation matrix for the Growth Mindset items is displayed in Table 7.

Value. The next EFA examined the items measuring Value. Bartlett's test of sphericity was significant ($\chi^2 = 18253.669$, $p < .001$), and the KMO statistic (.844) was "meritorious," indicating that the strength of the relationships between the items warranted an EFA. Four factors were extracted in the EFA, as there were four eigenvalues greater than one (see Table 8), the scree plot flattened at the fourth factor (see Figure 1), each of the four factors explained over five percent of the variance, and only two of the items were not theoretically related to any of the factors that were extracted (Q32 "I play soccer… so that I can help my family or make them proud" and Q45 "I play soccer… because I feel pressure from other people to play"). These two items were removed. The factor pattern matrix is reported in Table 9. The first factor contained five items, but one of the items had a loading below .50 and did not conceptually group with the other items (Q35 "I play soccer… because I love to win."). Therefore, it was dropped and was not included in the calculation of the first factor. The second and third factors each contained four items, which were all retained. The fourth factor contained three items, but one of the items cross loaded with the second factor and made more theoretical sense with it; therefore it was added to the second factor. After reviewing the items and their loadings, I named the first factor Intrinsic Value, the second factor Utility Value, the third factor External Value, and the fourth factor Lack of Value. The item correlations are presented in Table 10, and the between-factor correlations of the four subscales are presented in Table 11.

Goals. Next, I conducted the EFA to assess the items measuring Goals. In my analysis of the strength of the relationships between items, Bartlett's test of sphericity was significant ($\chi^2 =$

28691.634, $p < .001$), and the KMO statistic (.884) was "marvelous" according to Kaiser (1974), suggesting the EFA was justified. Four factors were extracted in the EFA, as there were four eigenvalues greater than one (see Table 12), the scree plot flattened after the fourth factor (see Figure 2), each of the four factors explained over five percent of the variance, and the items were theoretically related within each factor. The factor pattern matrix is reported in Table 13. The first factor contained seven items and all the items had a loading above .50 and theoretically grouped well with the other items. The second factor contained three items, which were all retained, and the third and fourth factors contained two items each, which were retained as well. After reviewing the items and their loadings, I named the first factor Goals to Play for the National Team/Professionally, the second factor Goals to Play in College, the third factor Mastery Goals, and the fourth factor Performance Goals. The item correlations and between-factor correlations of the four subscales are presented in Tables 14 and 15, respectively.

Belongingness. I next conducted an EFA on the Belongingness items. In my evaluation of the strength of the relationships between the items, Bartlett's test of sphericity was significant ($\chi^2 = 3420.774$, $p < .001$), and the KMO statistic (.670) was "middling" according to Kaiser (1974), suggesting item relationships were strong enough to conduct an EFA. In the EFA, only one factor emerged, as there was only one eigenvalue greater than one (see Table 16) and the items make theoretical sense in their loading as one factor. Given that only one factor emerged, the scree plot and factor pattern matrix were not reported. The correlation matrix for the Belongingness items is displayed in Table 17.

Grit. Following belongingness, the next EFA reviewed the items measuring Grit. In my evaluation of the strength of the relationships between the items, Bartlett's test of sphericity was significant ($\chi^2 = 1399.63$, $p < .001$), but once again the KMO statistic (.604) was "unacceptable"

according to Kaiser (1974). These statistics, specifically the KMO, indicated that the strength of the relationships was not strong enough to conduct an EFA. Given that the EFA was not strong enough, the eigenvalues, scree plot, and the factor pattern matrix were not reported. However, I ran the Cronbach's alpha analysis for the Grit items to test their internal consistency as a single factor. The correlation matrix for the Grit items is displayed in Table 18.

Self-Regulation. Finally, I conducted the last EFA to assess the items measuring Self-Regulation. In the analysis of the strength of the relationships between items, Bartlett's test of sphericity was significant ($\chi^2 = 26903.057$, $p < .001$), and the KMO statistic (.916) was "marvelous" according to Kaiser (1974), suggesting an EFA was justified. Four factors were extracted in the EFA. There were four eigenvalues greater than one (see Table 19), the scree plot flattened after the fourth factor (see Figure 3), there were four factors that explained over five percent of the variance, and the items were theoretically related within each extracted factor. The factor pattern matrix is reported in Table 20. The first factor contained four items, but none of the items had a loading greater than .50, although they did conceptually group together. Therefore, I did not drop the factor and decided to conduct a Cronbach's alpha analysis of the scale. The second factor contained six items, which were all retained. The third factor contained five items. Two of the items had factor loadings of less than .50, and one of those items cross-loaded with two other factors. However, the five items within the factor were clearly related to each other theoretically, so the entire factor was retained for Cronbach's alpha analyses. The fourth factor contained four items, with three of the items having factor loadings greater than .50 while one of the items had a factor loading under .50 and cross-loaded with another factor. The item did theoretically correspond with the three other items in the factor, so it was retained for the Cronbach's alpha analyses. After reviewing the factors, I named the first factor Regulation of

Challenge, the second factor Regulation of Planning, the third factor Regulation of Emotions, and the fourth factor Lack of Regulation. The between-factor correlations of the four subscales are presented in Table 21 (the item correlations are not represented because of the overwhelming size of the matrix).

Internal Consistency

Cronbach's Alpha Overview. Using the results of the exploratory factor analyses, I conducted reliability analyses for each of the resulting dimensions and assessed each scale's internal consistency using Cronbach's alpha. Internal consistency analyses inform us how well the items in the factor fit together. One could use the split-half method, in which you split the factor in half and assess whether the two halves are correlated with each other, but researchers now prefer to use Cronbach's alpha. Cronbach's alpha is preferred because it is the average of all possible split-half coefficients that can be obtained from a given factor (Pett et al., 2003). Cronbach's alpha is measured on a 0-1 scale, where higher values demonstrate greater internal consistency, meaning it accurately measures the specific factor (Cronbach & Shavelson, 2004).

Cronbach's Alpha Analyses. Like the EFA Analyses, I organized the Cronbach's alpha analyses for each mindset and its subscales in the order in which they appeared in the Method section. Eleven out of the 16 scales had Cronbach's alpha coefficients that were greater than or equal to .70. All the Cronbach's alpha values are reported in Table 22. As I did for the EFAs, I will use a similar structure to discuss the results for all of the mindsets to maintain coherency.

Expectancy. The EFA only extracted one factor for Expectancy's four items; therefore, there was only one scale to be analyzed using Cronbach's alpha. The alpha coefficient for the Expectancy scale was .86, meaning that it had a high internal consistency and reliably measures the mindset.

Growth Mindset. Next, I analyzed the Cronbach's alpha coefficient for Growth Mindset. The EFA was not run because of the "unacceptable" KMO statistic, which meant that the relationships between the items were not strong enough to run an EFA. However, I conducted a Cronbach's alpha analysis for growth mindset as a single factor. The Cronbach's alpha coefficient for the four-item scale was .61. However, based on suggested modification indices, after eliminating item 118 ("The main reason I think I am successful in soccer is because of the effort that I put in."), the Cronbach's alpha coefficient for Growth Mindset rose to .68. Given this rise, I eliminated this item and created a three-item scale to measure Growth Mindset instead. Although the Cronbach's alpha coefficient rose, it just had a moderate internal consistency and did not meet the standard of .70 or above. For the purposes of the current study to explore possible trends with grit, I will measure Growth Mindset using the three-item scale without item 118.

Value. The EFA extracted four factors for Value's 16 items, but 13 items were retained for the Cronbach's alpha analyses. For the first scale, Intrinsic Value, the alpha coefficient was .76. For the second scale, Utility Value, the alpha coefficient was .71. For the third scale, External Value, the alpha coefficient was .70. Finally, for the fourth scale, Lack of Value, the alpha coefficient was .75. Each of these coefficients displays a moderate internal consistency and measures the mindset fairly reliably.

Goals. After Value, I conducted Cronbach's alpha analyses for Goals. The EFA extracted four factors for Goals' 14 items. All of the items were retained for Cronbach's alpha analyses. The first scale, Goals to Play for the National Team/Professionally, obtained an alpha coefficient of .90. The second scale, Goals to Play in College, obtained an alpha coefficient of .82. The third scale, Mastery Goals, obtained an alpha coefficient of .79. The fourth scale, Performance Goals,

obtained an alpha coefficient of .69. These scales had moderately high to high internal consistency and somewhat reliably to reliably measure the given mindsets.

Belongingness. Next, I analyzed the Cronbach's alpha coefficient for Belongingness. The EFA only extracted one factor for Belongingness's three items; therefore, there was only one scale to be analyzed using Cronbach's alpha. The alpha coefficient for the Belongingness scale was .77, meaning that it has a moderate internal consistency and measures the mindset fairly reliably.

Grit. The next mindset after belongingness was Grit. The EFA was not run because of the unacceptable KMO statistic, which meant that the relationships between the items were not strong enough to run an EFA. However, I conducted a Cronbach's alpha analysis for grit as a single factor. The Cronbach's alpha coefficient for the three-item scale was .54. However, based on suggested modification indices, after eliminating item 235 ("Setbacks don't discourage me"), the Cronbach's alpha coefficient for Grit was .64. For both the three and two item versions of the scale, the Cronbach's alpha coefficient was not acceptable in terms of its internal consistency. However, for the purposes of the current study to explore possible trends with grit, I will measure Grit using the two-item scale without item 235.

Self-Regulation. Finally, I conducted Cronbach's alpha analyses for Self-Regulation. The EFA extracted four factors for Self-Regulation's 19 items. All items were retained for Cronbach's alpha analyses. For the first factor, Regulation of Challenge, the Cronbach's alpha coefficient was .68. For the second factor, Regulation of Planning, the Cronbach's alpha coefficient was .88. The third factor, Regulation of Emotions, had a Cronbach's alpha coefficient of .69. The fourth factor, Lack of Regulation, had a Cronbach's alpha coefficient of .70. These

scales had moderately high to high internal consistency and somewhat reliably to reliably measure the given mindsets.

Descriptive Analyses

Descriptive Statistics. Following the validity and reliability analyses, I ran descriptive statistics on all 16 psychological mindsets. A table summarizing this information is presented in Table 23. Regarding central tendencies, Mastery Goals (5.67) had the highest mean, followed by Intrinsic Value (5.65), Grit (5.52), Performance Goals (5.41), Regulation of Challenge (5.35), Utility Value (5.14), Goals to Play in College (5.07), Belongingness (4.97). Expectancy (4.91), Goals to Play for the National Team/Professionally (4.77), Regulation of Planning (4.65), Regulation of Emotions (4.53), Growth Mindset (3.96), External Value (3.16), Lack of Value (2.14), and then Lack of Regulation (2.02). In terms of variability, Lack of Value (1.19) had the greatest standard deviation, followed by Growth Mindset (1.14), Goals to Play for the National Team/Professionally (1.13), Goals to Play in College (1.11), External Value (1.03), Regulation of Planning (.97), Belongingness (.96), Expectancy (.95), Performance Goals (.85), Utility Value (.80), Regulation of Emotions (.80), Lack of Regulation (.80), Regulation of Challenge (.65), Grit (.65), Intrinsic Value (.60), and then Mastery Goals (.54).

Group Comparisons. I also ran analyses of variance (ANOVA) to assess whether there were significant differences in mindsets between different demographic groups of players in the data. These demographic groups included age, ethnicity, scouting level, professional versus non-professional club, and position. I set the significance threshold for these analyses at the $p < .01$ level due to the large sample size and strong statistical power. For the significant ANOVAs, I conducted Tukey's post-hoc tests to assess the differences between the levels of each demographic at the $p < .01$ level. I also reported the practical significance of the overall

ANOVAs through η^2 values if the ANOVA was significant. All of the practical significance values for each of the statistically significant ANOVAs are reported in Table 24.

All mindsets are consolidated into one figure for each demographic group to display the differences in means (see Figures 4 through 8). Fifty-one of the 80 ANOVAs that I ran were statistically significant. For age, 11 out of 16 were significant. For ethnicity, 11 out of 16 were significant. For scouting recommendation, 12 out of 16 were significant. For professional versus non-professional club, 8 out of 16 were significant. Finally, for position, 9 out of 16 were significant. Each mindset had at least one statistically significant ANOVA among the five that were run across the demographic groups.

Age.

Expectancy. For Expectancy, the overall ANOVA was not statistically significant, F (3, 4067) = 1.79; p = 0.147. See Figure 4A for a plot of cell means.

Growth Mindset. For Growth Mindset, the overall ANOVA was statistically significant, F (3, 3981) = 6.57; $p < 0.001$, $\eta^2 = .005$. Tukey's post-hoc test revealed players' ratings of Growth Mindset were higher for younger U-13 (M = 4.00, SD = 1.15) and U-14 (M = 4.03, SD = 1.12) players than they were for U-17/18 players (M = 3.80, SD = 1.17). However, the practical significance was low. See Figure 4A for a plot of cell means.

Value. The overall ANOVA for Intrinsic Value was not statistically significant, F (3, 4125) = 0.87; p = 0.458. The overall ANOVA for Utility Value was statistically significant, F (3, 4124) = 1.79; p = 0.008, $\eta^2 = .003$, but there were no significant differences between individual age groups in Tukey's post-hoc test at $p < .01$ level. This makes sense because I set the alpha level at a more stringent level for the Tukey's post-hoc test. The overall ANOVA for External Value was statistically significant, F (3, 4122) = 19.80; $p < .001$, $\eta^2 = .014$, as Tukey's post-hoc

test revealed players at the U-13 level (*M* = 2.98, *SD* = 1.05) had significantly lower external value compared to all of the other age groups, and U-14 players (*M* = 3.14 , *SD* = 1.03) had significantly lower external value compared to U-15/16 players (*M* = 3.28, *SD* = 1.01). For Lack of Value, the overall ANOVA was significant, F (3, 4111) = 8.95; $p < .001$, $\eta^2 = .006$, as Tukey's post-hoc test revealed lack of value was significantly lower for U-13 players (*M* = 2.02, *SD* = 1.13) compared to U-15/16 (*M* = 2.22, *SD* = 1.23) and U-17/18 players (*M* = 2.29, *SD* = 1.28). Once again, there was a low practical significance. See Figure 4A for a plot of cell means.

Goals. The overall ANOVA was statistically significant for players' Goals to Play for the National Team/Professionally, F (3, 4096) = 30.83; $p > .001$, $\eta^2 = .022$. The practical significance was still low, but it was higher than the other low practical significance values. Tukey's post-hoc test revealed players' ratings of these goals at the U-13 (*M* = 4.97, *SD* = 1.07) and U-14 (*M* = 4.87, *SD* = 1.08) levels were significantly higher than the players' ratings of these goals at the U-15/16 (*M* = 4.64, *SD* = 1.16) and U-17/18 (*M* = 4.50, *SD* = 1.22) levels. For players' Goals to Play in College, the overall ANOVA was statistically significant, F (3, 4096) = 12.69; $p < .001$, $\eta^2 = .009$. Tukey's post-hoc test revealed players' ratings of these goals were significantly higher at the U-15/16 levels (*M* = 5.23, *SD* = 1.03) than they were for the other age groups. The overall ANOVA was statistically significant for Mastery Goals, as Tukey's post-hoc test revealed U-17/18 (*M* = 5.59, *SD* = .62) players had lower mastery goal ratings than the other groups, F (3, 4078) = 7.37; $p < .001$, $\eta^2 = .005$. Lastly, the overall ANOVA was not statistically significant for performance goals (F = 1.19; p = .311). See Figure 4A and 4B for a plot of cell means.

Belongingness. The overall ANOVA was statistically significant for Belongingness, F (3, 3942) = 6.91; $p < .001$, $\eta^2 = .005$. Tukey's post-hoc test revealed that Belongingness was higher

for players at the U-13 (*M* = 5.07, *SD* = .96) level compared to the U-15/16 (*M* = 4.91, *SD* = .99) and U-17/18 (*M* = 4.89, *SD* = 1.02) players. See Figure 4B for a plot of cell means.

Grit. The overall ANOVA was statistically significant for Grit, *F* (3, 3895) = 0.17; *p* = .915. See Figure 4B for a plot of cell means.

Self-Regulation. The overall ANOVA was statistically significant for Regulation of Planning, *F* (3, 4059) = 10.58; *p* < .001, η^2 = .008. Tukey's post-hoc test revealed that Regulation of Planning was lower for the players in the U-17/18 (*M* = 4.46, *SD* = 1.02) group. The overall ANOVA was not statistically significant for Regulation of Challenge, *F* (3, 4024) = 1.24; *p* = .294. However, the overall ANOVA was statistically significant for Regulation of Emotions, *F* (3, 4025) = 4.87; *p* = .002, η^2 = .004. Tukey's post-hoc test revealed U-13 (*M* = 4.61, *SD* = .81) players had higher ratings of Regulation of Emotions than the players at the U-15/16 (*M* = 4.49, *SD* = .81) level. The overall ANOVA was statistically significant for Lack of Regulation as well, *F* (3, 4029) = 5.37; *p* = .001, η^2 = .005. Tukey's post-hoc test revealed Lack of Regulation was significantly lower for U-13 (*M* = 1.94, *SD* = .79) players compared to players at the U-17/18 (*M* = 1.09, *SD* = .84) level. See Figure 4B for a plot of cell means.

Ethnicity.

Expectancy. For Expectancy, the overall ANOVA was statistically significant, *F* (1, 3745) = 188.51; *p* < .001, η^2 = .048. The URM group (*M* = 5.17, *SD* = .83) had higher ratings of expectancy than the majority group (*M* = 4.75, *SD* = .96), which reflected low to moderate practical significance. See Figure 5 for a plot of cell means.

Growth Mindset. For Growth Mindset, the overall ANOVA was statistically significant, *F* (1, 3742) = 113.34; *p* < 0.001, η^2 = .028. The majority players' (*M* = 4.12, *SD* = 1.07) ratings of Growth Mindset were higher than they were for URM players (*M* = 3.73, *SD* = 1.18). The

practical significance was low, but it was higher than the other low practical significance values. See Figure 5 for a plot of cell means.

Value. The overall ANOVA was not statistically significant for Intrinsic Value, F (1, 3747) = 6.63; p = .01. The overall ANOVA was statistically significant for Utility Value, F (1, 3747) = 33.91; $p < .001$, $\eta^2 = .009$, as URM players (M = 5.23, SD = .79) perceived slightly more utility value compared to the majority players (M = 5.08, SD = .79). The overall ANOVA was statistically significant for External Value, F (1, 3747) = 93.62; $p < .001$, $\eta^2 = .024$, as URM players (M = 3.34, SD = 1.01) also had higher ratings of external value than the majority players (M = 3.02, SD = 1.02). These differences had a low practical significance, but it was higher than the other low practical significance values. For Lack of Value, the overall ANOVA was not statistically significant, F (1, 3746) = 2.33; p = .127. See Figure 5 for a plot of cell means.

