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Self-Efficacy, Implicit Theories of Ability, and 2 x 2 Achievement Goal Orientation: A Mediation Analysis in Collegiate Athletics

Cory Cottrell

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SELF-EFFICACY, IMPLICIT THEORIES OF ABILITY, AND 2 X 2 GOAL ORIENTATION:
A MEDIATION ANALYSIS IN COLLEGIATE ATHLETICS

by

CORY COTTRELL

(Under the Direction of Brandonn Harris)

Achievement goal theory encompasses the adaptive and maladaptive responses to achievement situations and has a strong background in sport research. (Dweck, 1986; Nicholls, 1984; Senko, Hulleman, & Harackiewicz, 2011). A 2007 meta-analysis established self-efficacy and implicit theories of ability as antecedents of achievement goal orientation (Payne, Youngcourt, Beaubien, 2007). Using the 2 x 2 achievement goal paradigm the purpose of the study looks to evaluate antecedents of self-efficacy and implicit theories of ability on achievement goal endorsement in collegiate student athletes. The current study examined implicit theories of ability as a mediator between self-efficacy and each of the 2 x 2 goal constructs. No significant mediations could be established. Regressions were run on significant correlations. Significant correlations were found between self-efficacy and incremental beliefs, entity beliefs and performance approach goals, as well as entity beliefs and performance avoidance goals. The results demonstrated some expected and unexpected findings, and add to the existing literature on the specific sport population of collegiate student athletes.

INDEX WORDS: Self-efficacy, Implicit theories of ability, Goal orientation, Sport, Collegiate athletics, Student athletes

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CORY COTTRELL

B. A., University of South Carolina Beaufort, 2016

A Thesis Submitted to the Graduate Faculty of Georgia Southern University in Partial
Fulfillment of the Requirements for the Degree

MASTER OF SCIENCE

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DEDICATION

I would like to dedicate this to my family. Their constant support throughout my life has been an incredible blessing and I am extremely lucky to have them. They have not only supported, but also encouraged me in all of my endeavors and I will forever be grateful for their love. I have so many people that help me strive to be the best that I can be and for this I am thankful.

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Table 1

Descriptive Statistics

Construct	Mean	Standard Deviation
Self-Efficacy	82.22	13.10
Incremental Beliefs	4.36	.51
Entity Beliefs	2.23	.71
Mastery Avoidance	5.42	1.31
Performance Approach	5.54	1.21
Performance Avoidance	4.28	1.73

Table 2

Pearson Correlations

	Self-Efficacy	Incremental	Entity	Mastery Avoidance	Performance Approach	Performance Avoidance
Self-Efficacy	-					
Incremental	.243**	-				
Entity	-.158	-.199*	-			
Mastery Avoidance	-.376**	.023	.251*	-		
Performance Approach	.002	.090	.210*	.290**	-	
Performance Avoidance	-.183*	.006	.330**	.527**	.547**	-

* $p < .05$, ** $p < .001$

LIST OF FIGURES

Figure 1 Hypothesized Mediation Mastery Approach

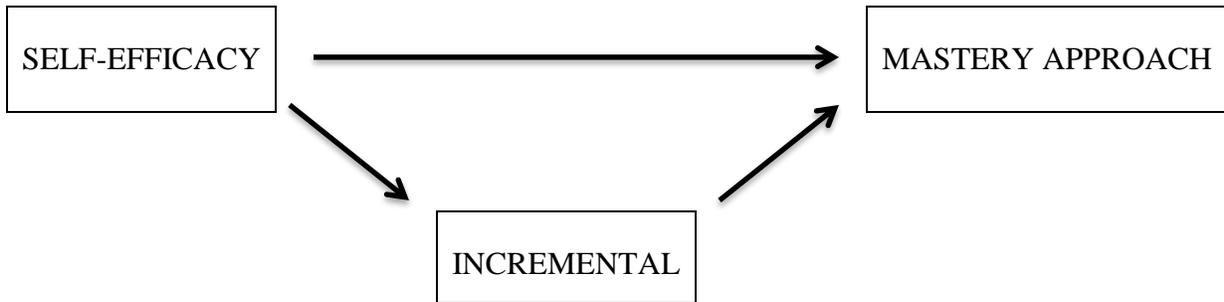


Figure 2 Hypothesized Mediation Mastery Avoidance

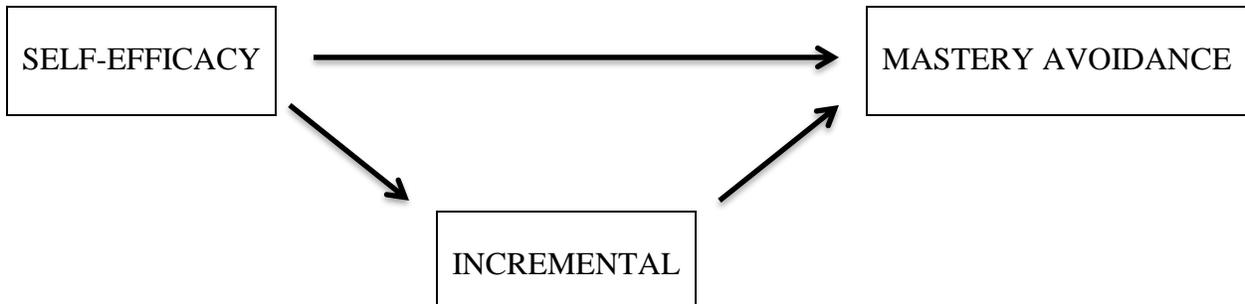


Figure 3 Hypothesized Mediation Performance Approach

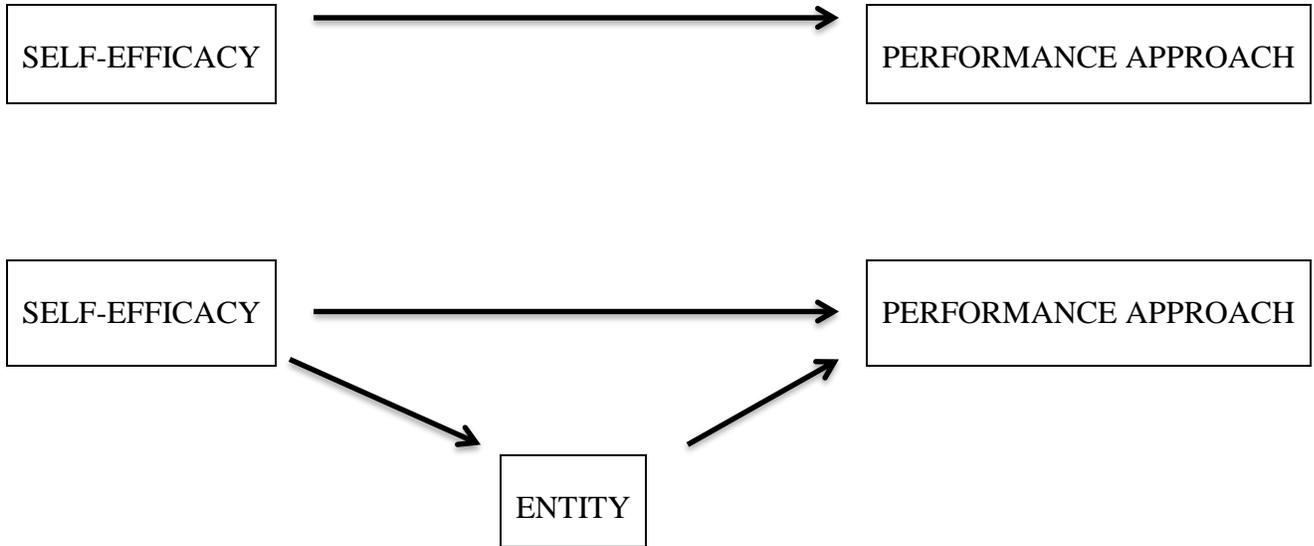
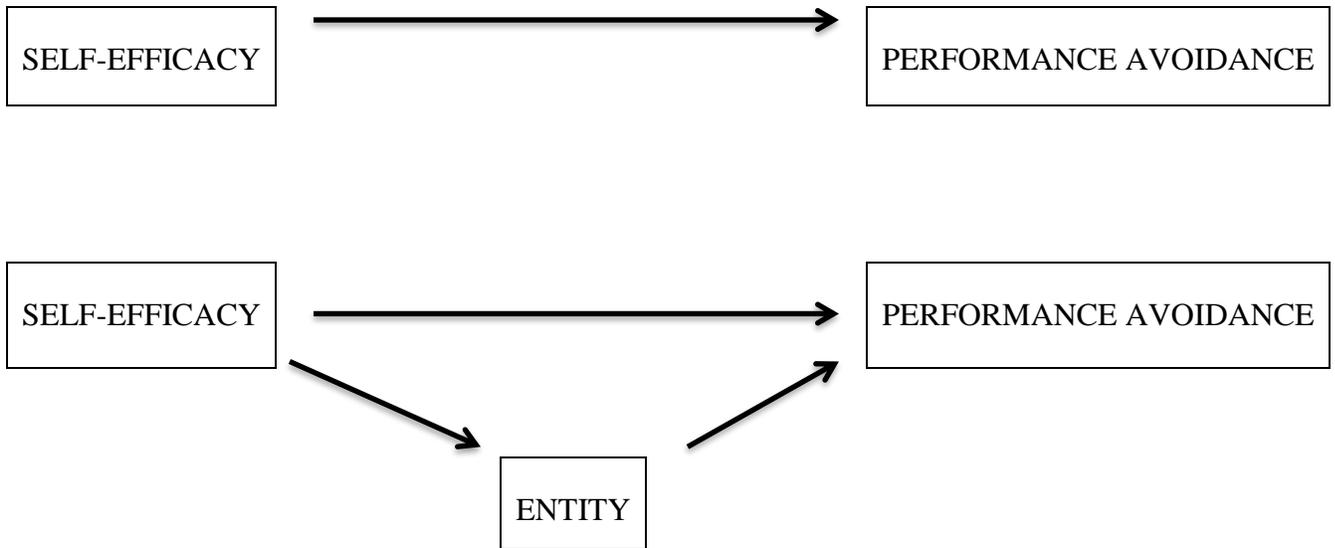


Figure 4 Hypothesized Mediation Performance Avoidance



CHAPTER 1

INTRODUCTION

Achievement goal theory encompasses adaptive and maladaptive responses to achievement situations (Dweck, 1986; Nicholls, 1984; Senko, Hulleman, & Harackiewicz, 2011). Early works in achievement goal theory started in the 1980's and largely focused on goal orientation in an education setting. With the theory having its base in achievement situations, research in a sport setting quickly took hold. Achievement goal theory suggests that the goals an individual chooses to endorse are directed at demonstrating and developing high rather than low ability (Nicholls, 1984). In a broader sense, achievement goal theory represents the meaning that an individual assigns to an achievement situation (Harwood, Spray, & Keegan, 2006). Athlete's goals reflect the way they view their environment and themselves. Further, their beliefs also influence the way they are able to interpret a situation around them and the decisions that they make as a result.

Using a 2 x 2 paradigm developed by Elliot and McGregor (2001) that expanded on the early foundation of achievement goal theory, four types of goals can be adopted with each having unique antecedents or consequences. Some of these goals are considered adaptive and others maladaptive in nature. Much of the previous research involving the 2 x 2 paradigm has focused on the consequences related to the adoption of goals, however, the antecedents of 2 x 2 goal orientation have received much less attention. A 2007 meta-analysis by Payne, Youngcourt, and Beaubien established several antecedents of goal orientation, including implicit theory of ability and self-efficacy. These are both extremely valuable in the way that an athlete is able to interpret the world around them and how they are able to process their present ability (Gao, Xiang, Lochbaum & Guan, 2013; Huang, 2016; Stenling, Hassmen, Holstrom, 2014). Implicit

theories, developed by Dweck and colleagues (Dweck, 1986; Dweck & Leggett, 1988) and self-efficacy theory, developed by Bandura (1977), have both been researched separately in their relation to goal orientation. While both have been researched extensively there is limited research examining both together, and even fewer that have done so in a sport setting.

Achievement Goal Theory

The 2 x 2 paradigm of achievement goal theory (Elliot & McGregor, 2001) expands on the early foundational aspects of the dichotomous and the trichotomous aspects of achievement goal theory (Elliot & Harackiewicz, 1996; Nicholls, 1984). The 2 x 2 goal framework can be divided into approach and avoidance dimensions, with approach goals focusing on acquiring positive possibilities, and avoidance goals focusing on avoiding negative outcomes (Yperen, Elliot, & Anseel, 2009). The complete 2 x 2 goal framework includes mastery approach, mastery avoidance, performance approach, and performance avoidance goals. In a continuation of achievement goal theory, Elliot and McGregor (2001) introduced mastery avoidance goal orientation. A subsequent meta-analysis by Baranik, Stanley, Bynum, and Lance (2010) provided support for mastery avoidance as a distinct construct. Mastery approach goals consist of those goals that individuals utilize to enhance their competence to understand or master something new (Dweck, 1986). Mastery avoidance goals differ in that they strive to avoid mistakes or forgetting what one has learned (Elliot & McGregor, 2001).

Performance approach goals are those that are characterized by outperforming others, while performance avoidance goals are focused on avoiding failure or performing more poorly than others. Depending on the situation, performance approach goals have been recommended as more adaptive than mastery avoidance goals (Barankik et al., 2010). The fourth goal orientation is that of performance avoidance goals. Performance avoidance goals are defined by avoiding

performing worse than others. These four aspects of the 2 x 2 approach build on early work in achievement goal theory, while still adhering to the base principles of task (mastery) and ego (performance) orientations forwarded in the original dichotomous framework. There has been a large body of research conducted in academic and sport settings with achievement goal theory supporting the adaptive aspects of mastery approach (Dweck, 1986; Elliot & McGregor, 2001).

Mastery approach is the pursuit of goals that are intrapersonal and of a positive nature, mastery approach-oriented individuals choose challenging tasks, strive for perfection, have greater task interest, and intrinsic motivation (Elliot & McGregor, 2001; Stoeber, Stoll, Pescheck, & Otto, 2008; Van Yperen, 2006). In a meta-analysis of sport and exercise psychology specific literature, Lochbaum and Gottardy (2015) suggest that the act of engaging in mastery approach patterns is an effective way of improving baseline performance. Mastery approach goals and performance approach goals have shown links to increased performance in previous sport and academic literature (Elliot & McGregor, 2001; Lochbaum & Gottardy, 2015; Van Yperen & Renkem, 2008). Mastery approach goals are most closely related to the dichotomous mastery goals, and share high enjoyment, mastery climate, seeking challenges, and increased effort. (Dweck, 2007; Dweck & Leggett, 1988; Morris & Kavussanu, 2008). Researchers have suggested the more adaptive nature of mastery approach goals over performance approach goals, because of the self-referenced nature of mastery approach goals (Dweck, 2007). Performance approach goals are argued to be less adaptive, because the determination of achievement is not self-referenced, but based on the performance of others. The most recent addition to the 2 x 2 paradigm of mastery avoidance goals, has been shown to be more maladaptive than mastery approach goals. In recent research there have been inconsistencies in understanding the benefits or maladaptive consequences of mastery approach goals when compared to performance

approach goals (Barankik et al., 2010; Elliot & Harackiewicz, 1996). Mastery avoidance is the newest construct, and while it has shown to be valid, there is still much research to be done evaluating the consequences of the endorsement of the goals. Research has been consistent that performance avoidance goal adoption is the least beneficial with maladaptive antecedents and consequences (Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). Performance avoidance goal adoption has shown to be associated with high levels of fear of failure, low self-evaluation, anxiety, and low performance (Elliot & McGregor, 2001).