Goals. The overall ANOVA was statistically significant for players' Goals to Play for the National Team/Professionally, F (1, 3746) = 108.34; $p < .001$, $\eta^2 = .028$. The practical significance was low, but it was higher than the other low practical significance values. URM players' (M = 5.01, SD = .98) ratings of these goals were higher than the majority players' (M = 4.63, SD = 1.18) ratings of them. For players' Goals to Play in College, the overall ANOVA was statistically significant, F (1, 3746) = 10.99; p = .001, $\eta^2 = .003$. The URM players (M = 5.15, SD = 1.08) rated goals to play in college slightly higher than the majority players (M = 5.03, SD = 1.11). The overall ANOVA also was statistically significant for Mastery Goals, F (1, 3745) = 21.33; $p < .001$, $\eta^2 = .006$, as URM players (M = 5.73, SD = .49) had slightly higher mastery goal ratings than the majority players (M = 5.65, SD = .54). Lastly, the overall ANOVA was not statistically significant for performance goals, F (1, 3745) = 4.35; p = .037. See Figure 5 for a plot of cell means.

Belongingness. The overall ANOVA was not statistically significant for belongingness, F (1, 3743) = .40; p = .526. See Figure 5 for a plot of cell means.

Grit. The overall ANOVA was statistically significant for Grit, F (1, 3739) = 6.76; p = .009, η^2 = .002. Majority players (M = 5.55, SD = .63) had slightly higher ratings of Grit compared to URM players (M = 5.49, SD = .68). See Figure 5 for a plot of cell means.

Self-Regulation. The overall ANOVA was statistically significant for Regulation of Planning, F (1, 3744) = 65.34; p < .001, η^2 = .017. Regulation of Planning was higher in URM players (M = 4.81, SD = .92) than majority players (M = 4.56, SD = .97). The overall ANOVA was statistically significant for Regulation of Challenge, F (1, 3744) = 19.19; p < .001, η^2 = .005, as the URM players (M = 5.41, SD = .63) had slightly higher regulation of challenge than majority players (M = 5.31, SD = .66). The overall ANOVA was statistically significant for Regulation of Emotions, F (1, 3744) = 8.19; p = .004, η^2 = .002. URM players (M = 4.58, SD = .76) had slightly higher ratings of regulation of emotions compared to majority players (M = 4.50, SD = .81). The overall ANOVA was not statistically significant for Lack of Regulation, F (1, 3744) = .98; p = .323. See Figure 5 for a plot of cell means.

Scouting Recommendation.

Expectancy. The overall ANOVA was statistically significant for Expectancy, F (1, 4091) = 125.29; p < .001, η^2 = .030. The scouted group (M = 5.20, SD = .82) had higher ratings of expectancy than the not scouted group (M = 4.82, SD = .97), which warranted between a low and moderate practical significance. See Figure 6 for a plot of cell means.

Growth Mindset. For Growth Mindset, the overall ANOVA was not statistically significant, F (1, 4003) = 0.11; p = 0.74. See Figure 6 for a plot of cell means.

Value. The overall ANOVA was statistically significant for Intrinsic Value, F (1, 4149) = 20.99; $p < .001$, $\eta^2 = .005$. The scouted players ($M = 5.72$, $SD = .58$) had slightly higher intrinsic value than not scouted players ($M = 5.62$, $SD = .60$). The overall ANOVAs were not statistically significant for Utility Value, F (1, 4148) = 1.16; $p = .28$, nor for External Value either, F (1, 4146) = 2.67; $p = .102$. For Lack of Value, the overall ANOVA was statistically significant F (1, 4135) = 83.48; $p < .001$, $\eta^2 = .020$. The scouted players ($M = 1.85$, $SD = 1.05$) had lower ratings of lack of value than the not scouted players ($M = 2.24$, $SD = 1.22$), which warranted a low practical significance. See Figure 6 for a plot of cell means.

Goals. The overall ANOVA was statistically significant for players' Goals to Play for the National Team/Professionally, F (1, 4120) = 157.18; $p > .001$, $\eta^2 = .037$. The practical significance was between low and moderate levels. The scouted players' ($M = 5.15$, $SD = .98$) ratings of these goals were higher than the not scouted players' ($M = 4.65$, $SD = 1.15$) ratings of them. The overall ANOVA was statistically significant for players' Goals to Play in College, F (1, 4120) = 10.55; $p = .001$, $\eta^2 = .003$. The scouted players ($M = 4.97$, $SD = 1.20$) rated goals to play in college slightly lower than the not scouted players ($M = 5.10$, $SD = 1.07$). The overall ANOVA was statistically significant for Mastery Goals, F (1, 4102) = 22.00; $p < .001$, $\eta^2 = .005$, as scouted players ($M = 5.74$, $SD = .50$) had slightly higher mastery goal ratings than the not scouted players ($M = 5.65$, $SD = .55$). Lastly, the overall ANOVA was statistically significant for performance goals, F (1, 4102) = 16.18; $p < .001$, $\eta^2 = .004$. The scouted players ($M = 5.50$, $SD = .83$) had slightly higher performance goal ratings than the not scouted players ($M = 5.37$, $SD = .86$). See Figure 6 for a plot of cell means.

Belongingness. The overall ANOVA was statistically significant for belongingness F (1, 3964) = 65.49; $p < .001$, $\eta^2 = .016$. The scouted players ($M = 5.19$, $SD = .87$) had higher

belongingness than not scouted players (*M* = 4.90, *SD* = .98). See Figure 6 for a plot of cell means.

Grit. The overall ANOVA was statistically significant for Grit, *F* (1, 3917) = 7.21; *p* = .007, η^2 = .002, as the scouted players (*M* = 5.57, *SD* = .63) had higher ratings of Grit than the not scouted players (*M* = 5.51, *SD* = .66). See Figure 6 for a plot of cell means.

Self-Regulation. The overall ANOVA was statistically significant for Regulation of Planning, *F* (1, 4083) = 9.35; *p* = .002, η^2 = .002. Regulation of Planning was higher in the scouted players (*M* = 4.73, *SD* = .97) than the players who were not scouted (*M* = 4.62, *SD* = .97). The overall ANOVA also was statistically significant for Regulation of Challenge, *F* (1, 4047) = 50.94; *p* < .001, η^2 = .012, as the scouted players (*M* = 5.47, *SD* = .61) had slightly higher regulation of challenge than not scouted players (*M* = 5.31, *SD* = .66). However, the overall ANOVA was not statistically significant for Regulation of Emotions, *F* (1, 4048) = 2.59; *p* = .107. Finally, the overall ANOVA was statistically significant for Lack of Regulation, *F* (1, 4052) = 60.56; *p* < .001, η^2 = .015. The scouted players (*M* = 1.85, *SD* = .78) had lower ratings of lack of regulation compared to the not scouted players (*M* = 2.07, *SD* = .79). See Figure 6 for a plot of cell means.

Professional versus Non-Professional Club.

Expectancy. The overall ANOVA was statistically significant for Expectancy, *F* (1, 4091) = 91.78; *p* < .001, η^2 = .022. The professional club group (*M* = 5.19, *SD* = .78) had higher ratings of expectancy than the non-professional club group (*M* = 4.84, *SD* = .97), which warranted a low practical significance. See Figure 7 for a plot of cell means.

Growth Mindset. The overall ANOVA was statistically significant for Growth Mindset, *F* (1, 4003) = 7.29; *p* = .007, η^2 = .002. Players in non-professional clubs (*M* = 3.98, *SD* = 1.13)

had slightly higher growth mindset ratings than players in professional clubs (M = 3.86, SD = 1.18). See Figure 7 for a plot of cell means.

Value. The overall ANOVA was not statistically significant for Intrinsic Value, F (1, 4149) = 2.51; p = .113; Utility Value, F (1, 4148) = 2.39; p = .122; External Value, F (1, 4146) = 5.02; p = .022; or Lack of Value, F (1, 4135) = 1.92; p = .166.

Goals. The overall ANOVA was statistically significant for players' Goals to Play for the National Team/Professionally, F (1, 4120) = 121.86; p > .001, η^2 = .029. The practical significance was between low and moderate levels. The professional club players' (M = 5.15, SD = .88) ratings of these goals were higher than the non-professional club players' (M = 4.67, SD = 1.17) ratings of them. The overall ANOVA was statistically significant for players' Goals to Play in College, F (1, 4120) = 48.64; p < .001, η^2 = .012. The professional club players (M = 4.83, SD = 1.24) rated goals to play in college slightly lower than the non-professional club players (M = 5.13, SD = 1.06) did. The overall ANOVA was statistically significant for Mastery Goals, F (1, 4102) = 15.43; p < .001, η^2 = .004, as professional club players (M = 5.74, SD = .51) had slightly higher mastery goal ratings than the non-professional club players (M = 5.66, SD = .55). Lastly, the overall ANOVA was not statistically significant for performance goals, F (1, 4102) = .06; p = .804. See Figure 7 for a plot of cell means.

Belongingness. The overall ANOVA was not statistically significant for belongingness, F (1, 3964) = 1.17; p = .278. See Figure 7 for a plot of cell means.

Grit. The overall ANOVA was statistically significant for Grit, F (1, 3917) = 8.21; p = .004, η^2 = .002, as the professional club players (M = 5.58, SD = .60) had higher ratings of Grit than the non-professional club players (M = 5.51, SD = .66). See Figure 7 for a plot of cell means.

Self-Regulation. The overall ANOVA was statistically significant for Regulation of Planning, F (1, 4083) = 24.79; $p < .001$, $\eta^2 = .006$. Regulation of Planning was higher in professional club players (M = 4.80, SD = .93) than the non-professional club players (M = 4.61, SD = .98). The overall ANOVA was statistically significant for Regulation of Challenge, F (1, 4047) = 13.51; $p < .001$, $\eta^2 = .003$, as the professional club players (M = 5.42, SD = .61) had slightly higher regulation of challenge than non-professional club players (M = 5.33, SD = .66). However, the overall ANOVA was not statistically significant for Regulation of Emotions, F (1, 4048) = .01; p = .906, nor for Lack of Regulation, F (1, 4052) = 2.41; p = .121. See Figure 7 for a plot of cell means.

Position.

Expectancy. For Expectancy, the overall ANOVA was statistically significant, F (3, 4061) = 24.36; $p < .001$, $\eta^2 = .018$. Tukey's post-hoc test revealed defenders (M = 4.76, SD = .99) had significantly lower expectancy ratings compared to midfielders (M = 4.99, SD = .91) and forwards (M = 5.05, SD = .90), and goalkeepers (M = 4.87, SD = .95) had significantly lower expectancy ratings compared to forwards. These differences had a low practical significance. See Figure 8A for a plot of cell means.

Growth Mindset. For Growth Mindset, the overall ANOVA was statistically significant, F (3, 3974) = 9.71; $p < 0.001$, $\eta^2 = .007$. Tukey's post-hoc test revealed players' ratings of Growth Mindset were lower for forwards (M = 3.80, SD = 1.19) than they were for the other positions. See Figure 8A for a plot of cell means.

Value. The overall ANOVA was not statistically significant for Intrinsic Value, F (3, 4119) = 3.07; p = .027, or for Utility Value, F (3, 4118) = 3.51; p = 0.015. However, the overall ANOVA was statistically significant for External Value, F (3, 4116) = 5.54; p = .001, $\eta^2 = .004$,

as Tukey's post-hoc test revealed forwards (M = 3.24, SD = 1.06) had higher ratings of external value than midfielders (M = 3.06, SD = 1.03). For Lack of Value, the overall ANOVA was statistically significant, F (3, 4105) = 4.02; p = .007, η^2 = .003, as Tukey's post-hoc test revealed lack of value was higher for defenders (M = 2.21, SD = 1.21) than midfielders (M = 2.05, SD = 1.12). See Figure 8A for a plot of cell means.

Goals. The overall ANOVA was statistically significant for players' Goals to Play for the National Team/Professionally, F (3, 4090) = 18.82; p > .001, η^2 = .014. Tukey's post-hoc test revealed the players' ratings of these goals were slightly lower for defenders (M = 4.60, SD = 1.16) than they were for midfielders (M = 4.86, SD = 1.11) and forwards (M = 4.90, SD = 1.09). The overall ANOVA was not statistically significant for players' Goals to Play in College, F (3, 4090) = 1.84; p = .138, or for Mastery Goals, F (3, 4072) = 2.87; p = .035. Lastly, the overall ANOVA was statistically significant for performance goals, F (3, 4072) = 4.90; p = .002, η^2 = .004. Tukey's post-hoc test revealed forwards (M = 5.46, SD = .82) had higher ratings of performance goals than defenders (M = 5.34, SD = .87). See Figure 8A and 8B for a plot of cell means.

Belongingness. The overall ANOVA was statistically significant for belongingness, F (3, 3936) = 7.42; p < .001, η^2 = .006. Tukey's post-hoc test revealed Belongingness was significantly greater for midfielders (M = 5.06, SD = .91) compared to goalkeepers (M = 4.85, SD = 1.02) and forwards (M = 4.90, SD = 1.01). See Figure 8B for a plot of cell means.

Grit. The overall ANOVA was not statistically significant for Grit, F (3, 3889) = .65; p = .58. See Figure 8B for a plot of cell means.

Self-Regulation. Concluding with Self-Regulation, the overall ANOVA was statistically significant for Regulation of Planning, F (3, 4053) = 11.51; p < .001, η^2 = .008. Tukey's post-hoc

test revealed Regulation of Planning was significantly lower for defenders (M = 4.54, SD = .98) compared to forwards (M = 4.76, SD = .94) and midfielders (M = 4.68, SD = .98). The overall ANOVA was statistically significant for Regulation of Challenge, F (3, 4018) = 6.92; $p < .001$, $\eta^2 = .005$. Tukey's post-hoc test revealed midfielders (M = 5.40, SD = .65) and forwards (M = 5.38, SD = .63) had slightly higher ratings for regulation of challenge compared to defenders (M = 5.29, SD = .66). However, the overall ANOVA was not statistically significant for Regulation of Emotions, F (3, 4019) = 2.81; p = .038, or for Lack of Regulation, F (3, 4022) = 2.35; p = .071. See Figure 8B for a plot of cell means.

Correlational Analyses

After the validity, reliability, and descriptive analyses, I explored the correlations among the psychological mindsets, and I present these correlations in a correlation matrix to display all the correlational relationships between mindsets using Pearson correlation coefficients (r) (see Table 25). In this exploration of the correlational relationships among the psychological mindsets, I will mention and emphasize the correlations that are above the $|r| = .30$ level for each mindset. I also explored the correlations between psychological mindsets and performance outcomes, which I reported in the same correlation matrix. I will discuss the significance and direction of the relationships between each of the mindsets and the three performance outcomes that I obtained from the soccer organization. The significance of these relationships was again evaluated at a $p < .01$ level. In this section, similarly to previous ones, I will discuss these correlations using a similar structure for each mindset using a similar structure for organization and coherency.

Expectancy. Among the mindsets, Expectancy was correlated at a level greater than r = .30 with Goals to Play for the National Team/Professionally, Mastery Goals, Regulation of

Planning, and Regulation of Challenge. Expectancy was correlated at a level less than r = -.30 with Lack of Value and Lack of Regulation. For the performance outcomes, Expectancy was significantly correlated with Minutes Played (r = .131) and Goals Scored (r = .181). It was significantly correlated with Goals Allowed, but the relationship was negative (r = -.089).

Growth Mindset. Among the mindsets, Growth Mindset was correlated at a level greater than r = .30 with none of the other mindsets, nor was it correlated at a level less than r = -.30 with other mindsets. The strongest relationship with another mindset that Growth Mindset had was a significant negative relationship with External Value (r = -.205). For the performance outcomes, Growth Mindset was only significantly negatively correlated with Goals Scored (r = -.075).

Intrinsic Value. Among the mindsets, Intrinsic Value was correlated at a level greater than r = .30 with Utility Value, Mastery Goals, and Regulation of Challenge. Intrinsic Value was correlated at a level less than r = -.30 with none of the other mindsets. For the performance outcomes, Intrinsic Value was significantly correlated with Goals Scored (r = .070) and Goals Allowed, but this relationship was negative (r = -.047).

Utility Value. Among the mindsets, Utility Value was correlated at a level greater than r = .30 with Intrinsic Value. Utility Value was correlated at a level less than r = -.30 with none of the other mindsets. For the performance outcomes, Utility Value was not significantly correlated with any of the mindsets.

External Value. Among the mindsets, External Value was correlated at a level greater than r = .30 with Lack of Value. External Value was not correlated at a level less than r = -.30 with any of the other mindsets. For the performance outcomes, External Value was significantly negatively correlated with Minutes Played (r = -.042).

Lack of Value. Among the mindsets, Lack of Value was correlated at a level greater than r = .30 with External Value and Lack of Regulation. Lack of Value was correlated at a level less than r = -.30 with Expectancy, Goals to Play for the National Team/Professionally, Mastery Goals, Belongingness, Regulation of Planning, and Regulation of Challenge. For the performance outcomes, Lack of Value was significantly negatively correlated with Minutes Played (r = -.162) and Goals Scored (r = -.109). It was also significantly correlated with Goals Allowed, but the relationship was positive (r = ,111).

Goals to Play for the National Team/Professionally. Among the mindsets, Goals to Play for the National Team/Professionally was correlated at a level greater than r = .30 with Expectancy, Mastery Goals, Regulation of Planning, and Regulation of Challenge. Goals to Play for the National Team/Professionally was correlated at a level less than r = -.30 with Lack of Value and Lack of Regulation. For the performance outcomes, Goals to Play for the National Team/Professionally was significantly correlated with Minutes Played (r = .141) and Goals Scored (r = .168). It was significantly correlated with Goals Allowed, but the relationship was negative (r = -.105).

Goals to Play in College. Among the mindsets, Goals to Play in College was correlated at a level greater than r = .30 with no other mindsets. Goals to Play in College was not correlated at a level less than r = -.30 with other mindsets, either. For the performance outcomes, Goals to Play in College was significantly negatively correlated Goals Allowed (r = -.052).

Mastery Goals. Among the mindsets, Mastery Goals was correlated at a level greater than r = .30 with Expectancy, Intrinsic Value, Goals to Play for the National Team/Professionally, Performance Goals, Grit, Regulation of Planning, and Regulation of Challenge. Mastery Goals was correlated at a level less than r = -.30 with Lack of Value and

Lack of Regulation. For the performance outcomes, Mastery Goals was significantly correlated with Goals Scored (r = .052). It was significantly correlated with Goals Allowed, but the relationship was negative (r = -.062).