Implicit Theories of Ability and Goal Orientation

Implicit theories of abilities as proposed by Dweck are motivational processes that influence the way an individual learns and interprets the world around them (Dweck, 1986). Implicit theories of ability can be further compartmentalized into two distinct theories: incremental theory of ability and an entity theory of ability. The incremental theory, commonly called growth mindset, is a theory based on the belief that skills can be increased through effort and diligent practice. The entity theory has foundations in the belief that skills are “entities” that people hold and can be changed very little (Dweck, 1999). The entity theory is often referred to as possessing a fixed mindset. Individuals who hold an entity theory feel the most successful when they beat others, while individuals who hold an incremental theory feel the most successful when they improve or master new abilities (Dweck, 2007).

The degree to which an individual possesses either an incremental or entity theory influences the adoption of achievement goals. Dweck and colleagues (Dweck, 1986; Dweck & Leggett, 1988; Ommundsen, 2001) suggest that the incremental theory is predictive of task goals while the entity theory is predictive of ego goals. In a sport setting with Dutch soccer players, Van-Yperen and Duda (1999) suggested that there is a positive association between task

orientation and beliefs that effort and hard work will lead to success. The study also demonstrated a positive association between ego orientation and a high belief in ability or innate talent. Cury, Elliot, Da Fonseca, and Moller (2002) suggested that entity theory was a positive predictor of performance-approach and performance-avoidance goals, and incremental theory was a predictor of mastery-approach and mastery-avoidance goals. Stenling, Hassmen, and Holstrom (2014) provided additional support for the relation between implicit theories of ability and achievement goal adoption in a sport setting, suggesting that athletes with an incremental belief will adopt mastery approach goals to a higher extent than performance approach goals. The study also goes on to suggest that athletes with entity beliefs adopt performance avoidance goals to a greater extent.

Sarrazin and colleagues (1996) suggested that individuals may be able to have both incremental and entity beliefs if the athlete believes that both abilities and skills contribute to athletic performance. This belief represents incremental and entity beliefs as independent and orthogonal in nature. Further, Van Yperen and Duda (1999) suggest that fostering high levels of task and ego orientation maybe beneficial in developing as a player in a highly competitive sport program. In a review of the literature within an academic setting, Midgley, Kaplan, & Middleton (2001) suggested that performance goals may be adaptive in certain situations as long as mastery goals are high. This supports work by Dweck suggesting there is value and a place for both goals, and only problems arise when proving ability becomes so valued that it drives out mastery goals (Dweck, 1999, p. 152; Dweck & Legget, 1988).

Self-Efficacy and Goal Orientation

Self-efficacy, based in social cognitive theory, refers to beliefs in one's capabilities to use motivation and cognitive resources to meet certain situational demands (Bandura, 1986; Wood &

Bandura, 1989). Self-efficacy describes the belief that an individual has the ability to execute a behavior to produce a certain outcome (Bandura, 1977; Feltz, 1988). Self-efficacy is derived from four principle sources including performance accomplishments, vicarious experiences, verbal persuasion, and physiological arousal. High levels of self-efficacy have been found to influence behavior and to have a positive relationship to performance in sport (Feltz, 1988). In sport settings, higher levels of self-efficacy are believed to positively influence athletes' certain thought patterns, emotional reactions, and behavior (Feltz, Short, Sullivan, 2008, p. 15). Previous qualitative research of PGA Tour professionals found especially strong interactive effect of prior performance accomplishments and verbal persuasions on player's self-efficacy levels (Valiante & Morris, 2013).

Self-efficacy has also been suggested by previous research to be associated with goal orientation. In an academic setting, goal orientation research using the dichotomous and trichotomous paradigm found consistent significant positive relationships between learning or task orientation and higher levels of self-efficacy (Bell & Kozlowski, 2002; Hsieh, Sullican, & Guerra, 2007; Middleton & Midgley, 1997; Payne, Youngcourt, & Beaubien, 2007). Sakiz (2011), using the 2 x 2 achievement goal paradigm, suggest that in college students, mastery approach goals were positively associated with higher levels of self-efficacy. In support of this, a meta-analysis of research conducted in an academic setting conducted by Huang (2016) found that self-efficacy was most strongly correlated with mastery approach goals. The correlations of mastery approach and mastery avoidance with self-efficacy differ significantly, and the correlations of performance approach and performance avoidance with self-efficacy also differed significantly. The findings continued to show that approach goals (mastery approach and

performance approach) positively associated with self-efficacy while avoidance goals (mastery avoidance and performance avoidance) are negatively associated with self-efficacy.

Implicit Theories of Ability, Self-Efficacy, and Goal Orientation

Research has suggested that implicit theories of ability and self-efficacy are antecedents of goal orientation (Payne, Youngcourt, & Beaubien, 2007). Dweck (1989) suggests that individuals with higher learning goals (incremental beliefs) have higher levels of self-efficacy, which was supported by the meta-analysis conducted by Payne, Youngcourt, and Beaubien (2007). Further, research suggests that elite swimmers endorse mastery approach goals to a higher extent than other 2 x 2 achievement goals (Fernandez, Estrada, Mendez, Garcia, & Saaverdra, 2014). This is consistent with research that has shown athletes endorse task or mastery goals to a greater extent than ego or performance goals and that endorsing mastery approach goals can be considered a performance intervention (Lochbaum & Gottardy, 2015; Lochbaum & Smith, 2015; Potegieter, 2012). Achievement goal research has established consequences as a result of goal adoption, with aspects of the 2 x 2 paradigm being beneficial or maladaptive (Elliot & McGregor, 2001). The goals that an athlete adopts have consistently been shown to lead to adaptive or harmful consequences, and future research is warranted to examine how antecedents influence the adoption of achievement goals.

Therefore, the purpose of the study was to examine the influence of self-efficacy on the type of achievement goals adopted by athletes with implicit theories of ability as mediators. It was hypothesized that higher levels of incremental belief endorsement would mediate the relationship between athletes with high self-efficacy and mastery approach goal endorsement. Further, high entity belief endorsements were expected to mediate the relationship between athletes with high self-efficacy and performance approach goal endorsement. It is was

hypothesized that high levels of incremental belief would mediate the relationship between athletes with low self-efficacy and mastery avoidance goals, while high entity belief would mediate the relationship between athletes with low self-efficacy and performance avoidance goals.

CHAPTER 2

METHODS

Participants

Participants included 117 NCAA and NAIA collegiate athletes from three universities located in the Southeast, Midwestern, and Mid-Atlantic coast of the United States. The participants represented NCAA I (n=6), NCAA III (n=59), and NAIA (n=52) institutions. Participants participated in golf (n=29), softball (n=21), field hockey (n=18), soccer (n=14), basketball (n=8), lacrosse (n=26), and one multi-sport collegiate athlete (field hockey and lacrosse). Out of the 117 collegiate athletes that participated in the study there were 31 freshman, 30 sophomores, 33 juniors, 21 seniors, and two athletes who declined to specify their classification. Participants' age ranged from 18 – 24 years of age, (mean age = 19.90, SD = 1.20). The research included 100 Caucasian, 6 African-American, 3 Asian, 3 Hispanic, 3 multi-racial, and 1 Native American student athletes.

Instrumentation

Demographics. Information on participants' age, gender identity, race, ethnicity, sport, year in college, college's division, whether or not the athlete is in or out of competitive season and if the athlete has participated in a NCAA or NAIA competitive season in their athletic career was collected.

Goal orientation. Athletes' goal orientations were assessed by using the 2 x 2 Achievement Goal Questionnaire for Sport (AGQ-S) developed by Conroy, Elliot, and Hofer (2003). The 2 x 2 AGQ-S measures the 2 x 2 achievement goal framework created by Elliot and McGregor (2001). The AGQ-S is a twelve item Likert type scale measure ranging from 1 = "not at all like me" to 7 = "completely like me". The AGQ-S assesses mastery-approach, (e.g., It is

important for me to master all aspects of my performance), Mastery-avoidance (e.g., I worry that I may not perform as well as I possibly can), Performance-approach (e.g., It is important for me to perform better than others), and Performance-avoidance (e.g., My goal is to avoid performing worse than everyone else). Conroy et al. (2003) established that the scale exhibited factorial validity, temporal stability, external validity, construct validity with adequate cross loading, and has widely been used in achievement goal research in sport (Conroy, Elliot, & Hofer, 2003; Fernandez et. al., 2014; Ntoumanis, Thorgeresen-Ntoumani, & Smith, 2009; Morris & Kavussanu, 2008; Stenling et al., 2014). For the current study, Cronbach's alpha within the AGQ-S subscale of mastery approach was, $\alpha = .51$, $\alpha = .85$ for mastery avoidance, $\alpha = .76$ for performance approach, and $\alpha = .85$ for performance avoidance. Due to low reliability with the mastery approach subscale, the subscale was not included in the analysis.

Implicit theories of ability. To assess the implicit theories of ability, the revised Conceptions of Nature of Athletic Ability Questionnaire (CNAAQ-2; Biddle, Wang, Chatzisarantis, & Spray, 2003) was utilized. The questionnaire is a modified version of the original Conception of the Nature of Athletic Ability Questionnaire created by Sarrazin and colleagues (1996). The CNAAQ-2 is a twelve-item five-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". The CNAAQ-2 has four subscales; stable, gift, learning, and improvement. Stable (e.g., You have a certain level of ability in sport and you cannot really do much to change that level) and Gift (e.g., To be good at sport you need to be naturally gifted) represent entity ability beliefs. Improvement (e.g., In sport, if you work hard at it, you will always get better) and Learning (e.g., You need to learn and to work hard to be good at sport) represent incremental ability beliefs. The Cronbach alpha for the two subscales in the original study were $\alpha = 0.74$ for entity and $\alpha = 0.80$ for incremental (Biddle et. al., 2003).

Continued research use of the survey has found the questionnaire to be psychometrically sound with strong reliability and validity (Biddle et. al., 2003; Stenling et. al., 2014; Wang, Liu, Lochbaum, & Stevenson, 2009). Biddle et al. (2003) state that the CNAAQ-2 remains wedded to Dweck and Leggett's (1988) work in a sport domain. Additional research for the CNAAQ-2 has found that the questionnaire adequately measures entity and incremental beliefs of athletes in a cross-cultural setting (Wang, Liu, Biddle, & Spray, 2005). In the current study, Cronbach's alpha for the incremental subscale was $\alpha = .83$, and the entity subscale was $.80$, showing evidence of strong reliability.

Self-efficacy. To assess self-efficacy, participants completed the competition subscale of the self-efficacy scale used in previous research by Mills, Munroe, and Hall (2000). The self-efficacy scale was developed for the 2000 study and was designed according to the procedures recommended by Bandura (1997). The competition subscale of the self-efficacy questionnaire is 5 items and records participants of their strength of belief on a 100-point scale, ranging in 10-unit intervals from, 0 = "Can not do" to 100 = "Certain can do". The competition self-efficacy subscale demonstrated adequate reliability, a factor analysis of the competition self-efficacy accounted for 46 percent of the variance (Mills, Munroe, & Hall, 2000). Cronbach's alpha for the current study of the self-efficacy scale was $\alpha = .89$.

Procedures

After obtaining consent from athletic directors and coaches, data collection was scheduled with the universities. During the data collection, participants completed an informed consent as well as the previously mentioned demographics information and questionnaires. The data was collected either by the primary investigator or head coaches at the respective universities. Student athletes' names were not collected to keep any identifying information

confidential. All surveys were completed in paper and pencil. Surveys were collected in person with the primary investigator present or completed with the head coach or athletic department senior personnel and then sent by mail to the primary investigator.

Data analysis

Descriptive statistics were run to determine the means and standard deviations for each variable (Table 1). Data was checked for skewness and kurtosis. The variables of self-efficacy, incremental beliefs, entity beliefs, mastery avoidance, and performance approach had high levels of skewness. The variables of self-efficacy, mastery avoidance, performance approach, and performance avoidance had high levels of kurtosis. However, the data was not transformed to maintain the arithmetic mean and original construct definitions (Field, 2009). Previous research by Norris and Aroian (2004) suggest that transforming the data when using Cronbach's alpha or Pearson correlation is not needed or advisable when using skewed data. Correlations were determined for self-efficacy and implicit theories subscales (i.e. incremental and entity), implicit theories subscales and mastery avoidance, performance approach, and performance avoidance. Significant correlations were determined using a $p < .05$ alpha level. Only significantly correlated variables were included in the mediation analysis using the PROCESS tool created by Hayes (2012). In variables where no significant mediation analysis exists, regression analyses were run on significantly correlated variables. Regression analyses were used to determine the influence of self-efficacy on implicit theories, self-efficacy on goal orientation, and the influence of implicit theories on goal orientation. Regression analyses were run to evaluate the predictive nature of the antecedents of achievement goal endorsement.

CHAPTER 3

RESULTS

One participant was found to be an outlier and was not included in the data analysis, as their data was more than four standard deviations below the incremental mean and not representative of the sample. Thus, a final total of 116 student athletes were included in the data analyses. Descriptive statistics, including mean and standard deviation of study variables are presented in Table 1. Correlations were then established between the variables to determine if they met the proper criteria to run a mediation analysis (see Table 2). There were no significant mediations in the results, because not all criteria to run a significant mediation analysis were met. For a mediation analysis to be run, there are a set of three statistical assumptions that all must be significant (Baron & Kenny, 1986). The predictor variable (self-efficacy) must be significantly correlated with the mediation variable (implicit theory of belief), and also be significantly correlated with the outcome variable (goal orientation). Lastly, the mediating variable also has to be significantly correlated with the outcome variable. If any of three of these relationships are not significant, then a significant mediation cannot be achieved. In correlations where significance was found, regressions were run to determine the influence of self-efficacy on goal orientation, the influence of self-efficacy on implicit theories of beliefs, and the influence of implicit theories of beliefs on goal orientation. After running the analysis on reliability of the scales, several assumptions were not met, and therefore a mediation analysis regarding hypothesis one could not be conducted. The first hypothesis, with the outcome variable of mastery approach, could not be supported or rejected because mastery approach was not included in the analysis due to low reliability.

Self-Efficacy, Incremental Beliefs, and Mastery Avoidance

A significant, negative relationship was found between self-efficacy and mastery avoidance ($r = -0.38$, $p < .001$). A significant, positive relationship was also found between self-efficacy and incremental beliefs ($r = .24$; $p = .004$). However, a non-significant relationship was found between incremental beliefs and mastery avoidance ($r = .023$; $p = .41$). Incremental beliefs and mastery avoidance goal orientation were not significantly related, so a mediation analysis was not conducted. A linear regression was calculated to examine the predictive value of self-efficacy on incremental beliefs ($\beta = .24$, $p = .009$). Results suggested that self-efficacy was a significant predictor of incremental beliefs, predicting approximately six percent of the variance ($F(1,114) = 7.13$, $p < .05$, $R^2 = .06$). A different regression analysis was run to predict self-efficacy on mastery avoidance goal orientation ($\beta = -0.38$, $p = .001$). Results suggested that self-efficacy was a significant predictor of mastery avoidance goals, predicting 14% of the variance ($F(1,114) = 18.78$, $p < .001$, $R^2 = .14$).