Performance Goals. Among the mindsets, Performance Goals was correlated at a level greater than r = .30 with Mastery Goals. Performance Goals was not correlated at a level less than r = -.30 with any mindsets. For the performance outcomes, Performance Goals was significantly correlated with Minutes Played (r = .053) and Goals Scored (r = .091).

Belongingness. Among the mindsets, Belongingness was correlated at a level greater than r = .30 with none of the mindsets. Belongingness was correlated at a level less than r = -.30 with Lack of Value and Lack of Regulation. For the performance outcomes, Belongingness was significantly correlated with Minutes Played (r = .249) and Goals Scored (r = .094). It was significantly correlated with Goals Allowed, but the relationship was negative (r = -.095).

Grit. Among the mindsets, Grit was correlated at a level greater than r = .30 with Mastery Goals, Regulation of Planning, and Regulation of Challenge. Grit was correlated at a level less than r = -.30 with Lack of Regulation. For the performance outcomes, Grit was significantly correlated with Goals Allowed, but the relationship was negative (r = -.089).

Regulation of Planning. Among the mindsets, Regulation of Planning was correlated at a level greater than r = .30 with Expectancy, Goals to Play for the National Team/Professionally, Mastery Goals, Grit, Regulation of Challenge, and Regulation of Emotions. Regulation of Planning was correlated at a level less than r = -.30 with Lack of Value and Lack of Regulation. For the performance outcomes, Regulation of Planning was significantly correlated with Goals Scored (r = .052). It was also significantly correlated with Goals Allowed, but the relationship was negative (r = -.056).

Regulation of Challenge. Among the mindsets, Regulation of Challenge was correlated at a level greater than *r* = .30 with Expectancy, Intrinsic Value, Goals to Play for the National Team/Professionally, Mastery Goals, Grit, Regulation of Planning, and Regulation of Emotions. Regulation of Challenge was correlated at a level less than *r* = -.30 with Lack of Value and Lack of Regulation. For the performance outcomes, Regulation of Challenge was significantly correlated with Minutes Played (*r* = .084) and Goals Scored (*r* = .085). It was significantly correlated with Goals Allowed, but the relationship was negative (r = -.097).

Regulation of Emotions. Among the mindsets, Regulation of Emotions was correlated at a level greater than *r* = .30 with Regulation of Challenge. Regulation of Emotions was correlated at a level less than *r* = -.30 with Lack of Regulation. For the performance outcomes, Regulation of Emotions was significantly correlated with Minutes Played (*r* = .053).

Lack of Regulation. Among the mindsets, Lack of Regulation was correlated at a level greater than *r* = .30 with Lack of Value. Lack of Regulation was correlated at a level less than *r* = -.30 with Expectancy, Goals to Play for the National Team/Professionally, Mastery Goals, Belongingness, Grit, Regulation of Planning, Regulation of Challenge, and Regulation of Emotions. For the performance outcomes, Lack of Regulation was significantly negatively correlated with Minutes Played (*r* = -.119) and Goals Scored (*r* = -.045). It was significantly correlated with Goals Allowed, but the relationship was positive (*r* = .065).

Multivariate Analyses

To go beyond correlational analyses, I conducted regression analyses using all of the psychological mindsets to predict the three performance outcomes collected in the study (minutes played, goals scored, and goals allowed). Because some of the psychological mindsets were correlated to each other and are not truly independent, I compared two types of regression

models. I ran both simultaneous multiple regression and stepwise multiple regression models. In Table 24, I report which mindsets entered the stepwise regression for each of the performance outcomes.

For both types of models, I tested statistical significance for the overall model and for individual predictors at the $p < .01$ level. When individual predictors were significant, I ordered them by the size of their beta weight in the regression model. The first significant predictor will have the largest beta weight (β) and the last significant predictor will have the smallest beta weight.

Minutes Played. The overall simultaneous multiple regression conducted to predict minutes played from the psychological mindsets was significant, $F(16, 3605) = 21.33$, $p < .001$, $R^2 = .09$. Of the predictors investigated, Belongingness ($\beta = .21$, $p < .01$), Regulation of Planning ($\beta = -.12$, $p < .01$), Goals to Play for the National Team/Professionally ($\beta = .08$, $p < .01$), and Lack of Value ($\beta = -.08$, $p < .01$) were statistically significant. All the predictors were in the expected direction, except for Regulation of Planning. This was surprising because it was a positive predictor of minutes played when analyzed in the correlation matrix for the overall sample.

To compare simultaneous multiple regression to stepwise multiple regression, I reran the regression model to focus on only the predictors that would significantly enter to maximize statistical power and avoid multicollinearity. The overall stepwise multiple regression conducted to predict minutes played was significant and revealed five predictors that entered the model, $F(5, 3616) = 64.35$, $p < .001$, $R^2 = .08$. Of the predictors investigated, Belongingness ($\beta = .21$, $p < .01$), Regulation of Planning ($\beta = -.12$, $p < .01$), Goals to Play for the National Team/Professionally ($\beta = .08$, $p < .01$), Lack of Value ($\beta = -.06$, $p < .01$), and Expectancy ($\beta =$

.06, $p < .01$) entered the model. All of the predictors were in the expected direction, except for Regulation of Planning. This was surprising because it is theoretically a positive predictor of improved performance outcomes (Smith et al., 1995).

The models were identical, except for the entry of Expectancy in the stepwise multiple regression model.

Goals Scored. The overall simultaneous multiple regression conducted to predict goals scored for attackers from the psychological mindsets was significant, $F(16, 968) = 6.11$, $p < .001$, $R^2 = .09$. Of the predictors investigated, Expectancy ($\beta = .14$, $p < .01$), Belongingness ($\beta = .12$, $p < .01$), and Lack of Value ($\beta = -.11$, $p < .01$) were statistically significant. All the predictors were in the expected direction.

To compare simultaneous multiple regression to stepwise multiple regression, I reran the regression model to focus on only the predictors that would significantly enter to maximize statistical power and avoid multicollinearity. The overall stepwise multiple regression conducted to predict goals scored for attackers was significant and revealed four predictors that entered the model, $F(4, 980) = 18.42$, $p < .001$, $R^2 = .07$. Of the predictors investigated, Expectancy ($\beta = .15$, $p < .01$), Belongingness ($\beta = .13$, $p < .01$), Regulation of Emotions ($\beta = -.11$, $p < .01$), and Lack of Value ($\beta = -.09$, $p < .01$) entered the model. All of the predictors were in the expected direction except for Regulation of Emotions, which theoretically would be a positive predictor of goals scored/improved performance (Smith et al., 1995).

The models were identical, except for the entry of Regulation of Emotions in the stepwise multiple regression model.

Goals Allowed. The overall simultaneous multiple regression conducted to predict goals allowed for defenders from the psychological mindsets was not significant, $F(16, 1214) = 1.75$, p

= .03. However, I reran the regression model to focus on only the predictors that would significantly enter to maximize statistical power and avoid multicollinearity. The overall stepwise multiple regression conducted to predict goals allowed for defenders was significant and revealed one predictor that entered the model, $F(1, 1229) = 11.24$, $p = .001$, $R^2 = .01$. The only predictor that entered the model was Lack of Value ($\beta = .10$, $p < .01$). Lack of Value was in the expected direction.

The overall simultaneous multiple regression conducted to predict goals allowed for goalkeepers from the psychological mindsets was not significant, $F(16, 341) = 1.56$, $p = .08$. However, I reran the regression model to focus on only the predictors that would significantly enter to maximize statistical power and avoid multicollinearity. The overall stepwise multiple regression conducted to predict goals allowed for goalkeepers was significant and revealed one predictor that entered the model, $F(1, 356) = 11.24$, $p = .005$, $R^2 = .02$. The only predictor that entered the model was Expectancy ($\beta = -.15$, $p < .01$). Expectancy was in the expected direction.

Discussion

Goal One: Validity and Reliability

The first goal of the current study was to develop a pool of items to assess each mindset, and then to conduct initial analyses to establish the construct validity and reliability of the measures for each mindset. The EFAs that I conducted determined that the scales for value, goals, and self-regulation were all multidimensional, and there were four separate factors that were extracted from each of those mindsets' scales. The four other mindsets were unidimensional. In the analyses of the scales' Cronbach's alpha coefficients, the results showed that the scales achieved moderate to high internal consistency. Eleven out of 16 of the scales used had a Cronbach's alpha coefficient greater than or equal to .70. However, the scales should be revisited to examine ways to refine them to improve their internal consistencies, especially for work in applied settings (Nunnally, 1978).

Goal Two: Descriptive Analysis

The second goal of this study was to describe the psychological mindsets of elite youth players in a large soccer organization in the United States through a descriptive analysis of their ratings on each of the psychological mindsets. In these descriptive analyses, I found that players in the organization had very high Mastery Goal orientations and Intrinsic Value, along with lower ratings of Lack of Value and Lack of Regulation. However, one interesting result among these descriptive analyses was the low mean for Growth Mindset. Given the players' high mastery goal orientations, it would be logical for the players to have higher ratings of Growth Mindset as well. Instead, the mean for Growth Mindset was around 4 out of 6, which means that on average, players were only slightly agreeing with growth mindset statements. Because of the wealth of evidence from education literature showing the benefits of Growth Mindset for

improved outcomes (Dweck, 2007; Dweck et al., 2014; Farrington et al., 2012; Hulleman et al., 2017; Yeager et al., 2016), this finding merits attention and should be further explored or addressed.

Adding to these descriptive analyses, I examined the differences in mindsets across groups using ANOVA. Fifty-one of the 80 ANOVAs overall that I ran were significant, and the practical significance of these statistically significant ANOVAs can be seen in Table 24. These analyses revealed many interesting findings. Between age groups, younger players tended to be more growth-minded, had greater belongingness, and were more ambitious with greater goals to play for the national team and to play professionally. The younger players also had less external value for soccer compared to older players. This current finding is based on a cohort comparison, so differences could be due to age or to different cohorts of players. Future research would benefit from tracking players longitudinally over time to see if this is an effect that occurs as players continue playing in the soccer organization. If age differences continue to be revealed, interventions targeting mindset declines would be appropriate.

Regarding ethnicity, there were some particularly eye-catching results. Underrepresented minority (URM) players were more confident, had both greater intrinsic and external value, were more ambitious with greater goals to play for the national team and to play professionally, and were better at planning their training and dealing with challenges. However, the most intriguing result was that there were no differences in belongingness between majority and URM players. This finding is particularly intriguing because of the often-found drop in belongingness for URM students in school settings (Walton & Cohen, 2007). Looking at these results, it is apparent that URM players had better mindsets that are more conducive of success in sport. A possible explanation could be that soccer is the number one game for these URM players and that it is

seen as a way to succeed to provide for their families, especially for players who come from lower socioeconomic statuses and families in which soccer is a strong cultural value.

Between scouted and not scouted players, scouted players had more confidence in their abilities, more intrinsic value to play the game, more ambitious goals to play for the national team and to play professionally, lower goals to play in college, greater mastery and performance goals, and more belongingness. These findings show that there were qualitative differences in mindsets between players who were scouted and players who were not scouted. Differences in scouting level corresponded to differences in the players' ways of approaching the game and their beliefs about their own abilities. The finding of scouted players having greater mastery and performance goals is an interesting finding in that scouted players' reasons for playing are multifaceted. They reported higher levels of wanting to play to improve and become more competent while also playing to perform at a higher level, to look good for others who are watching them, and to outdo others.

Players who play in professional clubs also had more confidence, more ambitious goals to play for the national team and to play professionally, and lower goals of playing in college. However, players in professional clubs did not differ in belongingness nor value compared to players in non-professional clubs. These findings reveal that players in professional clubs feel more confident and competent, but their reasons for playing soccer and the way they feel in their teams are no different from their peers at non-professional clubs.

Lastly, the analyses by position were quite interesting as well. Forwards had a profile of mindsets that was the most extreme within the group of position types, as they were more confident, had less belongingness, had greater external value, and were less growth-minded. Because of the nature of the position, it is logical that forwards may have greater external value

and less belongingness as they base their performance on the external outcome of scoring goals and are more isolated. However, being less growth-minded as a forward seems to be less advantageous, as the belief that your abilities are malleable would encourage you to overcome challenges and streaks without scoring more effectively. Goalkeepers also had lower ratings of belongingness, which could correspond to the nature of the position as well. Midfielders were more confident in comparison to players in other positions, and they had lower ratings of external value and lack of value. Midfielders are often more creative players who do not have as many directly related performance outcomes tied to them compared to forwards and goalkeepers, such as goals scored and goals allowed. These directly related performance outcomes may encourage players to place more emphasis on extrinsic motivators rather than intrinsic ones. Given this, it makes sense as to why they had less external value and lack of value. Defenders had distinguishing mindsets as well, such as their lower expectancy, goals to play for the national team and professionally, regulation of challenge, and regulation of planning, and greater lack of value compared to other positions. These differences in mindsets made sense theoretically, as defenders are often judged on the goals they allow, which is a negative result that could be associated with experiences that take away from positive mindsets. In addition, the defender position is not thought to be as skilled of a position compared to forwards and midfielders, which could contribute to their different perceptions of their experiences.

For all of the groups except age and ethnicity, there were no differences in players' perceived abilities to regulate their emotions. Even for the groups with significant differences, the differences had a very low practical significance. For the scouted players especially, this finding is perplexing. Theoretically, the regulation of one's emotions is important for players to maintain their composure when under pressure, which would appear to be a critical skill for

improved performance. For this reason, the relationship between players' abilities to regulate their emotions and performance should be investigated further.

Goal Three: Correlations

The third goal was to understand the relationships between mindsets and performance outcomes among the sample of elite youth players through correlational analyses. These correlational analyses allowed us to understand the directionality and strength of the relationships between mindsets and performance outcomes. Fifteen out of the 16 mindsets that were assessed had a statistically significant relationship with at least one of the performance outcomes. In these analyses, Belongingness, Expectancy, and Goals to Play for the National Team/Professionally were the best predictors of each of the performance outcomes in players. However, Growth Mindset, which is often a significant predictor of improved outcomes in education, did not predict improved performance outcomes for players in the data set. In fact, Growth Mindset was a significant negative predictor of goals scored. This finding seems counterintuitive, as Growth Mindset encourages the desire to overcome challenges and to be persistent after failing through the belief that one's abilities are malleable.

Goal Four: Multiple Regressions

The fourth goal of the study was to understand how the psychological mindsets combine to account for the differences in performance outcomes through multivariate analyses. To accomplish this goal, I conducted multiple regression analyses for each of the performance outcomes. First, I examined and compared simultaneous and stepwise multiple regressions including all of the mindsets to predict minutes played across all players. The results showed that Belongingness, Expectancy, Goals to Play for the National Team/Professionally, Regulation of Planning, and Lack of Value, all entered the model to account for eight percent of the variance in

minutes played as significant predictors in the stepwise multiple regression. In the simultaneous multiple regression, nine percent of the variance in minutes played was accounted for.

Second, I examined simultaneous and stepwise multiple regressions including all of the mindsets to predict goals scored for attackers. The results showed that Expectancy, Belongingness, Regulation of Emotions, and Lack of Value all entered the stepwise model to account for seven percent of the goals scored outcomes as significant predictors. In the simultaneous multiple regression, eight percent of the variance in minutes played was accounted for.

Following this regression to predict goals scored, I conducted simultaneous and stepwise multiple regressions including all of the mindsets to predict goals allowed for defenders and goalkeepers separately. In these analyses, only the stepwise multiple regressions were significant, and only one mindset entered each model as a significant predictor. For the prediction of goals allowed for defenders, it was Lack of Value, and for goalkeepers, it was Expectancy. These analyses predicting goals allowed only accounted for one and two percent of the variance in the outcome of goals allowed, respectively. These were small effect sizes, meaning they had low practical significance. The effect sizes for the analyses predicting goals scored for forwards and minutes played for all players had moderate practical significance.

As noted in the results, each of these variables was in the hypothesized direction, except for Regulation of Planning. In the overall correlational analyses, Regulation of Planning was not correlated with minutes played. However, in the multiple regression, about 150 less players were included in the analysis and it was then negatively correlated with minutes played. This same result happened for Regulation of Emotions in the multiples regressions that I ran to predict goals scored for attackers. Regulation of Emotions was not correlated with goals scored at the

overall level, but it was negatively correlated with goals scored within the sample of attackers that was input into the multiple regression. These findings may have occurred because of statistical suppression resulting from shared variance among the mindsets. Self-regulation has been positively correlated with improved outcomes in both sport and education research literature in the past, which makes this finding surprising (Farrington et al., 2012; Mischel et al., 1989; Smith et al., 1993). This finding calls for further investigation into self-regulation in sport, especially along the dimensions of Regulation of Planning and Regulation of Emotions.

Limitations

In the study, there were limitations to consider. Although about 50% of the players in the academy completed the survey, this also means many players did not complete the survey, limiting the generalizability of the findings across the youth soccer organization. In future studies, there should be an initiative to work closely with organizations with whom researchers collaborate to garner increased participation to improve the external validity of a study's results.

Although the study used a sample of players from an elite soccer organization, the question of whether the players being assessed really comprise an "elite" sample of players remains. There were certainly elite players included in the sample (e.g., players who were scouted for the national team), but it is not certain that all the players in the sample can be defined as "elite" players. In future studies where the focus is on elite players, the sample should be limited to players who have been scouted to play at the highest level, such as for the national team or a professional club.

In my analyses of the validity and reliability of each of the scales used in the study, there were many findings of underwhelming results, especially in terms of the Cronbach's alpha levels of the scales, as 11 out of the 16 scales had a Cronbach's alpha coefficient greater than or equal

to .70. There were also only four scales that had a Cronbach's alpha coefficient greater than .80. These findings were certainly affected by the approach of using pragmatic measures to assess mindsets in this study. Although Cronbach's alpha is widely used by researchers to assess the reliability of their measures, it favors longer instruments that may have repetitive items rather than shorter scales that are more economical and pragmatic in their assessment of a construct (Kosovich et al., 2017). These more pragmatic measurements are better to use when there are situational constraints, which existed in this study because of the age of the participants and the desire to assess mindsets more holistically within a time limit of 30 minutes or less. In their publication, Kosovich and colleagues (2017) encouraged a more argument-based approach to validity and reliability rather than one that is solely based on statistical results from EFAs and analyses of Cronbach's alpha coefficients. For example, one of the other tools to assess a scale's validity is testing its predictive validity for theoretically related outcomes. In their use of more pragmatic measurement tools, they found that the cost of using those tools for the reliability and validity metrics was outweighed by the benefits that came from shortening the scales.