Self-Efficacy, Entity Beliefs, and Performance Approach

Results showed a non-significant negative relationship between self-efficacy and entity beliefs ($r = -0.16$; $p = .09$; Table 2). Self-efficacy and performance approach goals demonstrated a non-significant relationship ($r = 0.02$; $p = .87$). Entity beliefs and performance approach goals showed a positive significant relationship ($r = 0.21$; $p = .02$). Because there was a non-significant relationship between self-efficacy and entity beliefs, as well as self-efficacy and performance approach goals, a proper mediation analysis was not conducted. However, a regression analysis was run to examine if entity beliefs predicted performance approach goals ($\beta = .21$, $p = .02$). The results suggest that entity beliefs was a significant predictor of performance approach goals, predicting approximately 4% of the variance ($F(1,114) = 5.28$, $p < .05$, $R^2 = .44$).

Self-Efficacy, Entity Beliefs and Performance Avoidance

Self-efficacy and performance avoidance goals demonstrated a significant negative relationship ($r = -0.18$; $p = .05$). Entity beliefs and performance avoidance goals were significantly positively related ($r = 0.33$; $p < .001$). Self-efficacy and entity beliefs were not significantly related ($r = -0.158$; $p = .09$). Self-efficacy and entity beliefs were not significantly related; therefore, no mediation analysis was conducted. A regression analysis was run to examine if self-efficacy predicted performance avoidance goals ($\beta = -0.18$, $p < .05$). The results suggest that self-efficacy was a significant predictor of performance avoidance goals, and accounted for approximately 3% of the variance ($F(1,114)=3.93$, $p < .05$, $R^2 = .03$). Another regression analysis was run to show the predictive value of entity beliefs on performance avoidance goals ($\beta = .13$, $p < .001$). The results suggest that entity beliefs were a significant predictor of performance avoidance goals and accounted for approximately 11 % of the variance ($F(1,114)=13.98$, $p < .001$, $R^2 = .11$).

CHAPTER 4

DISCUSSION

The purpose of this study was to determine if implicit theories of ability had a mediating effect on self-efficacy and the adoption of 2 x 2 achievement goals among collegiate athletes. It was originally hypothesized that self-efficacy and incremental implicit theories of belief would mediate mastery approach goals; however, this hypothesis could not be tested due to the low reliability on the mastery approach subscale of the CNAAQ-2. In comparing descriptive statistics of the current study to that of previous research, similar results were found regarding high self-efficacy and incremental beliefs in athletes (Sari, 2015; Stenling et al., 2014). The current research differed from previous research in that the current sample of collegiate student athletes may have reported higher levels of endorsement in mastery avoidance, performance approach, and performance avoidance goals than in the previous literature (Morris & Kavussanu, 2008; Ntoumanis et al., 2009; Stenling et al., 2014). Further, the results did not provide support for the hypotheses addressing the mediating effects of incremental beliefs between self-efficacy and mastery avoidance goals, the mediating effects of entity beliefs between self-efficacy and performance approach goals, or the mediating effects of entity beliefs between self-efficacy and performance avoidance goals. Although these hypotheses were not supported, interesting findings were observed.

Self-Efficacy, Incremental Beliefs, and Mastery Approach Goal Orientation

Analyses indicated that the mastery approach subscale was found to be unreliable and was not included in any of the data analysis. As such, it was not possible to appropriately examine any association, regression, or mediation involving mastery approach goal orientation. Since mastery approach was not included, the hypothesis of incremental beliefs mediating the

effects between self-efficacy and mastery approach goals was not tested. The remaining variables of self-efficacy and incremental beliefs were significantly correlated and subsequently used in a regression analysis. This analysis suggested that self-efficacy was a significant predictor of incremental beliefs. This is consistent with previous meta-analytic research conducted by Payne, Youngcourt, and Beaubien (2007) who urged researchers to replicate their results given the small number of studies that had been conducted in this area. These findings are also consistent with Dweck (1989) suggesting that individuals with higher learning goals (incremental beliefs) have higher levels of self-efficacy.

Higher levels of incremental beliefs being associated with higher levels of self-efficacy play an important role within collegiate athletics. For example, given the abundant challenging opportunities athletes encounter, it is important for these individuals to learn to manage these experiences and use them as opportunities to grow and develop important coping skills. This is important for future performance and enjoyment because each time an athlete fails or comes up short of their standards, the event is perceived as more of a positive opportunity than athletes with lower degrees of incremental beliefs (Potgieter, 2011). The higher levels of self-efficacy and higher levels of incremental beliefs are both associated with positive thought patterns, emotional reactions, and behaviors in athletes (Feltz, 1988; Van Yperen & Duda, 1999).

Self-Efficacy, Incremental Beliefs, and Mastery Avoidance Goal Orientation

No mediation could be examined with incremental beliefs serving as the mediator between self-efficacy and mastery avoidance goals. The findings that mastery avoidance goals are negatively related to self-efficacy are consistent with Barankik and colleagues (2010) who suggested that practitioners discourage the promotion of mastery avoidance goals in favor of the

approach dimensions instead. The results of self-efficacy and mastery avoidance goals being negatively related is also consistent with the meta-analysis findings by Huang (2016).

Unexpectedly, incremental beliefs and mastery avoidance were not significantly positively correlated. Mastery avoidance goals are routed in self-referenced achievement outcomes so the present findings suggesting they are not significantly correlated are contrary to consistent observations by several other researchers (e.g. Barankik et al., 2010; Cury et al., 2002; Dweck, 1986; Dweck & Leggett, 1988; Ommundsen, 2001). The goal orientation is based on the mastery or task referenced development of skills, but the current research results show that mastery avoidance is not only not related incremental beliefs, but significantly correlated to entity beliefs (see Table 2). The findings suggest that mastery avoidance goals are more related to performance approach and performance avoidance goals, rather than mastery approach goals. The current findings add to the literature on the 2 x 2 goal orientation, suggesting that mastery avoidance goal endorsement is more maladaptive than adaptive. Previous research had addressed how mastery avoidance goals are not as adaptive as mastery approach goals, but also not as maladaptive as performance approach goals (Barankik et al., 2010).

Self-Efficacy, Entity Beliefs, and Performance Approach Goal Orientation

No mediation could be examined with entity beliefs serving as a mediator between self-efficacy and performance approach goals. Unexpectedly, self-efficacy was not significantly related to performance approach goals or entity beliefs. However, as anticipated, entity beliefs and performance approach goals were positively and significantly correlated. A subsequent regression analysis suggested that entity beliefs predict the endorsement of performance approach goals. These findings are consistent with previous research (Cury et al., 2002; Stenling et al., 2014). Entity beliefs are rooted in the notion that skills are more fixed traits and that little

can be done change these abilities. This holds true to the performance domain of performance approach goals, where athletes are trying to demonstrate and show their skills by trying to beat other competitors in achievement settings. Sport provides a unique opportunity for athletes to have a clear picture of what a win and a loss is when they are competing in their respective fields. Participants in previous research have shown adaptive and maladaptive qualities associated with performance approach goals, and some researchers have suggested that achievement goal theory be revised to include the more adaptive nature of performance approach goals (Midgley, Kaplan, & Middleton, 2001). The endorsement of entity beliefs in previous research has been consistently be associated with negative consequences (Dweck, 2006; Ommundsen, 2001; Gardner, Vella, & Magee, 2015). The present results demonstrated an association between entity beliefs and performance approach goals, but there is still much research needed in order to determine whether this serves as an adaptive or maladaptive process for athletes.

Self-efficacy and performance approach goals did not yield the anticipated results of a significant positive relationship. Previous research had suggested that self-efficacy and performance approach goals were positively related (Elliot, 1999; Goa, Xiang, Lochbaum, & Guan, 2013; Huang, 2016). However, the current research suggested that self-efficacy was not associated with performance approach goals. Previous researchers have suggested that achievement goals theory be revised to be more reflective of the adaptive nature of performance approach goals, citing articles that evaluated self-efficacy and performance approach goals (Midgley et al., 2001). In the current research, performance approach goal endorsement is correlated with entity beliefs and performance avoidance goals. The current research data may have had a high degree of overlap between individuals who have a high endorsement of

performance approach goals and performance avoidance, goals and may explain why the current research did not support the consistent body of previous literature in this area.

Self-efficacy and entity beliefs were not significantly correlated. A college sport environment can be challenging for individuals with a high endorsement of entity belief, because of the high level of comparable talent and changes throughout a college career. The changes and comparable talent levels make can provide a challenging environment for an athlete to maintain a consistent level of self-efficacy with a high endorsement of entity beliefs. Research by Wood and Bandura (1989) suggested that high endorsement entity beliefs are associated with lower levels of self-efficacy in the face of difficulties or challenges. Although this study did not support previous findings, performance approach goals in previous research have been suggested to be positively related to self-efficacy. However, a potential explanation is that the athletes in the current study may have had different levels or degrees of success. If athletes endorsing entity beliefs are successful, then their self-efficacy remains high because they were able to demonstrate their skills. On the other hand, if an athlete who has a high endorsement of entity beliefs fails, then their self-efficacy drops because they were unable to demonstrate their ability. The current study did not take into account an athlete's previous success and may provide an explanation.

Self-Efficacy, Entity Beliefs, and Performance Avoidance Goals

As previously mentioned self-efficacy and entity beliefs were not significantly correlated, therefore, no mediation could be run. The correlation of self-efficacy and performance avoidance goals were as expected, demonstrating a negative significant relationship. This is consistent with research by Goa and colleagues (2013) as well as meta-analytic findings by Huang (2016) that found self-efficacy to have an inverse relationship with avoidance goals. The findings build on

previous research that highlight the maladaptive aspects of performance avoidance goals and the adaptive patterns of high levels of self-efficacy (Elliot & McGregor, 2001; Feltz et al., 2001). The current results suggest that athletes with low levels of self-efficacy endorse performance avoidance goals to a greater extent than athletes with high levels of self-efficacy. This provides support for the adaptive nature of high levels of self-efficacy and the benefits of higher self-efficacy levels in collegiate sport. In the present study, that high levels of entity beliefs predict performance avoidance goals. Previous research has consistently suggested that performance avoidance goals are maladaptive, and high levels of performance avoidance goals have been associated with fear of failure, anxiety, decreased performance, and lower levels of deep processing (Elliot & McGregor, 2001). This supports previous research linking entity beliefs to performance avoidance goals (Cury et al., 2002; Elliot & McGregor, 2001; Ommundsen, 2001, Stenling et al., 2014).

Limitations

Certain limitations from the present study are important to note. One of the issues that arose with the data was the reliability of the mastery approach subscale of the 2 x 2 Achievement Goal Questionnaire for Sport (Conroy et al., 2003). The reliability of the subscale was not acceptable for use, and any results that would have been reported using the subscale would not have been statistically accurate or repeatable. The current study was also well represented by NCAA III and NAIA athletes, but had little representative from NCAA I and no athletes representing NCAA II. The participants were also primarily female, and not representative of the entire male and female NCAA and NAIA athletics population.

Another limitation of the study was the high skewness and kurtosis of the subscales used in the research. Self-efficacy, incremental beliefs, entity beliefs, mastery avoidance goals, and

performance approach goals displayed high levels of skewness. The variables of self-efficacy, mastery avoidance goals, performance approach goals, and performance avoidance goals had high levels of kurtosis. The current study did not include a transformation of the data based on past research by Norris and Aroian (2004) which suggested transforming the data was not needed or advisable when using Cronbach's alpha or Pearson correlations. In the current research, if the data followed the hypothesized results and significant mediation analysis could have been determined, bootstrapping would have been used; bootstrapping does not impose on skewed data and would have followed the guidelines by Hayes (2012). While past research has supported the use of not transforming the data in the current study, skewness and kurtosis in the data remains a limitation of the current research. The scales have been used extensively in previous research and have been shown to be reliable and valid.

Implications and Future Directions

Results from this study failed to support any significant mediations. Even though the results did not support any of the hypotheses, there are still important implications that add to the current literature on collegiate student athletes. Much of the previous literature in achievement goal theory utilized samples of students in physical education classes, recreational athletes, European university athletes, or professional athletes. Student athlete's face unique challenges to student success and few studies have had samples primarily consisting of collegiate athletes (Jolly, 2008). The results from the present study can add to existing sport literature, while at the same time providing results on the specific subset of collegiate athletes in athletics. In addition, the unexpected results of self-efficacy not being correlated with entity beliefs or performance approach goals add a future direction of continued research. Another unexpected result involves the correlations between implicit theories of beliefs and mastery avoidance goals. Entity beliefs

were positively and significantly associated with mastery avoidance goals, while incremental beliefs were not significantly related to mastery avoidance goals. Mastery avoidance goals are most recently developed in the 2 x 2 framework, and the current results add to the literature involving collegiate student athlete's endorsement of mastery avoidance goals.

Certain results of the study did provide additional support for existing literature and provide a base of research in collegiate sport. For example, entity beliefs were significantly and positively correlated with performance approach and performance avoidance goals. In addition, self-efficacy was significantly and negatively correlated with both mastery avoidance goals and performance avoidance goals. These results were expected based on previous research and add to the literature in a collegiate sport setting (Cury et al., 2002; Dweck, 1986; Dweck & Legget, 1988; Huang, 2016). The current study did not establish implicit theories of ability as a significant mediating variable between self-efficacy and achievement goal orientation in college student athletes. As examined in previous research as well as the current study, the role of the antecedents on the influence of the endorsement of achievement goals is not yet fully understood. Future research options might include a replication of the study with a much larger sample size, an exploration of the antecedents of mastery avoidance goals in collegiate athletics, the evaluation of mastery approach goals in collegiate athletics, the evaluation of the interaction of both implicit theories influence achievement goal endorsement, or the nature of performance approach goals in collegiate athletics. The current research adds to the body of literature in achievement goal orientation, implicit theories of ability, and self-efficacy research while also proposing avenues for future research.

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APPENDIX A

LITERATURE REVIEW

Self-Theories, Implicit Theories of Intelligence, or most commonly called mindset as proposed by Dweck, are a motivational process that influences the way an individual learns and interprets the world around them (Dweck, 1986). The original research in a social cognitive framework was primarily focused on the motivational attributions of academic performance and how students either seek to challenge themselves or seek to avoid failure. The two mindsets that are taken from the framework are incremental or growth mindset and entity or fixed mindset. Individuals with a growth mindset seek challenge and the mastery of skills while in contrast individuals with a fixed mindset are more concerned with performance variables and how they are perceived. Both of these mindsets are deeply rooted in the achievement goals that an individual chooses to follow. Individuals that follow the paradigm of a growth mindset choose task-oriented goals in an attempt to improve their mastery of the task, while individuals who show a fixed mindset follow performance goals in a way to demonstrate their ability.