Beyond the assessment of mindsets, there was a limitation for the assessment of performance outcomes. Given that I was only able to access a limited number of outcomes from our partner soccer organization, which were minutes played, goals scored, and goals allowed, I was not able to assess a more complete picture of player performance. Other statistics from player performance would help to make this assessment of performance more accurate. For example, knowing the number of assists, chances created, tackles, interceptions, saves (for goalkeepers), fouls drawn, fouls committed, completed passes, turnovers, forward passes, and dribbles completed would provide a much more in-depth and complete picture of player

performance. Comparing the assessments of player mindsets to additional performance outcomes may result in different relationships between mindsets and performance.

Apart from limitations to performance outcome measurements, there were certain mindsets that were not assessed in the survey that could have significant relationships with player performance. Testing other mindsets could add to the picture of our understanding of players' mindsets. An example of one of these mindsets is locus of control, which is the perception of having control over your environment (Ellsworth & Scherer, 2003). Locus of control has been studied in various contexts and research has found significant relationships between locus of control and positive outcomes (Kaufmann, Goetz, Lipnevich, & Pekrun, 2018).

Although the current study did analyze how the mindsets combined to predict performance outcomes through multiple regression analyses, it did not assess how the mindsets interacted to predict those outcomes. These regression analyses took the study a step beyond what Höner and Feichtinger (2016) did in their study with German soccer players in terms of examining how mindsets combine to predict performance outcomes. However, it did not go beyond this to test moderator effects in the prediction of performance outcomes.

Another limitation was the timing of the survey. The players completed the survey toward the end of their season, which may have had an impact on their motivation to complete it and fully engage with it. If the players completed the survey at the beginning or middle of their season, it is possible that the athletes would have engaged more and taken the survey more seriously, which may have led to different results.

Strengths

Although there were limitations of the study, there were noteworthy strengths as well. One strength of the study is the sample size and the variation within the sample. The sample

comprises almost 4,000 players, and within that group, there is a great variation of players from different backgrounds, ethnicities, skill levels, and places across the United States (and some from other countries).

Another strength of the study is the number of mindsets assessed. In most studies in sport psychology that examine the relationships between psychology and performance, only one or two mindsets are assessed, and different demographic groups are not emphasized either. However, 16 mindsets were assessed in this study, and their mean differences were examined across five different demographic groups. These aspects of the study make it quite holistic in its measurement of the "psychology" of a soccer player and how players' mindsets relate to their performance outcomes. Also, understanding the relationships between group membership and those mindsets leads to an even deeper understanding of the players and their experience.

In general, the study adds evidence to the sport psychology literature for each of the mindsets. First, the scales used to measure each mindset provide insights for other researchers in terms of the validity and reliability of the instruments that were measured and reported in the study. The relationships between each mindset and all the performance outcomes will also provide predictive validity for each of the scales for their use in future studies. Also, for a scale like the one used for utility value, which consisted of new items, there is now a scale that can be used and referenced by other researchers in future studies in soccer and the sport context. Overall, the relationships found in the study add to the research literature on different mindsets within the field of sport psychology. The study also attempted to bridge mindset work between the fields of education and sport, which can open doors to future collaborations between researchers in the two contexts.

Next Steps

The holistic approach that I used in the current study will be a first step toward allowing sport psychology researchers and practitioners to move toward a better understanding of psychological mindsets and their relationships with performance. It also will open the door to more holistic research in the area of performance. In the future, researchers may combine measurements of psychological mindsets with physiological data, better measurements of performance, measurements of players' tactical knowledge, and assessments of players' technical skills, to understand how the various dimensions of performance are related and how they account for players' performance outcomes. Williams and Reilly (2000) discuss a holistic model of talent development in their publication, where they touch on the various factors within physiology, sociology, psychology, and technical skills that are important in talent identification and development through a review of studies and theory within each of the dimensions. In future studies, this model can be followed to move forward the field's holistic understanding of development and performance.

The measurements used in the study should be further investigated through the refinement and replication of the factors that were measured. In future studies, the scales with higher validity and internal consistency, like the scale assessing players' Goals to Play for the National Team/Professionally, should be replicated to add to the research evidence of their validity and internal consistency. For factors with lower validity and internal consistency, such as the scale measuring Growth Mindset, the factors should be refined to improve their validity and internal consistency. These measurements of mindsets should also be examined using Confirmatory Factor Analyses (CFA) to move beyond the initial Exploratory Factor Analyses (EFA) that I conducted in this study. CFAs will analyze how well the items load onto

predetermined factors instead of exploring the relationships between items with no predispositions like in EFAs (Pett et al., 2003).

Although this study highlighted the relationships between mindsets and performance for elite players in their age groups, future research should examine these relationships in non-elite players. Given the elite level of the soccer organization and the quality of the players, the players could have been exposed to better coaching which promoted mindsets that are more positive or they could have reached their high level of performance because of their mindsets. These possibilities are not as present in non-elite athletes, which could create differences in mindsets between elite and non-elite players. This difference in quality could expose greater variation and different means for mindset ratings among non-elite athletes, which could affect the relationships between their mindsets and performance.

Even though this study focused on assessing players' individual mindsets, the psychological climate and environment in which the player plays is also very important. Future studies should assess these environmental factors, such as players' perceptions of their peers and coach. Assessing these factors would provide knowledge of the relationships between the players' interaction with their environment, their own individual mindsets, and their performance outcomes. There could be significant relationships between environmental factors and the players' individual mindsets that warrant further causal investigation to explore the relationships between a player's mindsets and their environment, especially if there are significant relationships between those environmental factors and improved performance outcomes.

The assessment of mindsets in this study could be made more robust in the future by examining how different referents could affect the relationships between players' mindsets and performance. For example, instead of assessing expectancy in general for players, future research

could assess players' expectancy for specific skills, such as kicking with their weak foot or their tactical knowledge. Another example could be assessing players' value for different aspects of playing, including their value for playing within the specific soccer organization, their value for playing for their club, and their value for playing on their specific team. The relationships between these specific referents and performance outcomes could be stronger than the general assessments of player mindsets. Given this potential, it should be further studied in future research.

Researchers in future studies should look at the differences between and within certain groups of players based on a specific mindset, performance, or demographic using Cluster Analyses. For example, future research could look at the mean differences between players who rated the items for Intrinsic Value, Goals to Play for the National Team/Professionally, and Regulation of Emotions as a six and the rest of the sample in terms of their minutes played and goals scored. These analyses could help researchers understand how mindsets interact together to account for better (or worse) outcomes.

Lastly, assessing players' development over time would make another great step forward in this area of research. Studying the development of players' mindsets over time as their performance changes and they achieve (or do not achieve) success would further build upon this research. It would provide great insights into the relationship between psychological development and player development, which is an area that has not yet been well-explored in the soccer context.

Implications of this Study

Implications for Theory. The current study contained various implications for theory. First, in terms of correlational relationships, it adds a great deal regarding the relationships

among psychological mindsets. With the assessment of various psychological mindsets in the study, many relationships that have been observed in past research were confirmed in the study. For example, the positive relationship between mastery goals and intrinsic value was found in this study, as it has been found in previous studies relating to value and types of goals (Vansteenkiste, 2007).

However, some relationships went against theory as well. An example of this is the positive relationship between mastery goals and performance goals. Many studies see a clear dichotomous distinction between the two types of goals, although in this study, these two types of goals were positively related to each other and they were both positively correlated with improved performance outcomes. These results support Barron and Harackiewicz's (2001) multiple goal model, which is a model that contested the mastery goal perspective.

In terms of theorized differences between demographic groups, one of the most surprising findings for theory in this study was the differences in mindsets for underrepresented minority (URM) players. Although studies in education show that URM students often do not have mindsets that are more conducive of success compared to their majority peers, the results were the opposite in this study. These URM players' mindsets were similar to the mindsets of scouted players and players playing in professional clubs' academies, two groups that are theoretically related to improved performance and development. This is supported by the lack of difference in belongingness between URM and majority players in this study, which is a difference that is often found in education research among these groups (Dweck et al., 2014). These findings imply that URM individuals may have a different perspective and approach in the sport setting, which could be related to improved mindsets and thus improved outcomes.

Implications for Research. The first key implication for research of the study is how multifaceted it is. Given the scope of past research in this area, this work is pioneering because of its simultaneous measurement of various psychological mindsets and the measured relationships between these mindsets and performance. In addition, even more information is gained from these data through the analyses of players' mindsets in the context of their demographic groups. Understanding the differences across demographic groups provided an added dimension to the study, which other researchers can follow in future studies. Second, this study created a bridge between the subfields of education and sport within psychology. Through my use of literature from both fields to develop the frameworks used in this study, I was able to create a pathway to bring the two subfields together. This link could lead to more research in which researchers apply frameworks from one context in different contexts to add to the knowledge within each subfield. For example, the frameworks used in this study could be applied in a business setting to assess the relationships between these mindsets and performance among employees. These applications could lead to important findings in different subfields that may not have been discovered if researchers had not created pathways to capitalize on those links.

Another implication of this work is that it was use-inspired research. Pintrich (2003) described use-inspired research as research with a design that is driven by theory and has practical utility in that the research was conducted within a context outside of the laboratory to develop a better understanding or to make improvements in the real world. In accordance with Pintrich, future research should use this dual-approach of simultaneously developing the field's scientific understanding and providing practical utility in the real world.

There are significant implications beyond this work as well. The results of this study show that mindsets do play a part in the outcomes of the players in the study. Although the study was correlational, there were significant relationships between mindsets and performance outcomes, and these mindsets accounted for a significant amount of the variation in the players' performance. These frameworks should be applied in more contexts to develop our collective understanding of the relationships between psychological mindsets and elite performance. By studying the effects of these mindsets in various contexts, such as other sports like basketball and hockey or completely different areas like music and theatre performance, we could find that there are mindsets that are significantly related to improved performance across contexts. This knowledge would be quite valuable for researchers looking to develop a general framework of the psychological mindsets of elite performance. A general framework that spans multiple disciplines within elite performance could be a great tool for researchers to collaborate more across subfields to continue to advance our knowledge of the psychology of performance.

Implications for Practice. To conclude this discussion, I will return to the fifth goal of the study, which is a key implication for practitioners. This goal was to use these data to identify psychological mindsets that were lower to determine areas where player mindsets could be improved in this elite youth soccer organization. Upon examination of the means of the items, the measure of Growth Mindset had a much lower mean compared to the other mindsets (M = 3.96). Given the relationships between Growth Mindset and improved performance in past research literature in education, ways to improve this mindset in players should be explored (Dweck, 2006; Dweck et al., 2014; Farrington et al, 2012). Using this mindset as an example, a research team could develop an intervention or use an intervention that has been used in previous research to improve Growth Mindset in players (Yeager et al., 2016). After this intervention, the

researchers/practitioners could analyze the effects of the intervention by developing a set of behaviors that are observable in training sessions and games that would theoretically be a part of the profile of behaviors of a growth-minded athlete. For example, if the player believes that his or her ability to improve is malleable and that challenge is positive for his or her development, then one of the behaviors assessed could be the number of times a player uses his or her weak foot in matches. This behavior is representative of being growth-minded because it requires the player to challenge himself or herself to do something that is not natural for him or her in order to improve. These behaviors are preceded by the beliefs that your ability is malleable and that challenge is good for development. This approach can then be applied to mindsets beyond growth mindset to help improve players' other mindsets, such as regulation of emotions and belongingness.

References

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Barron, K. E., & Harackiewicz, J. M. (2001). Achievement goals and optimal motivation: Testing multiple goal models. *Journal of Personality and Social Psychology, 80*(5), 706-722.

Bryk, A.S., Sebring, P.B., Allensworth, E., Luppescu, S., & Easton, J.Q. (2009) *Organizing schools for improvement: Lessons from Chicago*. Chicago: University of Chicago Press.

Connor, K.M., & Davidson, J.R. (2003). Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depress Anxiety, 18*(2), 76-82.

Conroy, D. E., Elliot, A. J., & Hofer, S. M. (2003). A 2 × 2 achievement goals questionnaire for sport: Evidence for factorial invariance, temporal stability, and external validity. *Journal of sport and Exercise psychology, 25*(4), 456-476.

Cronbach, L.E., & Shavelson, R.J. (2004). My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement, 64*(3), 391-418.

Deci, E.L., & Ryan, R.M. (2000). The "what" and the "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.

Duckworth, A. L. (2016). *Grit: The power of passion and perseverance*. New York: Scribner.

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the short grit scale (grit-s). *Journal of Personality Assessment, 91*, 166–174.

Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92, 1087-1101.

Dweck, C.S. (2007). *Mindset: The new psychology of success.* New York: Ballantine Books.

Dweck, C. S., Walton, G. M., & Cohen, G. L. (2014). *Academic tenacity: Mindsets and skills that promote long-term learning*. Bill and Melinda Gates Foundation.

Elferink-Gemser, M. T., Visscher, C., Richart, H., & Lemmink, K. A. P. M. (2004). Development of the tactical skills inventory for sports. *Perceptual and Motor Skills, 99*(3), 883-895.

Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, H. Goldsmith, & K. R. Scherer (Eds.), *Handbook of affective sciences* (pp. 572–595). New York, NY: Oxford University Press.

Eskreis-Winkler, L., Shulman, E. P., Beal, S. A., & Duckworth, A. L. (2014). The grit effect: Predicting retention in the military, the workplace, school and marriage. *Frontiers in Psychology, 5*, 1–12.

Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). *Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review.* Chicago: University of Chicago Consortium on Chicago School Research.

Feichtinger, P., & Höner, O. (2014). Psychological diagnostics in the talent development program of the German Football Association: Psychometric properties of an Internet-based test battery. *Sportwissenschaft, 4,* 203-213.

Gaston-Gayles, J. L. (2005). The factor structure and reliability of the Student Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ). *Journal of College Student Development, 46*(3), 317-327.

Hollenbeck, J. R., Williams, C. L., & Klein, H. J. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal of Applied Psychology*, *74*, 18–23

Höner, O., & Feichtinger, P. (2016). Psychological talent predictors in early adolescence and their empirical relationship with current and future performance in soccer. *Psychology of Sport and Exercise, 25*, 17–26.

Hulleman, C., Wormington, S., & Beattie, R. (2017). *Making psychology useful again: Building practically useful theories using translational synthesis*.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39,* 32-36.

Kannekens, R., Elferink-Gemser, M. T., & Visscher, C. (2009). Tactical skills of world-class youth soccer teams. *Journal of Sports Sciences, 27*(8), 807-812.

Kaufmann, M., Goetz, T., Lipnevich, A.A., & Pekrun, R. (2018). Do Positive Illusions of Control Foster Happiness?. *Emotion*. Advance online publication.

Kosovich, J.J., Hulleman, C.S, & Barron, K.E. (2018). Measuring motivation in educational settings: A case for pragmatic measurement. To appear in S. Hidi & K.A. Renninger's (Eds.) *Cambridge Handbook on Motivation and Learning*.

Lee, O., & Anderson, C.W. (1993). Task engagement and conceptual change in middle school science classrooms. *American Educational Research Journal, 30*(3), 585-610.

Lonsdale, C., Hodge, K., & Hargreaves, E. (2008). The Behavioral Regulation in Sport Questionnaire (BRSQ): Instrument Development and Initial Validity Evidence. *Journal of sport & exercise psychology, 30,* 323-55.

Mallett, C.J., Kawabata, M., Newcombe, P., Otero-Forero, A., & Jackson, S. (2007) Sport Motivation Scale-6 (SMS-6): A revised six-factor sport motivation scale. *Psychology of Sport and Exercise, 8,* 600-614.

Mischel, W., Shoda, Y., & Rodriguez, M. I. (1989). Delay of gratification in children. *Science, 244*(4907), 933–938.

Moritz, S.E., Feltz, D.L., Fahrbach, K.R., & Mack, D.E. (2000). The Relation of Self-Efficacy Measures to Sport Performance: A Meta-Analytic Review. *Research Quarterly for Exercise and Sport, 71*(3), 280-294.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counselling Psychology, 38,* 30-38.

Nunnally, J.C. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.

Pajares, F. (1996) Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*, 543-578.

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Thousand Oaks, Calif: Sage Pub.

Pintrich, P. R. (2003). A Motivational Science Perspective on the Role of Student Motivation in Learning and Teaching Contexts. *Journal of Educational Psychology, 95*(4), 667-686.

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientations in learning and achievement. *Journal of Educational Psychology, 92*, 544–555.

Scanlan, T. K., Chow, G. M., Sousa, C., Scanlan, L. A., & Knifsend, C. A. (2016). The development of the sport commitment questionnaire-2 (English version). *Psychology of Sport and Exercise, 22,* 233-246.

Sheard, M., Golby, J., & Van Wersch, A. (2009). Progress toward construct validation of the Sports Mental Toughness Questionnaire (SMTQ). *European Journal of Psychological Assessment, 25*(3), 186-193.

Smith, R.E., Schutz, R.W., Smoll, F.L., & Ptacek, J.T. (1995). Development and validation of a multidimensional measure of sport-specific psychological skills: The Athletic Coping Skills Inventory-28. *Journal of Sport & Exercise Psychology*, 17, 379-398.

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124*, 240-261.

Strudwick, T. (2016). *Soccer Science*. Champaign, IL: Human Kinetics.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.

Toering, T.T., Jordet, G., & Ripegutu, A. (2013). Effective learning among elite football players: The development of a football-specific self-regulated learning questionnaire. *Journal of Sports Sciences, 31*(13), 1412-1420.

Vansteenkiste, M., Simons, J., Soenens, B., & Lens, W. (2004). How to become a persevering exerciser: The importance of providing a clear, future goal in an autonomy-supportive way. *Journal of Sport and Exercise Psychology, 26*, 232–249.

Vansteenkiste, M., Soenens, B., & Lens, W. (2007). Intrinsic versus extrinsic goal promotion in exercise and sport: Understanding the differential impacts on performance and persistence. In M. S. Hagger & N. L. D. Chatzisarantis (Eds.), *Intrinsic motivation and self-determination in exercise and sport* (pp. 167-180,337-340). Champaign, IL, US: Human Kinetics.

Van Yperen, N.W., & Duda, J.L. (1999). Goal orientations, beliefs about success and performance improvement among young elite Dutch soccer players. *Scandinavian Journal of Medicine and Science in Sports, 9*, 358-364.

Van Yperen, N. (2009). Why some make it and others do not: Identifying psychological factors that predict career success in professional adult soccer. *Sport Psychologist, 23*, 317-329.

Walton, G.M., & Cohen, G.L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82-96.

Williams, A.M. & Reilly, T. (2000). Talent Identification and Development in Soccer. *Journal of Sports Sciences, 28,* 657-667.

Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., … Dweck, C. S. (2016). Using Design Thinking to Improve Psychological Interventions: The Case of the Growth Mindset During the Transition to High School. *Journal of Educational Psychology, 108*(3), 374–391.

Table 1

Psychological Mindsets Assessed in Study of German Elite Youth Soccer Players

Overlaying Construct	**Psychological Mindset**	**Definition**
Motivation	Hope for success	Optimism for future performance and success in soccer.
	Fear of failure	Worried about the consequences of not attaining success.
	Competition orientation	Most focused on competing and comparison to others.
	Win orientation	Most focused on winning.
	Goal orientation	Most focused on achieving goals.
	Task orientation	Most focused on improving skills.
	Ego orientation	Most focused on being better than others and proving one's own ability.
Volition	Self-optimization	Adapts oneself to be in the optimal position to improve and achieve one's goals.
	Self-impediment	Inhibits oneself from achieving goals and improving.
	Lack of initiation	Not executing on plans to improve.
	Loss of focus	Not able to stay concentrated on the task/the goal.
Self-Referential Cognition	General self-concept	Perceptions of one's own general skills.
	Specific self-concept	Perceptions of one's specific skills.
	Self-efficacy	"The subjective belief that one is able to perform a certain action on the basis of one's own abilities" (Feichtinger & Höner, 2014, p. 206-207)
Emotion	Somatic anxiety	The physical manifestations of anxiety.
	Worry	The cognitive manifestations of anxiety. Negative thoughts and concern for oneself because of one's performance.
	Concentration disruption	Inability to maintain the stability of one's emotions when completing a task or attempting to achieve a goal.

Table 2

Definitions of Psychological Mindsets Assessed in Educational Research

Psychological Mindset	**Definition**
Grit	Passion and perseverance for long term goals (Duckworth, 2016).
Self-Control	The ability to control one's impulsive behaviors in the short-term in a situation (Duckworth, Peterson, Matthews, & Kelly, 2007).
Belongingness	The feeling of being included by a group (Walton & Cohen, 2007).
Growth Mindset	The belief that competence can be built through effort (Dweck, 2007).
Self-Efficacy	The belief that you can successfully do something (Bandura, 1997).
Value	Finding inherent interest and enjoyment in a task or subject (Hulleman et al., 2016).
Learning (Task) Goals	Goals oriented around mastery and building competence (Pintrich, 2000)
Performance (Ego) Goals	Goals oriented around beating others and proving one's own ability (Pintrich, 2000).
Self-Regulation	The ability to rise above distractions and temptations of the moment, stay on task, and navigate obstacles to long-term achievement (Mischel et al., 1989).
Expectancy	Similar to self-efficacy, believing that you can successfully complete a task (Hulleman et al., 2016).
Cost	The perception of a loss of valued alternatives, waste of effort and time, and negative psychological states that the individual experiences when engaging in an activity (Hulleman et al., 2016).

Table 3 *Psychological Mindsets Assessed in the Study, Including the Scales and Items Used*

Psychological Mindset	**Scale(s) Used**	**Items from the Scale**
Expectancy	Student Athletes' Motivation towards Sports and Academics Questionnaire (Gaston-Gayles, 2005)	72. I am confident that… I could play soccer in college. 73. I am confident that… I could play soccer professionally in the U.S. 74. I am confident that… I could play soccer professionally in Europe. 75. I am confident that… I could play soccer for my country's national team.
Growth Mindset	Adapted Growth Mindset Scale (Yeager et al., 2016).	115. You have a certain degree of soccer ability and you cannot really do much about it. 116. The main reason I think I am successful in soccer is because of my natural ability to play soccer. 117. Your soccer ability is something about you that you cannot change very much. 118. The main reason I think I am successful in soccer is because of the effort that I put in.
Value	*Intrinsic Value:* New items and adapted items from the Behavioral Regulation in Sport Questionnaire (BRSQ; Lonsdale, Hodge, & Rose, 2008) *Utility Value:* New items	*Intrinsic Value:* 26. I play soccer... because I love the game. 27. I play soccer… because it is part of who I am. 28. I play soccer… because I love competition 34. I play soccer… because it is fun to play *Utility Value:* 30. I play soccer… because it is useful in other areas of my life. 31. I play soccer… because I like the social part - being with teammates and friends. 36. I play soccer… because it will help me with my education and career goals.

		38. I play soccer… because it is good for my physical and mental health.
	Extrinsic Value: New items and adapted items from the BRSQ (Lonsdale et al., 2008)	*Extrinsic Value:* 40. I play soccer… so that others will praise and reward me for what I do. 41. I play soccer… because other people have sacrificed a lot for me to play. 46. I play soccer… because I would feel like a failure if I quit.
	Lack of Value: New items and adapted items from the BRSQ (Lonsdale et al., 2008) and the Sport Motivation Scale-6 (SMS-6; Mallett, Kawabata, Newcombe, Otero-Forero, & Jackson, 2007)	*Lack of Value:* 42. I play soccer… but I do not seem to be enjoying it as much as I did previously. 44. I play soccer… but I question why I continue.
Goals	*Play for the National Team/Play Professionally:* Adapted items from the HWK scale (Hollenbeck, Williams, & Klein, 1989; Van Yperen, 2009)	*Play for the National Team/Play Professionally:* 54. How important are the following goals to you? Playing soccer for your country's national team 56. With the goal of playing for your country's national team in mind, please answer the following questions... I am strongly committed to trying to play for the national team 53. How important are the following goals to you? Playing soccer professionally 58. With the goal of playing for your country's national team in mind, please answer the following questions... I do not care if I achieve the goal of playing for the national team or not 60. With the goal of playing for your country's national team in

		mind, please answer the following questions... I think this is a good goal to shoot for 57. With the goal of playing for your country's national team in mind, please answer the following questions... It is hard to take the goal of playing for the national team seriously 61. With the goal of playing for your country's national team in mind, please answer the following questions... It would not take much to make me abandon the goal of playing for the national team questions... I think this is a good goal to shoot for.
	Play in College: Adapted from Van Yperen (2009)	*Play in College:* 52. How important are the following goals to you? Receiving a scholarship to play soccer in college. 51. How important are the following goals to you? Playing soccer in college.
	Mastery: Adapted from the Sport Commitment Questionnaire-2 (Scanlan, Chow, Sousa, Scanlan, & Knifsend, 2016)	*Mastery:* 65. I constantly try to learn from my mistakes in soccer. 63. In soccer, I am constantly trying to improve my game. 67. Once I attain a goal in soccer, I challenge myself to continue improving.
	Performance: Adapted from the Achievement Goal Questionnaire for Sport (Conroy, Elliot, & Hofer, 2003)	*Performance:* 66. My goal is to play better than other players 64. My goal is to be the best player on my team
Belongingness	Adapted items from Walton and Cohen (2007).	173. I feel like I fit in on my team. 174. When you think about your team, how often, if ever, do you wonder: Maybe I do not belong here?

		175. When something does not go right for me in a game or training, I feel like I do not belong on the team.
Grit	Adapted from the Grit-S Scale (Duckworth & Quinn, 2009).	233. I am a hard worker 234. I finish whatever I begin 235. Setbacks don't discourage me
Self-Regulation	*Planning:* Items from the Football Self-Regulated Learning Scale (Toering, Jordet, & Ripegutu, 2013) and the ACSI-28 (Smith et al., 1995)	*Planning:* 84. Before each practice session, I plan which parts of my game I want to work on during the session 85. I have a clear goal for each practice session 83. Each practice session I try to identify my weaknesses and think about how to improve these 92. On a daily or weekly basis, I set very specific goals for myself that guide what I do 93. I tend to do lots of planning about how to reach my goals 82. After each practice session, I think about what I did right and wrong during the session
	Challenge: Items from the Football Self-Regulated Learning Scale (Toering et al., 2013) and the ACSI-28 (Smith et al., 1995)	*Challenge:* 101. Coping with challenges and pressure in soccer can make me stronger 100. The more pressure there is during a game, the more I enjoy it 98. I can handle unexpected situations in soccer 107. I am willing to overcome any obstacle to keep playing soccer
	Emotions: Items from the Sports Mental Toughness Questionnaire (SMTQ; Sheard, Golby, & Van Wersch, 2009), the ACSI-28 (Smith et al., 1995), and the Connor-Davidson Resilience Scale (CD-RISC; Connor &	*Emotions:* 108. When playing, I am able to control my emotions no matter how bad or how good things are going for me bad or how good things are going for me. 99. I remain positive and enthusiastic during competition, no matter how badly things are going

	Davidson, 2003) *Lack of Regulation:* New items and adapted items from the SMTQ (Sheard et al., 2009) and the ACSI-28 (Smith et al., 1995)	106. I can always regain my composure (feeling calm and in control) if I have momentarily lost it. 103. I get angry and frustrated when things do not go my way 102. I am not easily discouraged by failure *Lack of Regulation:* 105. I get distracted easily and lose my concentration 104. I give up in difficult situations 109. I often lose my confidence in high pressure situations 97. When I am playing soccer, I can focus my attention and block out distractions

Table 4

Means and Standard Deviations of All Items

Item	M[a]	SD
72. I am confident that… I could play soccer in college	5.59	0.654
73. I am confident that… I could play soccer professionally in the U.S	4.84	1.09
74. I am confident that… I could play soccer professionally in Europe	4.33	1.278
75. I am confident that… I could play soccer for my country's national team	4.46	1.295
115. You have a certain degree of soccer ability and you cannot really do much about it	2.37	1.344
116. The main reason I think I am successful in soccer is because of my natural ability to play soccer	4.13	1.367
117. Your soccer ability is something about you that you cannot change very much	2.64	1.521
118. The main reason I think I am successful in soccer is because of the effort that I put in	5.32	0.767
26. I play soccer... because I love the game	5.81	0.564
27. I play soccer… because it is part of who I am	5.64	0.699
28. I play soccer… because I love competition	5.57	0.72
30. I play soccer… because it is useful in other areas of my life	4.9	1.043
31. I play soccer… because I like the social part - being with teammates and friends	4.84	1.066
34. I play soccer… because it is fun to play	5.69	0.639
36. I play soccer… because it will help me with my education	5.09	1.009

and career goals		
38. I play soccer… because it is good for my physical and mental health	5.23	0.955
40. I play soccer… so that others will praise and reward me for what I do	2.87	1.425
41. I play soccer… because other people have sacrificed a lot for me to play	3.71	1.653
42. I play soccer… but I do not seem to be enjoying it as much as I did previously	2.17	1.357
44. I play soccer… but I question why I continue	1.8	1.1
46. I play soccer… because I would feel like a failure if I quit	2.7	1.627
51. How important are the following goals to you? Playing soccer in college	4.94	1.172
52. How important are the following goals to you? Receiving a scholarship to play soccer in college	4.88	1.254
53. How important are the following goals to you? Playing soccer professionally	4.86	1.423
54. How important are the following goals to you? Playing soccer for your country's national team	4.78	1.445
56. With the goal of playing for your country's national team in mind, please answer the following questions... I am strongly committed to trying to play for the national team	4.93	1.275
57. With the goal of playing for your country's national team in mind, please answer the following questions... It is hard to take the goal of playing for the national team seriously	2.58	1.467
58. With the goal of playing for your country's national team in mind, please answer the following questions... I do not care if I achieve the goal of playing for the national team or not	2.46	1.37
60. With the goal of playing for your country's national team in mind,	5.19	1.022

please answer the following questions... I think this is a good goal to shoot for		
61. With the goal of playing for your country's national team in mind, please answer the following questions.. It would not take much to make me abandon the goal of playing for the national team	2.44	1.463
63. In soccer, I am constantly trying to improve my game	5.7	0.542
64. My goal is to be the best player on my team	5.31	0.989
65. I constantly try to learn from my mistakes in soccer	5.65	0.579
66. My goal is to play better than other players	5.19	1.027
67. Once I attain a goal in soccer, I challenge myself to continue improving	5.61	0.599
173. I feel like I fit in on my team	5.06	1.029
174. When you think about your team, how often, if ever, do you wonder: Maybe I do not belong here?	1.93	1.062
175. When something does not go right for me in a game or training, I feel like I do not belong on the team	2.26	1.218
233. I am a hard worker	5.47	0.714
234. I finish whatever I begin	5.2	0.83
235. Setbacks don't discourage me	4.56	1.309
82. After each practice session, I think about what I did right and wrong during the session	5.09	1.057
83. Each practice session I try to identify my weaknesses and think about how to improve these	4.8	1.112
84. Before each practice session, I plan which parts of my game I want to work on during the session	4.15	1.264
85. I have a clear goal for each practice session	4.36	1.243

92. On a daily or weekly basis, I set very specific goals for myself that guide what I do	4.39	1.139
93. I tend to do lots of planning about how to reach my goals	4.57	1.118
97. When I am playing soccer, I can focus my attention and block out distractions	5.31	0.803
98. I can handle unexpected situations in soccer	5.14	0.767
99. I remain positive and enthusiastic during competition, no matter how badly things are going	4.69	1.044
100. The more pressure there is during a game, the more I enjoy it	4.85	1.077
101. Coping with challenges and pressure in soccer can make me stronger	5.43	0.702
102. I am not easily discouraged by failure	4.78	1.18
103. I get angry and frustrated when things do not go my way	3.37	1.327
104. I give up in difficult situations	1.59	0.826
105. I get distracted easily and lose my concentration	1.99	1.012
106. I can always regain my composure (feeling calm and in control) if I have momentarily lost it	4.94	0.9
107. I am willing to overcome any obstacle to keep playing soccer	5.47	0.744
108. When playing, I am able to control my emotions no matter how bad or how good things are going for me	4.63	1.058
109. I often lose my confidence in high pressure situations	2.39	1.217

Notes. [a] Scales with a minimum of 1 and a maximum of 6

Table 5

Expectancy EFA Eigenvalues and Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.821	70.535	70.535	2.57	64.259	64.259
2	0.799	19.967	90.502			
3	0.208	5.191	95.693			
4	0.172	4.307	100			

Notes. Extraction Method: Principal Axis Factoring.

Table 6

Expectancy Items Correlation Matrix

Item	72.	73.	74.	75.
72.	1			
73.	0.446**	1		
74.	0.333**	0.804**	1	
75.	0.313**	0.778**	0.821**	1

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

Table 7

Growth Mindset Items Correlation Matrix

Item	115.	116.	117.	118.
115.	1			
116.	.265**	1		
117.	.629**	.331**	1	
118.	-.140**	-.086**	-.084**	1

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

Table 8

Value EFA Eigenvalues and Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.907	24.42	24.42	3.358	20.985	20.985	2.832
2	3.024	18.901	43.322	2.491	15.567	36.552	2.082
3	1.194	7.464	50.786	0.652	4.077	40.629	2.631
4	1.058	6.614	57.4	0.545	3.408	44.037	2.288
5	0.874	5.462	62.862				
6	0.767	4.791	67.654				
7	0.651	4.067	71.721				
8	0.648	4.048	75.769				
9	0.581	3.629	79.398				
10	0.553	3.456	82.854				
11	0.518	3.237	86.091				
12	0.504	3.147	89.238				

13	0.493	3.08	92.318
14	0.457	2.856	95.174
15	0.407	2.546	97.72
16	0.365	2.28	100

Notes. Extraction Method: Principal Axis Factoring. a When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 9

Value Factor Pattern Matrix

Factor[a]	1	2	3	4
26. I play soccer... because I love the game	**0.798**	-0.031	0.103	-0.005
34. I play soccer… because it is fun to play	**0.675**	-0.075	-0.037	0.052
27. I play soccer… because it is part of who I am	**0.636**	0.072	0.021	-0.127
28. I play soccer… because I love competition	**0.507**	-0.001	-0.201	-0.021
35. I play soccer… because I love to win*	**0.341**	0.136	-0.175	-0.018
41. I play soccer… because other people have sacrificed a lot for me to play	0.007	**0.68**	0.019	-0.012
46. I play soccer… because I would feel like a failure if I quit	0.033	**0.559**	0.083	0.228
40. I play soccer… so that others will praise and reward me for what I do	-0.016	**0.548**	-0.013	0.05
32. I play soccer… so that I can help my family or make them proud	-0.008	**0.462**	-0.316	-0.184
45. I play soccer… because I feel pressure from other people to play	-0.058	*0.363*	0.008	**0.466**
30. I play soccer… because it is useful in other areas of my life	-0.016	-0.018	**-0.72**	-0.006
38. I play soccer… because it is good for my physical and mental health	0.023	-0.056	**-0.673**	0.062

36. I play soccer… because it will help me with my education and career goals	0.014	0.059	**-0.564**	-0.032
31. I play soccer… because I like the social part – being with teammates and friends	0.067	0.002	**-0.499**	0.029
44. I play soccer… but I question why I continue	-0.073	0.064	-0.047	**0.762**
42. I play soccer… but I do not seem to be enjoying it as much as I did previously	-0.03	-0.02	-0.021	**0.748**

Notes. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. [a] Rotation converged in 8 iterations. *Item deleted from factor. ## Cross loadings with other factors. *Italicized ##* Item added to cross loaded factor. **Bold ##** items loaded together to form factors.