The Self Theories paradigm proposed by Dweck and colleagues has similar foundational aspects as Achievement Goal Theory (Dweck, 1986). Early achievement goal theory treated goal orientation as dichotomous, with either task or ego orientation. Task orientation is similar to that of a growth mindset where the individual values effort and personal standards. Ego or performance orientation is similar to that of fixed mindset, with the emphasis on performance and outcomes. With the advancement of research from the late 1980's up to present, there has been the dichotomous, trichotomous, and 2 x 2 achievement goal frameworks. With early work in the development of Self Theories coming when the dichotomous relationship in achievement goal theory was prevalent, a large body of the Self Theories early research treated achievement

goal theory as such. The 2 x 2 framework (Elliot & McGregor, 2001), which is the more recent research framework, has become popular in educational and sport research because of its more comprehensive nature that expands on task or ego orientation. The four achievement goal orientation groups that are created in the 2 x 2 framework are mastery approach, mastery avoidance, performance approach, and performance avoidance. The approach aspects are orientations that focus on achieving, whether it be achieving mastery or achieving a result, while the avoidance aspects focus on avoiding failure or learning incorrectly.

Self-Theories and Achievement Goal Theory can also be measured and related to the Bandura's Social Cognitive Theories self-efficacy (Bandura, 1977). Bandura uses the term self-efficacy to describe the conviction one has to execute successfully the behavior. Self-efficacy is a major determinant of behavior when proper incentives and necessary skills are present (Feltz, 1988). The level of self-efficacy that a person has about a situation can determine their behavior and therefore their actions in a particular sport setting. The relationships between these three different theories can have implications into how an athlete interprets the domain around them and how they react to it.

Self-Efficacy

Based in social cognitive theory, self-efficacy refers to beliefs in one's capabilities to use motivation and cognitive resources to meet certain situational demands (Bandura, 1986; Wood & Bandura, 1989). Self-efficacy is not about the skill, but describes the conviction that an individual that they are capable to execute a behavior to produce a certain outcome (Bandura, 1977; Feltz, 1988). In Bandura's theory, self-efficacy is derived from four principle sources: performance accomplishments, vicarious experiences, verbal persuasion, and physiological arousal. Past performance accomplishments are used by the individual to evaluate where their

efficacy level should be, if an individual has repeated success then they will raise their self-efficacy expectations. In contrast, if they perceive failure then they will lower their efficacy expectations. Vicarious experiences allow the individual to gather information about the task by observing or imagining others perform. Persuasion is an outside attempt to influence an individual, commonly used by coaches, teachers, and peers. Lastly, individuals interpret physiological states differently; some individuals may interpret arousal as a benefit, while others interpret it as a maladaptive. Self-efficacy has been extensively studied in an education setting, and more recently is being applied to sport. Students with higher self-efficacy tend to participate more often, pursue more difficult goals, and persist longer in the face of difficulty compared to students with lower self-efficacy (Bandura, 1997). In a sport setting, athletes with higher levels of self-efficacy beliefs are hypothesized to influence certain thought patterns, emotional reactions, and behavior (Feltz, Short, Sullivan, 2008, p.15) In collegiate athletics, Shelangoski, Hambrick, Gross, and Weber (2014) assessed self-efficacy and found that collegiate athletes have a high degree of self-efficacy on average.

Implicit Theory of Ability

Self-Theories can be broken down into two distinct frameworks: The Theory of Fixed Intelligence and the Theory of Malleable Intelligence (Dweck, 2000). With these two frameworks come the differences in individual motivational factors on how people choose to challenge themselves, show their competence, or avoid the chance of failure. The Theory of Malleable Intelligence is most commonly referred to as Incremental Theory. The belief behind the incremental theory is that intelligence and skills can be increased through effort and diligent practice. One of the common and most referred terms associated with the incremental theory is that of a “growth mindset”, in contrast to the growth mindset of the incremental theory is the

theory of fixed intelligence. The theory of fixed intelligence, referred to as the entity theory, is the belief that intelligence or skills are “entities” that people hold and cannot be changed (Dweck, 2000). The term in research that is associated with the entity theory is that of a “fixed” mindset. The two frameworks can be broken down and defined by the following characteristics. The Incremental theory or individuals who follow a growth mindset set learning goals, focusing on improving and developing mastery, seek challenges, value effort, and have high enjoyment in the face of difficult challenges. While in contrast individuals who predominantly follow an entity theory and fixed mindset value performance goals, proving their ability, avoiding challenges, the belief that one does not value effort if you have natural ability, and low enjoyment or withdrawal when faced with challenges (Potgieter, 2012).

Dweck and colleagues in the early 1970’s began research that would set the framework for the current theoretical idea of Self Theories. Two of the studies looked into the motivational influences of students of when they failed, when they succeeded, and what they attributed their failures to (Dweck & Reppucci, 1973; Dweck, 1975). In the 1973 study by Dweck and Reppucci the study evaluated learned helplessness in fifth grade children. The study results suggested that students who persevered the face of prolonged failure placed more of an emphasis in effort. Individuals who had the largest performance decrease took less responsibility for their actions and when they did accept responsibility they attributed their successes or failure to ability rather than effort. This was able to set the research foundation for Dweck’s 1975 study. The study evaluated 12 children with a predetermined, “extreme reaction to failure”, and were either given one of two training interventions of 25 trials. One group was given the success only treatment, which allowed the child to complete a predetermined set number of problems within a time trail. The other treatment, attribution retraining treatment, programmed failure on 20 percent of the

trials and when failure did occur the intervention focused on the failure being due to lack of effort rather than ability. The results of this study found that children in the success only treatment showed the same extreme reaction to failure and a decrease in performance after failure, while students in the attribution retraining intervention improved their performance. These results were reinforced in a following study where students were assigned into either a mastery-oriented group or a helplessness group based on a self-report measure. The results of this study suggested that students who were assigned to the helplessness group did not expect success to continue when it did, overestimate their number of failures, and when subsequent failure did occur devalued their performance (Diener & Dweck, 1980).

In a sport setting, individuals with a fixed mindset believe that their skill ability in the sport is already pre-determined and is fixed. The goals that fixed athletes set for themselves are those that set high priority on performance and displaying their high ability. With a high priority on performance, the athletes who hold an entity theory have been associated with heightened levels of anxiety (Gardner, Vella, & Magee, 2015). Any failure in a sport sense, whether it be a loss, wayward shot, missed tackle, or swing and a miss, can be directly reflective of their sport ability. Whereas athletes who chose to adopt a more growth mindset approach believe that a loss or setback is only temporary and can use this as an opportunity to learn and develop their sport ability (Dweck, 2006). In addition to the belief that a loss or a setback is only temporary, individuals with a growth mindset analyze their own game and acknowledge their weakness as well as areas where they need to improve. The growth mindset allows the athlete to interpret their weakness as an area that needs to improve and a part of their game that can be enhanced to make their complete game more whole and developed. The acknowledgement of the weakness leads to the mastery of all the skills associated with the game. Individuals that assign themselves

to a more fixed mindset see the weaknesses in their game as indicative of their ability. With the belief of skills being fixed, when a failure does occur, it is not an opportunity to grow but the failure is a result of their lack of ability.

The ability to use shortcomings and setback as adaptive instead of debilitating, individuals with a growth mindset are more prone to beneficial and effective coping methods (Potgieter, 2012). Growth mindset has been found to prevent the adverse correlations of negative life events. “The relations between number of stressful life events and posttraumatic stress symptoms, depression, substance use, and motivations for non-suicidal self-injury were weaker among those with more of a growth mindset relative to those with more of a fixed mindset” (Schroder, Yalch, Dawood, Callahan, Donnellan, & Moser, 2017, p. 23). Supporting this conclusion, growth mindset of emotions and anxiety has been associated with more beneficial emotion regulation strategies (Kneeland, Dovidio, Joorman, & Clark, 2016). In a sport setting this has been suggested as well.