Table 10

Value Item Correlations

Item	26.	27.	28.	30.	31.	32.	34.	35.	36.	38.	40.	41.	42.	44.	45.	46.
26.	1															
27.	.559**	1														
28.	.407**	.393**	1													
30.	.238**	.254**	.300**	1												
31.	.159**	.199**	.269**	.355**	1											
32.	.129**	.232**	.201**	.335**	.278**	1										
34.	.525**	.434**	.397**	.238**	.265**	.108**	1									
35	.239**	.260**	.475**	.248**	.207**	.256**	.289**	1								
36.	.200**	.246**	.259**	.457**	.286**	.343**	.196**	.241**	1							
38.	.208**	.209**	.308**	.474**	.381**	.282**	.253**	.241**	.369**	1						
40.	-.045**	-0.021	0.008	.111**	.119**	.279**	-0.015	.133**	.115**	.113**	1					
41.	-0.019	0.024	.059**	.152**	.111**	.350**	0	.105**	.143**	.135**	.372**	1				

42.	-.251**	-.274**	-.207**	-.088**	-.072**	-.054**	-.201**	-.101**	-.065**	-.055**	.173**	.166**	1			
44.	-.285**	-.287**	-.206**	-.064**	-.041**	0.011	-.238**	-.106**	-.062**	-.047**	.221**	.211**	.616**	1		
45.	-.204**	-.196**	-.137**	-0.003	0.028	.116**	-.159**	-0.027	0.023	0.013	.339**	.338**	.450**	.520**	1	
46.	-.090**	-.058**	-.040*	.065**	.038*	.207**	-.078**	.063**	.075**	.064**	.357**	.426**	.298**	.371**	.427**	1

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

Table 11

Value Between-Factor Correlations

Factor	1	2	3	4
1	1	0.035	-0.513	-0.399
2	0.035	1	-0.342	0.347
3	-0.513	-0.342	1	0.152
4	-0.399	0.347	0.152	1

Table 12

Goals EFA Eigenvalues and Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.521	39.436	39.436	5.14	36.713	36.713	4.755
2	1.752	12.513	51.949	1.359	9.706	46.419	2.941
3	1.52	10.858	62.807	1.194	8.528	54.947	1.786
4	1.095	7.824	70.631	0.651	4.646	59.594	2.071
5	0.774	5.526	76.156				
6	0.537	3.834	79.99				
7	0.468	3.345	83.335				
8	0.453	3.235	86.57				
9	0.438	3.13	89.7				
10	0.397	2.836	92.536				
11	0.39	2.782	95.319				
12	0.28	1.997	97.316				

13	0.237	1.693	99.009
14	0.139	0.991	100

Notes. Extraction Method: Principal Axis Factoring. [a] When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 13

Goals Factor Pattern Matrix

Factor[a]	1	2	3	4
54. How important are the following goals to you? Playing soccer for your countrys national team	**0.889**	-0.079	-0.078	0.04
56. With the goal of playing for your country's national team in mind, please answer the following questions... I am strongly committed to trying to play for the national team	**0.87**	-0.011	-0.055	0.016
53. How important are the following goals to you? Playing soccer professionally	**0.785**	-0.023	-0.078	0.035
58. With the goal of playing for your country's national team in mind, please answer the following questions... I do not care if I achieve the goal of playing for the national team or not	**-0.781**	0.015	-0.048	-0.013
60. With the goal of playing for your country's national team in mind, please answer the following questions... I think this is a good goal to shoot for	**0.693**	0.057	-0.062	0.012
57. With the goal of playing for your country's national team in mind, please answer the following questions... It is hard to take the goal of playing for the national team seriously	**-0.606**	-0.048	-0.084	0.046
61. With the goal of playing for your country's national team in mind, please answer the following questions.. It would not take much to make me abandon the goal	**-0.594**	-0.046	-0.042	0.014

of playing for the national team				
65. I constantly try to learn from my mistakes in soccer	-0.062	**0.771**	-0.028	-0.037
63. In soccer, I am constantly trying to improve my game	0.044	**0.737**	0.018	0.03
67. Once I attain a goal in soccer, I challenge myself	0.104	**0.666**	-0.018	0.088
to continue improving				
52. How important are the following goals to you?	0.118	-0.048	**-0.889**	0.008
Receiving a scholarship to play soccer in college				
51. How important are the following goals to you?	-0.075	0.068	**-0.772**	-0.008
Playing soccer in college				
66. My goal is to play better than other players	-0.053	-0.036	0.005	**0.774**
64. My goal is to be the best player on my team	0.085	0.097	0.002	**0.659**

Notes. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. [a] Rotation converged in 7 iterations. **Bold ##** items loaded together to form factors.

Table 14

Goals Item Correlations

Item.	51.	52.	53.	54.	56.	57.	58.	60.	61.	63.	64.	65.	66.	67.
51.	1													
52.	0.693	1												
53.	0.11	0.312	1											
54.	0.137	0.308	0.837	1										
56.	0.15	0.284	0.705	0.798	1									
57.	-0.015	-0.114	-0.413	-0.445	-0.491	1								
58.	-0.069	-0.183	-0.579	-0.647	-0.66	0.525	1							
60.	0.143	0.263	0.578	0.638	0.699	-0.451	-0.551	1						
61.	-0.079	-0.132	-0.426	-0.472	-0.517	0.475	0.533	-0.42	1					
63.	0.138	0.138	0.331	0.323	0.357	-0.236	-0.285	0.324	-0.257	1				
64.	0.127	0.167	0.303	0.312	0.329	-0.2	-0.284	0.298	-0.227	0.364	1			
65.	0.144	0.157	0.238	0.231	0.252	-0.183	-0.216	0.259	-0.188	0.557	0.279	1		
66.	0.088	0.13	0.179	0.194	0.184	-0.088	-0.156	0.166	-0.119	0.22	0.531	0.181	1	

67.	0.163	0.191	0.37	0.373	0.4	-0.269	-0.328	0.378	-0.281	0.583	0.37	0.548	0.289	1

Note. *Shaded* Correlations are greater than .30.

Table 15

Goals Between-Factor Correlations

Factor	1	2	3	4
1	1	0.468	-0.207	0.348
2	0.468	1	-0.204	0.441
3	-0.207	-0.204	1	-0.19
4	0.348	0.441	-0.19	1

Table 16

Belongingness EFA Eigenvalues and Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.075	69.174	69.174	1.659	55.299	55.299
2	0.566	18.855	88.029			
3	0.359	11.971	100			

Note. Extraction Method: Principal Axis Factoring.

Table 17

Belongingness Correlation Matrix

	173.	174.	175.
173.	1		
174.	-.565**	1	
175.	-.437**	.606**	1

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

Table 18

Grit Correlation Matrix

Item	233.	234.	235.
233.	1		
234.	.473**	1	
235.	.272**	.268**	1

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

Table 19

Self-Regulation EFA Eigenvalues and Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.255	32.92	32.92	5.728	30.145	30.145	2.448
2	2.213	11.645	44.565	1.705	8.971	39.117	4.635
3	1.261	6.635	51.2	0.702	3.694	42.81	3.322
4	1.008	5.305	56.505	0.403	2.121	44.931	3.372
5	0.823	4.331	60.837				
6	0.781	4.112	64.949				
7	0.721	3.792	68.742				
8	0.703	3.698	72.439				
9	0.636	3.347	75.787				
10	0.596	3.136	78.923				
11	0.571	3.004	81.927				
12	0.552	2.907	84.833				

13	0.501	2.636	87.469
14	0.489	2.573	90.043
15	0.466	2.452	92.494
16	0.442	2.327	94.821
17	0.354	1.866	96.687
18	0.326	1.718	98.405
19	0.303	1.595	100

Notes. Extraction Method: Principal Axis Factoring.

Table 20

Self-Regulation Factor Pattern Matrix

Factor	1	2	3	4
101. Coping with challenges and pressure in soccer can make me stronger	**0.436**	0.114	0.086	-0.159
100. The more pressure there is during a game, the more I enjoy it	**0.377**	0.107	0.138	-0.167
98. I can handle unexpected situations in soccer	**0.344**	0.033	0.304	-0.172
107. I am willing to overcome any obstacle to keep playing soccer	**0.332**	0.275	0.044	-0.167
84. Before each practice session, I plan which parts of my game I want to work on during the session	-0.126	**0.823**	0.048	0.008
85. I have a clear goal for each practice session	-0.05	**0.803**	0.054	0.013
83. Each practice session I try to identify my weaknesses and think about how to improve these	-0.017	**0.754**	-0.015	-0.05
92. On a daily or weekly basis, I set very specific goals for myself that guide what I do	0.022	**0.739**	0.067	0.075
93. I tend to do lots of planning about how to reach my goals	0.09	**0.7**	0.014	0.05
82. After each practice session, I think about what I did right and wrong during the session	0.052	**0.642**	-0.119	-0.072
108. When playing, I am able to control my emotions no matter how bad or how good things are going for me	-0.031	0.019	**0.758**	0.062
99. I remain positive and enthusiastic during	0.051	0.138	**0.593**	0.031

competition, no matter how badly things are going				
106. I can always regain my composure (feeling calm and in control) if I have momentarily lost it	0.18	0.016	**0.576**	-0.056
103. I get angry and frustrated when things do not go my way	0.296	0.026	**-0.358**	0.348
102. I am not easily discouraged by failure	0.229	0.017	**0.254**	-0.127
105. I get distracted easily and lose my concentration	0.029	-0.06	0.021	**0.666**
104. I give up in difficult situations	-0.092	-0.027	0.085	**0.618**
109. I often lose my confidence in high pressure situations	-0.099	0.028	-0.076	**0.562**
97. When I am playing soccer, I can focus my attention and block out distractions	0.292	0.071	0.165	**-0.297**

Notes. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. ## Cross loadings with other factors. **Bold ##** items loaded together to form factors.

Table 21

Self-Regulation Between-Factor Correlations

Factor	1	2	3	4
1	1	0.402	0.238	-0.389
2	0.402	1	0.37	-0.338
3	0.238	0.37	1	-0.542
4	-0.389	-0.338	-0.542	1

Table 22

Cronbach's Alpha Coefficients for Each Scale

Factor	Cronbach's Alpha Coefficient (α)
Expectancy	.86
Growth Mindset	.68
Intrinsic Value	.76
Utility Value	.71
External Value	.70
Lack of Value	.75
Goals to Play for National Team/Professionally	.90
Goals to Play in College	.82
Mastery Goals	.79
Performance Goals	.69
Belongingness	.77
Grit	.64
Regulation of Planning	.68
Regulation of Challenge	.88
Regulation of Emotions	.69
Lack of Regulation	.70

Table 23

Descriptive Statistics of All Mindsets in the Overall Sample

Mindset	N	Missing N	Mean	Mode	Std. Deviation	Skewness	Kurtosis	Minimum	Maximum
Expectancy	4093	134	4.9145	5	0.94782	-0.813	0.512	1	6
Growth Mindset	4005	222	3.9563	4	1.14129	-0.373	-0.131	1	6
Intrinsic Value	4151	76	5.6476	6	0.59503	-2.448	11.491	1	6
Utility Value	4150	77	5.1357	5	0.802	-1.147	2.732	1	6
External Value	4148	79	3.1572	3	1.03443	0.178	-0.387	1	6
Lack of Value	4137	90	2.1441	1	1.1893	1.057	0.614	1	6
Goals to Play for National Team/Pro	4122	105	4.771	5	1.12954	-0.783	0.065	1	6
Goals College	4122	105	5.0718	6	1.10642	-1.268	1.313	1	6
Goals Mastery	4104	123	5.673	6	0.53926	-1.751	4.914	1	6
Goals Performance	4104	123	5.4055	6	0.8547	-1.767	3.802	1	6
Belongingness	3966	261	4.9708	5	0.9619	-0.906	0.766	1	6
Grit	3919	308	5.5239	6	0.64964	-1.268	1.434	2	6
Regulation of Planning	4085	142	4.6502	5	0.97258	-0.381	-0.344	1	6
Regulation of Challenge	4049	178	5.3472	5	0.65142	-0.602	-0.146	3	6
Regulation of Emotions	4050	177	4.5336	5	0.79762	-0.233	0.017	2	6
Lack of Regulation	4054	173	2.019	2	0.79592	0.609	0.461	1	6

Table 24

Practical Significance Values for ANOVAs and Mindsets That Entered Stepwise Regressions

Mindset	Age	Ethnicity	Scouting Recommendation	Pro vs. Non-Pro Club	Position	Entered Stepwise Regression for Minutes Played	Entered Stepwise Regression for Goals Scored for Attackers	Entered Stepwise Regression for Goals Allowed for Defenders	Entered Stepwise Regression for Goals Allowed for Goalkeepers
Expectancy		$\eta^2 = .048$	$\eta^2 = .030$	$\eta^2 = .022$	$\eta^2 = .018$	Yes	Yes		Yes
Growth Mindset	$\eta^2 = .005$	$\eta^2 = .028$		$\eta^2 = .002$	$\eta^2 = .007$				
Intrinsic Value			$\eta^2 = .005$						
Utility Value	$\eta^2 = .003$*	$\eta^2 = .009$							
External Value	$\eta^2 = .014$	$\eta^2 = .024$			$\eta^2 = .004$				
Lack of Value	$\eta^2 = .006$		$\eta^2 = .020$		$\eta^2 = .003$	Yes	Yes	Yes	
Goals to Play for the National Team/Professionally	$\eta^2 = .022$	$\eta^2 = .028$	$\eta^2 = .037$	$\eta^2 = .029$	$\eta^2 = .014$	Yes			
Goals to Play in College	$\eta^2 = .009$	$\eta^2 = .003$	$\eta^2 = .003$	$\eta^2 = .012$					
Mastery Goals	$\eta^2 = .005$	$\eta^2 = .006$	$\eta^2 = .005$	$\eta^2 = .004$					
Performance Goals			$\eta^2 = .004$		$\eta^2 = .004$				
Belongingness	$\eta^2 = .005$		$\eta^2 = .016$		$\eta^2 = .006$	Yes	Yes		
Grit		$\eta^2 = .002$	$\eta^2 = .002$	$\eta^2 = .002$					
Regulation of Planning	$\eta^2 = .008$	$\eta^2 = .017$	$\eta^2 = .002$	$\eta^2 = .006$	$\eta^2 = .008$	Yes			
Regulation of Challenge		$\eta^2 = .005$	$\eta^2 = .012$	$\eta^2 = .003$	$\eta^2 = .005$				
Regulation of Emotions	$\eta^2 = .004$	$\eta^2 = .002$					Yes		
Lack of Regulation	$\eta^2 = .005$		$\eta^2 = .015$						

Notes. * Tukey's post-hoc test did not display any significant differences between individual groups. η^2 values are only reported for statistically significant ANOVAs.

Table 25

Correlation Matrix for All Mindsets and Performance Outcomes

Mindset /Outcome	Expectancy	Growth Mindset	Intrinsic Value	Utility Value	External Value	Lack of Value	Goals National/Pro	Goals College	Mastery Goals	Performance Goals	Belonging	Grit	Regulation of Planning	Regulation of Challenge	Regulation of Emotion	Lack of Regulation	Minutes Per Game	Goals Scored	Goals Allowed
Expectancy	1	-.01	.26*	.12*	.01	-.34*	.65*	.19*	.35*	.30*	.25*	.26*	.41*	.423*	.27*	-.33*	.13*	.18*	-.09*
Growth Mindset	-.01	1	.02	-.05*	-.21*	-.13*	.05*	-0.02	.11*	-.02	.08*	.12*	.03	.09*	.05*	-.20*	.01	-.08*	-.01
Intrinsic Value	.26*	0.02	1	.39*	.04	-.28*	.29*	.18*	.36*	.26*	.16*	.20*	.25*	.32*	.15*	-.24*	.03	.07*	-.05*
Utility Value	.12*	-.05*	.39*	1	.23*	-.10*	.10*	.26*	.19*	.12*	.05*	.11*	.19*	.17*	.14*	-.09*	-.01	.03	-.02
External Value	.01	-.21*	.03*	.23*	1	.35*	-.07*	.08*	-.11*	.06*	-.24*	-.09*	.01	-.10*	-.16*	.24*	-.04	.01	.04
Lack of Value	-.34*	-.13*	-.28*	-.10*	.35*	1	-.45*	-.13*	-.37*	-.15*	-.43*	-.23*	-.30*	-.37*	-.28*	.40*	-.16*	-.11*	.11*
Goals National/ Pro	.65*	.05*	.29*	.10*	-.07*	-.45*	1	.20*	.39*	.28*	.26*	.27*	.45*	.43*	.23*	-.35*	.14*	.17*	-.11*
Goals College	.19*	-.02	.18*	.26*	.08*	-.13*	.20*	1	.18*	.15*	.06*	.12*	.16*	.16*	.11*	-.09*	.04	-.01	-.05*
Mastery Goals	.35*	.11*	.36*	.19*	-.11*	-.37*	.39*	.18*	1	.33*	.22*	.34*	.43*	.43*	.26*	-.36*	.04	.05*	-.06*

Performance Goals	.30*	-.02	.26*	.12*	.06*	-.15*	.28*	.15*	.33*	1	.13*	.16*	.26*	.27*	.11*	-.19*	.05*	.09*	-.01
Belonging	.25*	.08*	.16*	.05*	-.24*	-.43*	.26*	.06*	.22*	.13*	1	.17*	.13*	.29*	.29*	-.39*	.25*	.09*	-.10*
Grit	.26*	.12*	.20*	.11*	-.09*	-.23*	.27*	.12*	.34*	.16*	.17*	1	.33*	.35*	.26*	-.36*	.04	.01	-.05*
Regulation of Planning	.41*	.03	.25*	.19*	.01	-.30*	.45*	.16*	.43*	.26*	.13*	.33*	1	.44*	.31*	-.31*	-.02	.05*	-.06*
Regulation of Challenge	.43*	.09*	.32*	.17*	-.1*	-.37*	.43*	.16*	.43*	.27*	.29*	.35*	.44*	1	.41*	-.51*	.08*	.09*	-.10*
Regulation of Emotions	.27*	.05*	.15*	.14*	-.16*	-.28*	.23*	.11*	.26*	.11*	.29*	.26*	.31*	.41*	1	-.46*	.05*	0	-.03
Lack of Regulation	-.33*	-.20*	-.24*	-.09*	.24*	.40*	-.35*	-.09*	-.36*	-.19*	-.39*	-.36*	-.31*	-.51*	-.46*	1	-.11*	-.05*	.07*
Minutes Per Game	.13*	.01	.03	-.01	-.04*	-.16*	.14*	.04	.04	.05*	.25*	.04	-.02	.08*	.05*	-.11*	1	.25*	0
Goals Scored	.18*	-.08*	.07*	.03	.01	-.11*	.17*	-.01	.06*	.10*	.09*	.01	.05*	.09*	0	-.05*	.25*	1	-.05*
Goals Allowed	-.09*	-.01	-.05*	-.02	.04	.11*	-.11*	-.05*	-.06*	-.01	-.10*	-.05*	-.06*	-.10*	-.03	.07*	0	-.05*	1

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

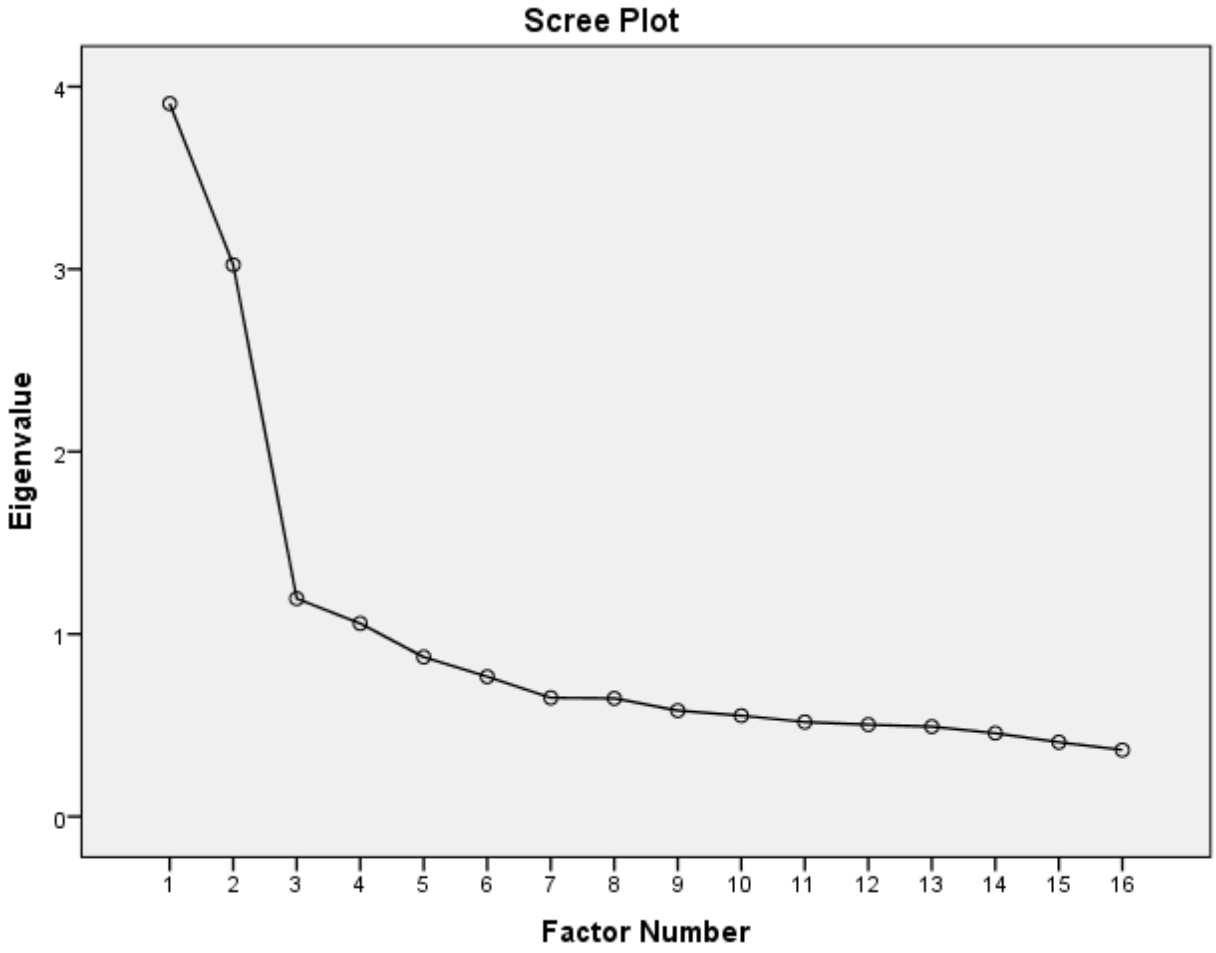

Figure 1. Scree Plot for Value Exploratory Factor Analysis (EFA).

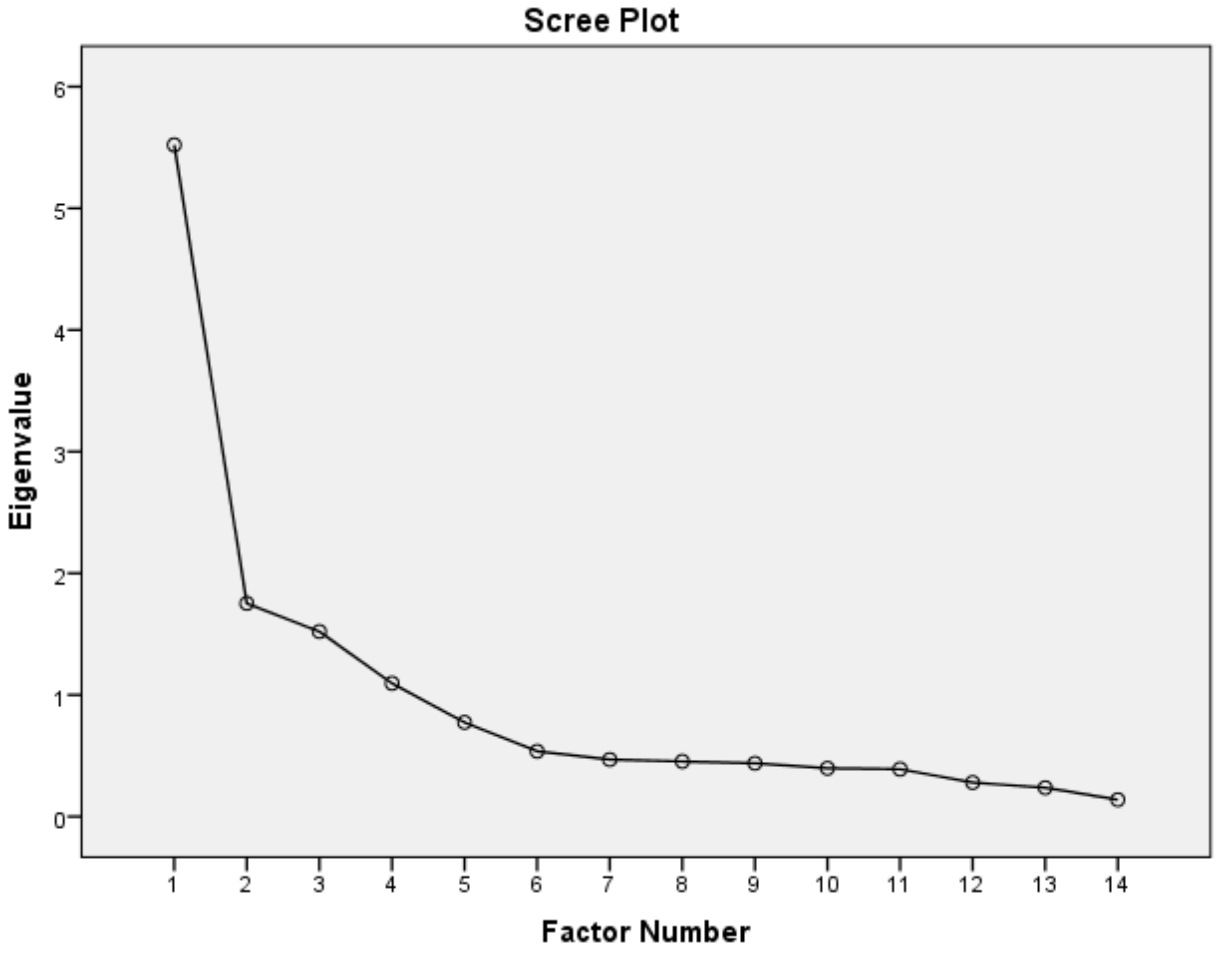

Figure 2. Scree Plot for Goals Exploratory Factor Analysis (EFA).

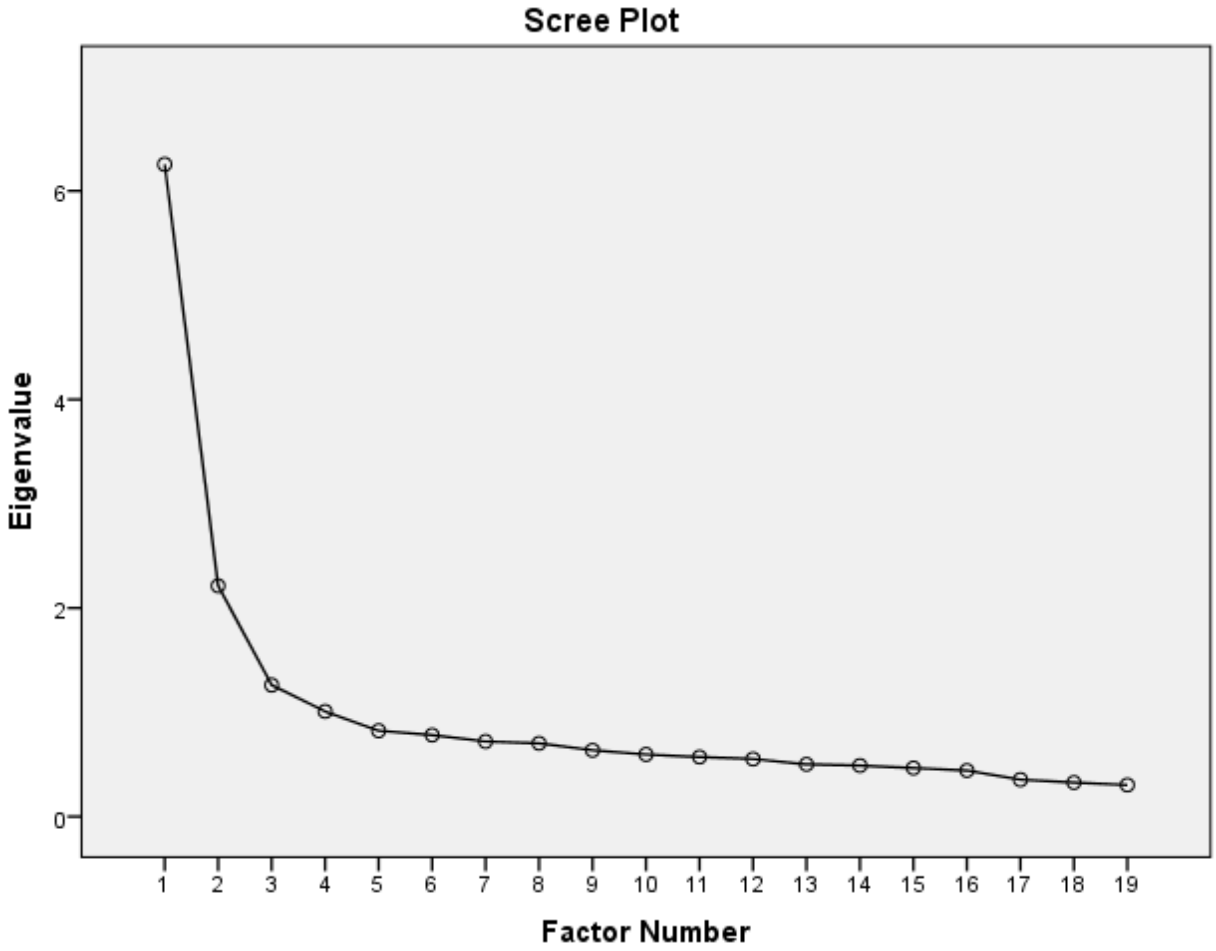

Figure 3. Scree Plot for Self-Regulation Exploratory Factor Analysis (EFA).

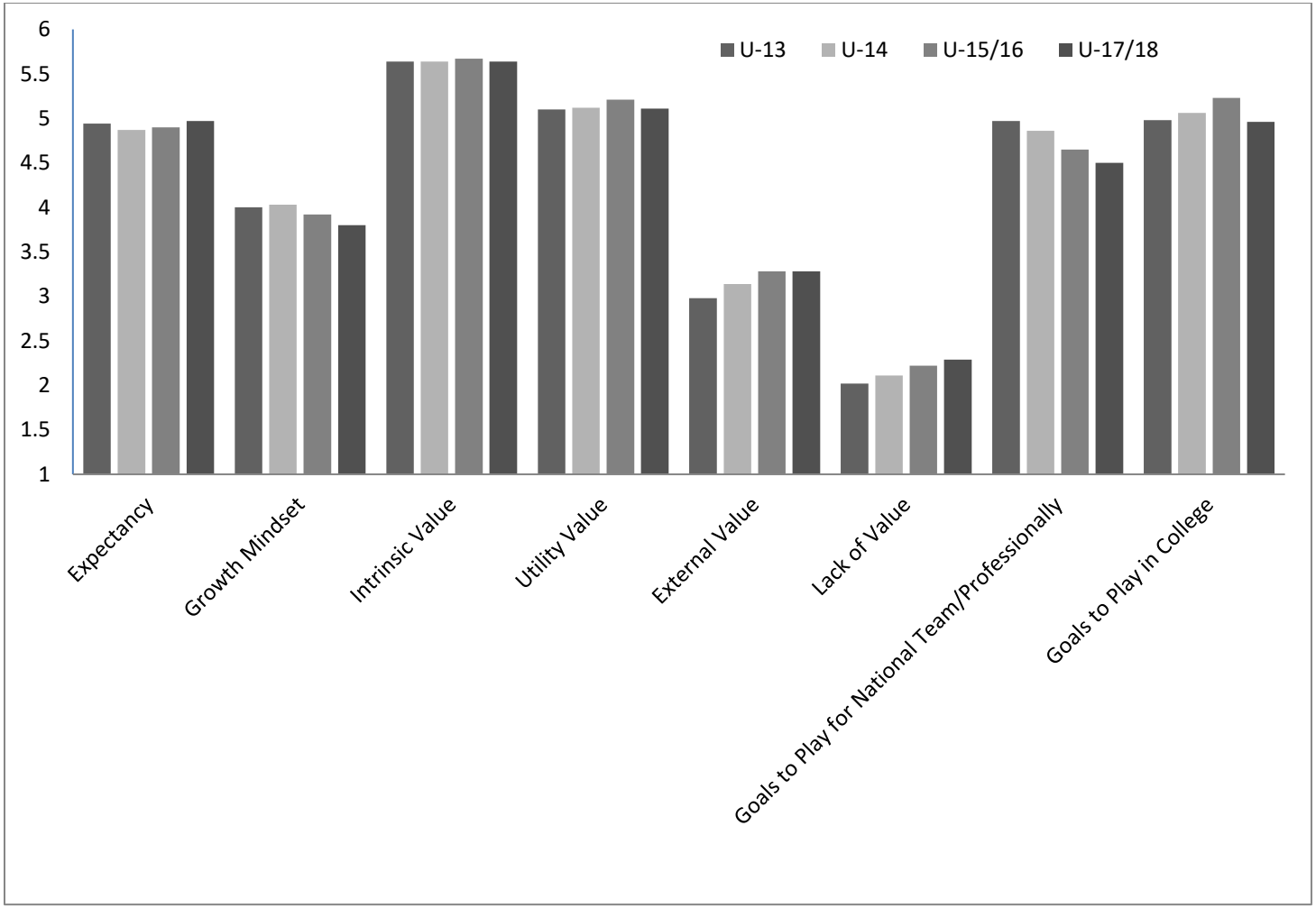

Figure 4A. Comparison of Means by Age Group.

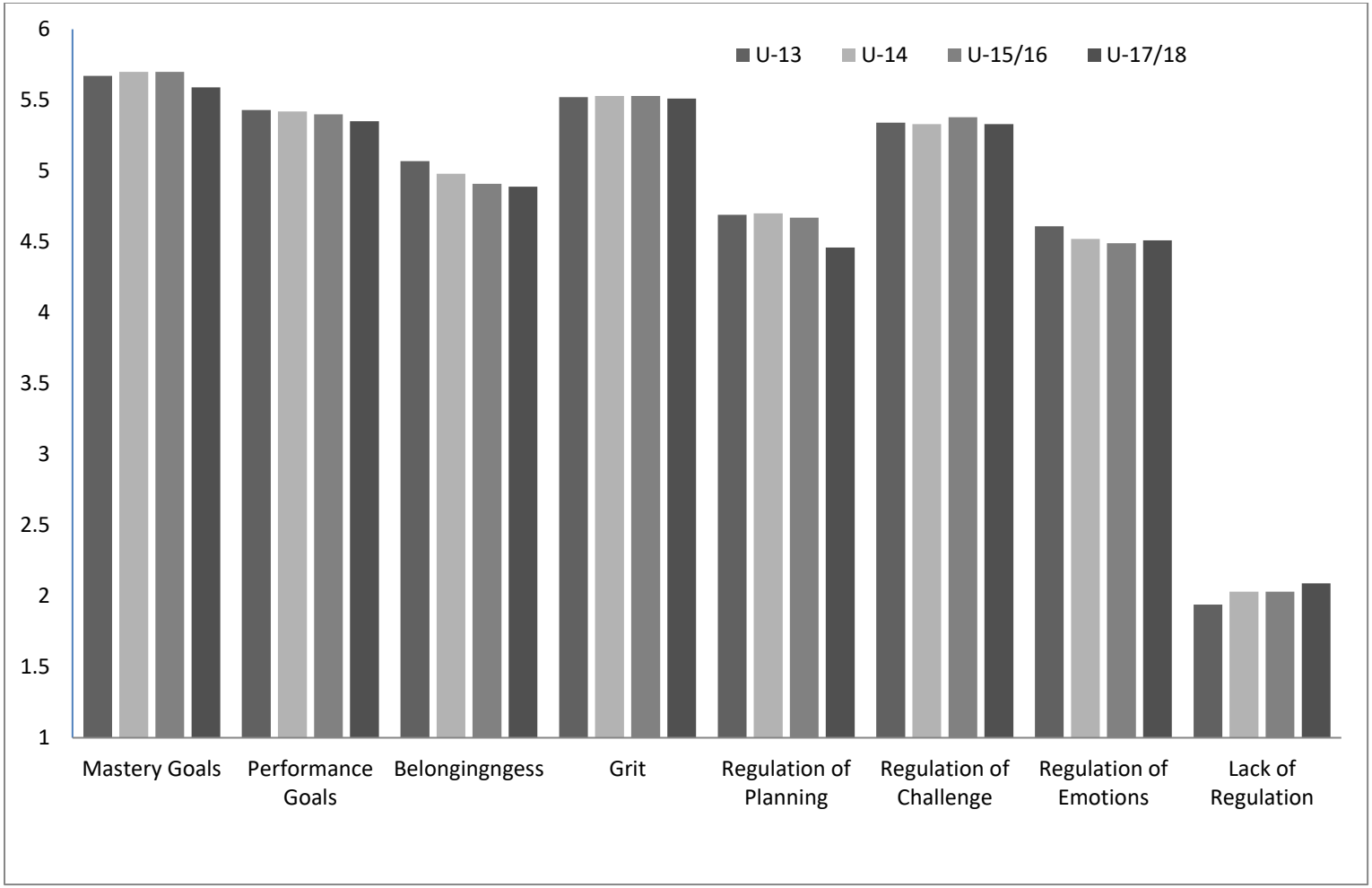

Figure 4B. Comparison of Means by Age Group.

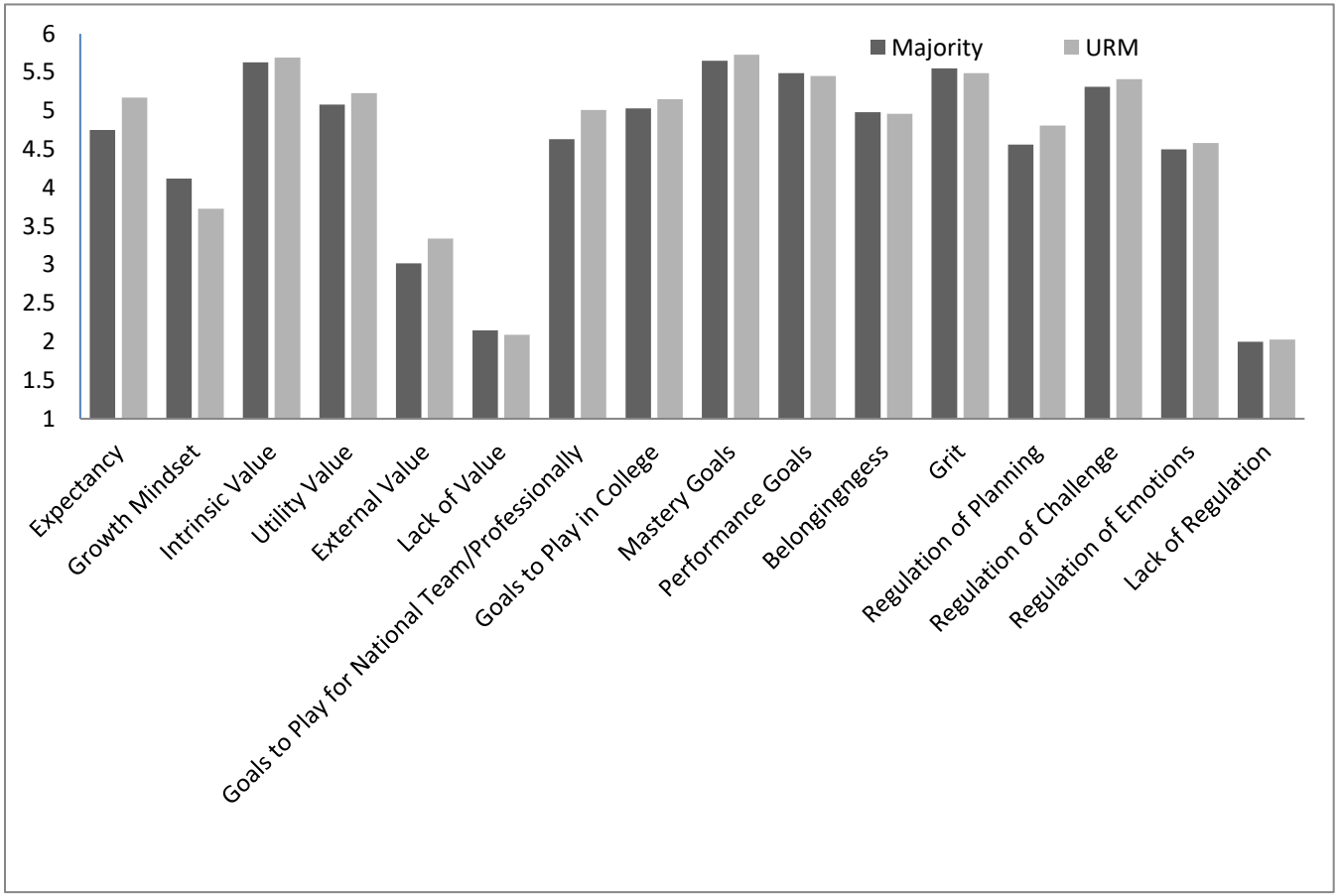

Figure 5. Comparisons of Means for Majority vs. URM Players

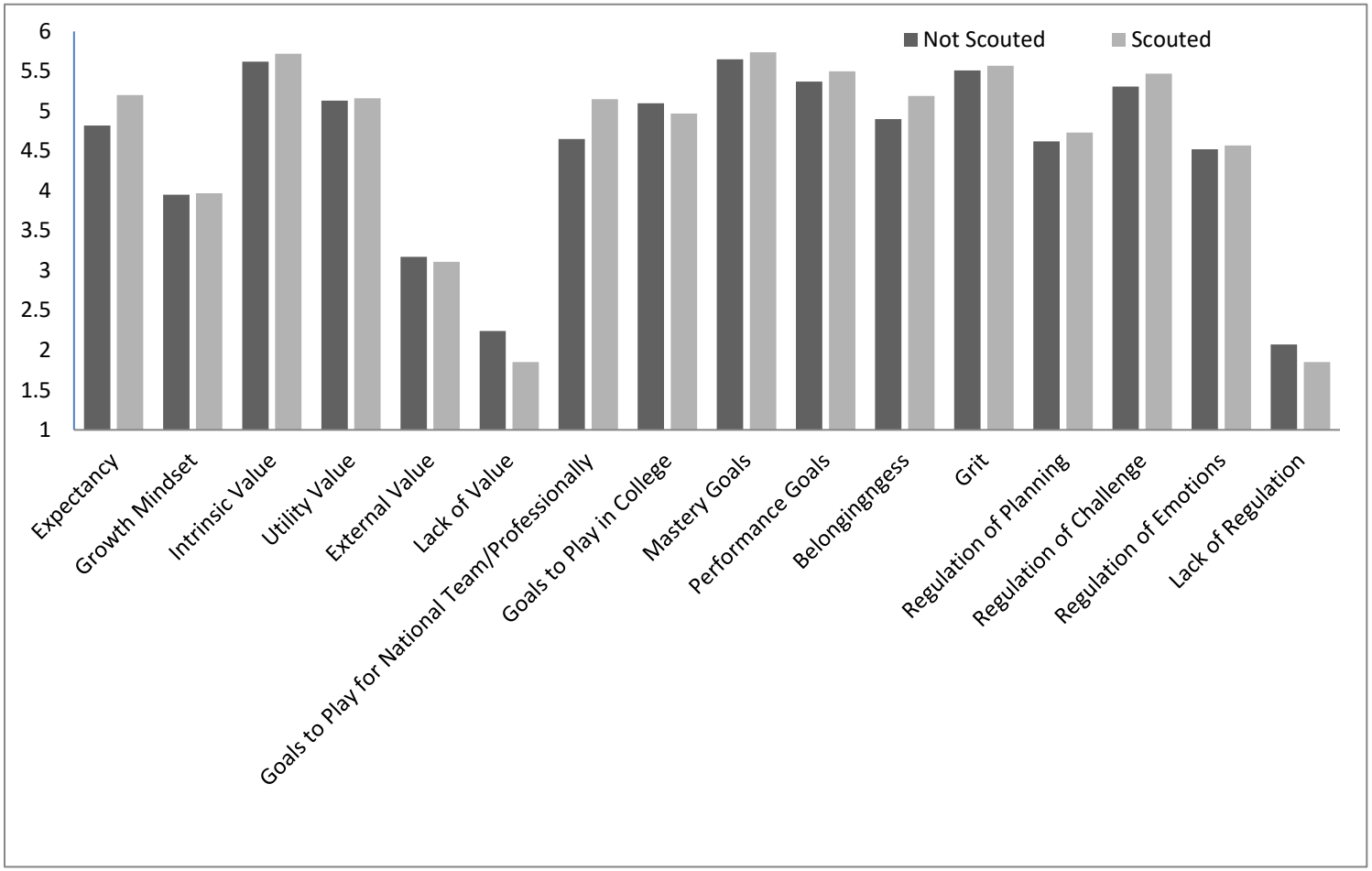

Figure 6. Comparisons of Means for Not Scouted vs. Scouted Players

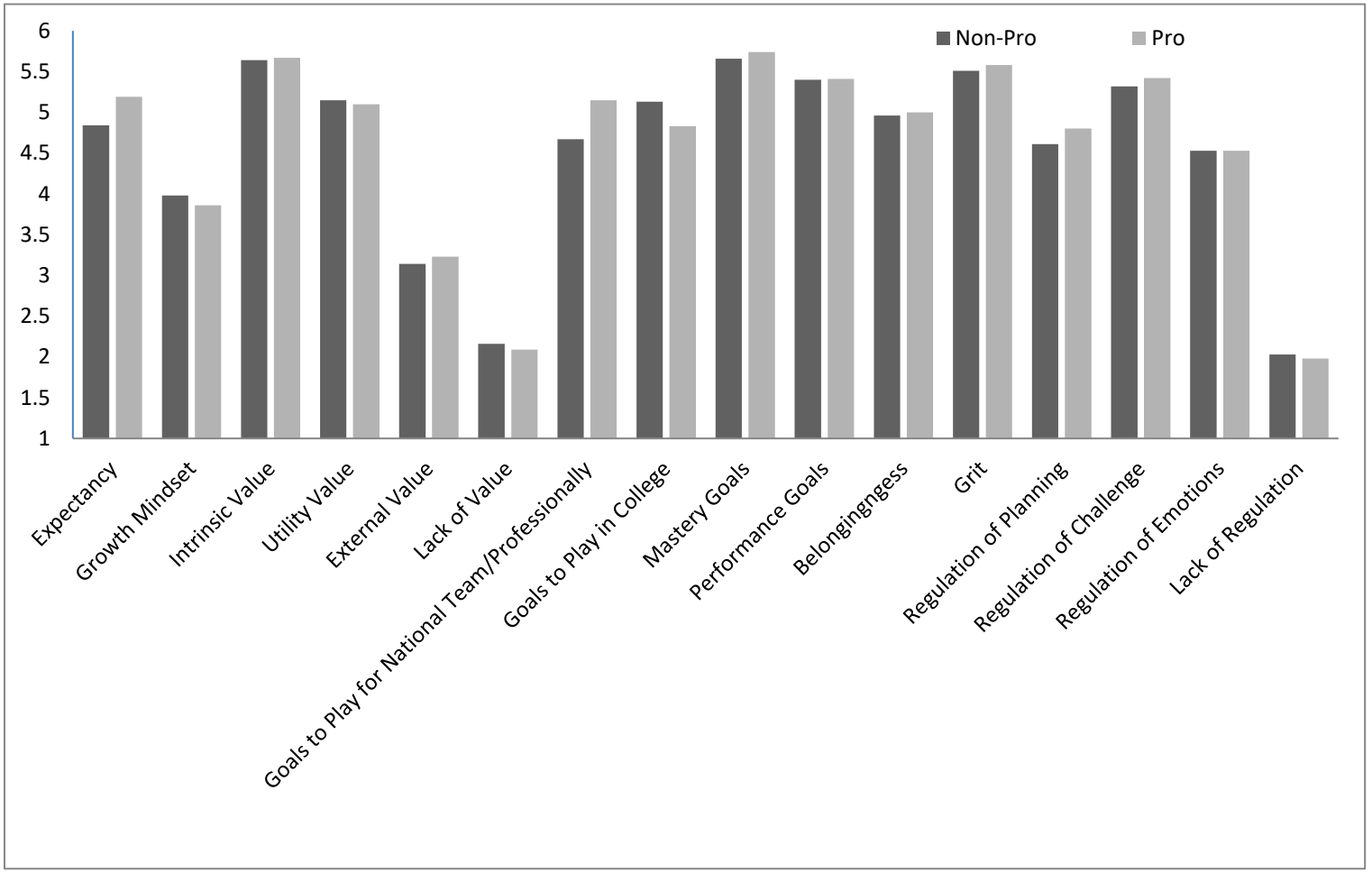

Figure 7. Comparisons of Means for Players in Professional vs. Non-Professional Clubs

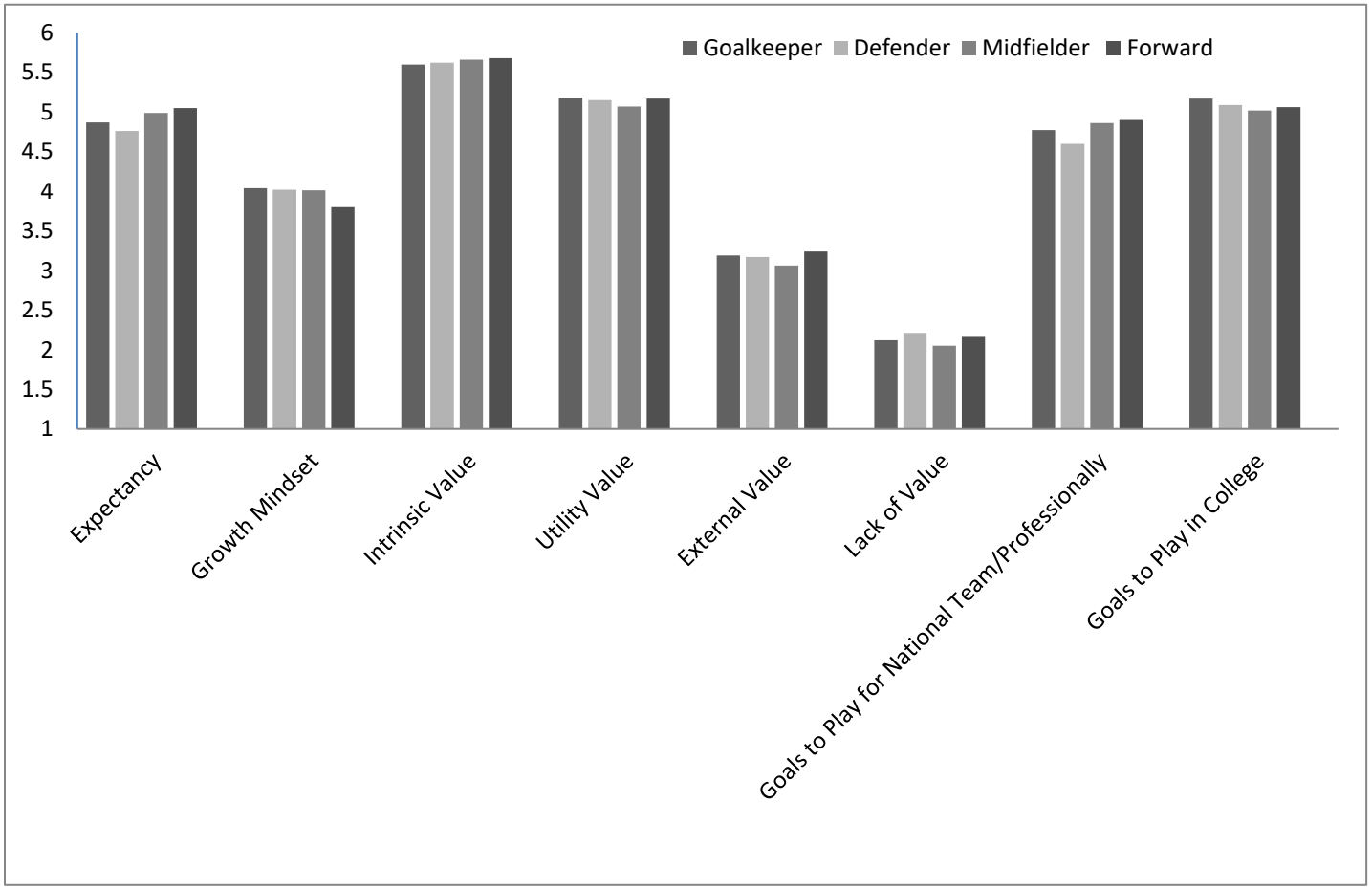

Figure 8A. Comparison of Means by Position.

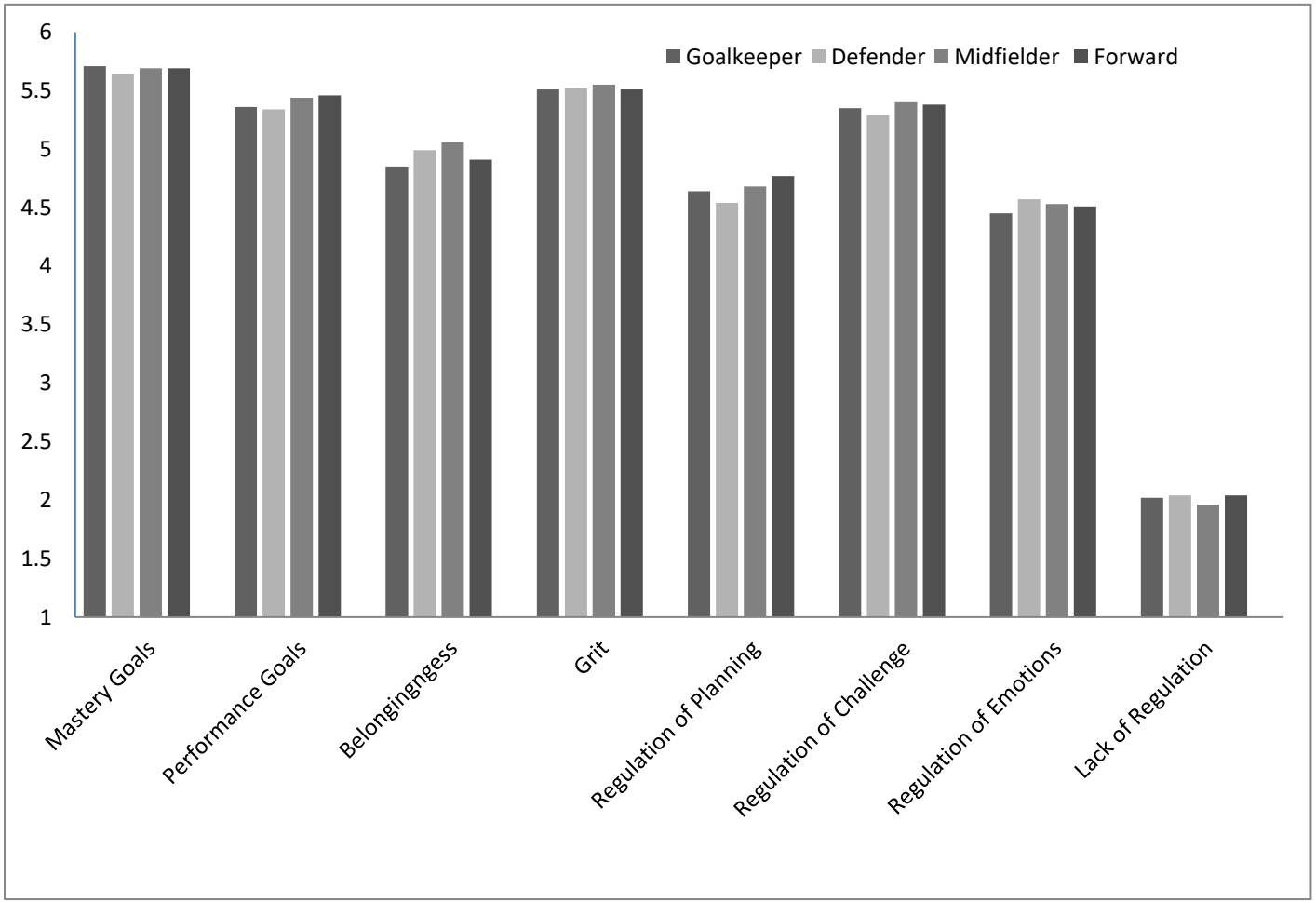

Figure 8B. Comparison of Means by Position