A positive interpretation of failure has been associated with growth mindset and task orientation (Potgieter & Steyn, 2010; Potegieter, 2012). As defined by the research the positive interpretation of failure is that the failure can be learned from and be used as adaptive rather the debilitating. With a positive interpretation of failure, it allows individuals with a growth mindset to take a more objective view on their setback. The setback in individuals with a growth mindset is not indicative of their ability, allowing the individual to disassociate from the result as being reflective of themselves and their natural ability. A 2011 qualitative study researching implicit theories of golf ability exemplifies this belief (Slater, Spray, & Smith, 2012). One of the themes that emerged from the study was the improvement of technique through practice and how reflection and scrutinizing of their own individual game fits the paradigm of a growth mindset.

Similarly, findings using EEG (electroencephalography) suggested that individuals with a growth mindset have enhanced attention to mistakes, which leads to improved performance after the error (Moser, Schroder, Heeter, Moran, & Lee, 2011). With the athlete being more likely to recognize their shortcomings, they will be more apt to identify where they made the mistake, which can lead to the subsequent behavior change. In support of this, research has shown that individuals with a fixed mindset are more likely to make rapid judgments and predictions with limited data (Chiu, Hong, & Dweck, 1997). The individuals with fixed mindset maybe quicker in the making of judgments than individuals with a growth mindset, but they a more apt to make mistakes in the recognition of patterns.

Research has found that a fixed mindset is predictive of self-handicapping strategies, which are a defensive strategy designed to protect views of their ability (Ommundsen, 2001). With these maladaptive strategies, Ommundsen also found that a fixed mindset also was related to students increased anxiety levels and decreased enjoyment in a physical education setting. In support of this research, Biddle, Wang, Chatzisarantis, and Spray (2003) found that youth enjoyment in a physically activity setting was directly predicted by task orientation and incremental beliefs. In the entity theory, individual's value looking good over learning. There is a disdain for effort and any lapse in performance is a threat to their sense of ability. Individuals who hold an entity theory feel the most successful when they beat others, while individuals who hold an incremental theory feel the most successful when they improve or master new abilities (Dweck, 2007). With individuals holding an entity theory feeling most successful when they beat others their ideal term of success is more out of individual control.

If an individual has a belief system that aligns with that of a growth mindset they are more apt to view their performance on a more individual level and base their results on their own

individual goals and past performances. With a growth mindset the individual has more control of their belief of their performance. Research has found that individuals with a growth mindset endorse a learning or mastery goal orientation, while individuals with a fixed mindset endorse performance or ego goal orientations (Dweck, 1986; Dweck & Legget, 1988; Dweck & Grant, 2008; Blackwell, Tresniewski, & Dweck, 2007).

Goal Orientation

Achievement goal theory is the concept of behavior that individuals are directed at developing or demonstrating high rather than low ability (Nicholls, 1984). Achievement goal theory is broken down into two main categories, task or mastery orientation and ego or performance orientation. Mastery goals focus on the acquiring and developing competence, while performance goals focus on demonstrating one's competence and the out performing of others (Nicholls, 1984; Dweck, 1986). The early works of achievement goal orientation were conducted in a dichotomous format, with goal orientations of mastery and ego. More recently advancements in achievement goal theory also include a trichotomous and a 2 x 2 goal framework (Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). The trichotomous framework includes; mastery, performance approach, and performance avoidance, while the 2 x 2 goal framework includes, mastery approach, mastery avoidance, performance approach, and performance avoidance. The mastery avoidance goal orientation was introduced by Elliot and colleagues in a continuation of achievement goal theory development, and in a meta-analysis conducted by Baranik, Stanley, Bynum, and Lance (2010) support mastery avoidance as a distinct construct. In further describing the 2 x 2 framework, approach goals are focused on acquiring positive possibilities, where avoidance goals are focused on avoiding negative outcomes (Yperen, Elliot, & Anseel, 2009).

Mastery approach goals are learning goals where individuals are concerned with increasing their competence, to understand or master something new (Dweck, 1986). Mastery avoidance goals differ from mastery approach goals in the way that they are concerned with learning incorrectly, striving to avoid mistakes or forgetting what one has learned (Elliot & McGregor, 2001). Performance approach goals are built on the goals are characterized on being more successful or beating others, while performance avoidance goals are focused on avoiding failure or being worse than others. These four aspects of the 2 x 2 approach build on early work in achievement goal theory works, while still adhering to the base principles of task (mastery) and ego (performance) orientation set by the original dichotomous framework. There has been a large body of research conducted in academic and sport settings with achievement goal theory been supportive of the adaptive aspects of mastery approach. Mastery approach is the pursuit of goals that are intrapersonal and of a positive nature (Elliot & McGregor, 2001). Mastery approach orientated individuals choose challenging tasks, strive for perfection, have greater task interest, and intrinsic motivation (Elliot & McGregor, 2001; Stoeber, Stoll, Pescheck, & Otto, 2008; Van Yperen, 2006). With research supporting that mastery approach are the most adaptive; the results for mastery avoidance have been less supportive.

Elliot and McGregor (2001) in their proposal of the 2 x 2 framework state that mastery avoidance had been over looked in previous research by the assumption that any mastery goals would be approach oriented, and they hypothesized that there is an avoidance aspect of mastery goals. In continued support for the of the distinction in mastery avoidance goals, Akin (2014) found that self handicapping was positively correlated with mastery avoidance goals and performance avoidance goals. The 2010 meta-analysis of the mastery avoidance goals by Barankik, Stanley, Bynum and Lance, supported the validity of mastery avoidance in the 2 x 2

construct. The analysis found that despite both mastery approach and mastery avoidance holding incremental beliefs they are actually quite different. The meta-analysis exploring the consequences of achievement goals of help seeking and performance, found that mastery avoidance goals were negatively related to help seeking and performance, while mastery approach was positively related to both. The meta-analysis suggests that mastery avoidance goals are distinct from not only mastery approach, but also performance avoidance goals, with mastery avoidance falling in between the two extremes. The researchers go on to suggest that mastery avoidance goals can be more harmful than adopting performance approach goals.

Performance approach goals are the goals that are based in outperforming others. Performance approach goals are associated with overall need for achievement, competitiveness, competence valuation, and surface processing (Elliot & McGregor, 2001). With performance approach being positively related to actual performance, many researchers consider performance approach goals as a determinant of actual performance. (Harackiewicz, Barron, Pintrich, Elliot, & Thrash 2002; Senko & Harackiewicz, 2005; Van Yperen & Renkema, 2008). While it has been linked to performance, it is still generally not considered the most adaptive goal adoption. Individuals with performance approach goals can be influenced by a wide variety of other external factors such as; intrinsic motivation, a fear of failure, and a higher state of anxiety (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Harwood, Spray, & Keegan, 2006). Performance approach goal research has been less consistent in its findings compared to mastery approach and performance avoidance goals, because of the way in which it can be defined in research (Harackiewicz et al., 2002). Throughout research, performance approach goals have been classified as goals that are based on self-presentation and some as goals based on normative competence outcomes. Harackiewicz et al. suggest that the normative competence outcome

definition is the most uniform way to research and define performance approach goals. Research on performance approach goals has provided some adaptive and maladaptive antecedents and consequences, the final construct of the 2 x 2 performance goal orientation, performance avoidance, has been found to be the least adaptive of the four.

Performance avoidance goals refer to the avoidance of performing worse than other or losing to others (Elliot & Harackiewicz, 1996). Performance avoidance goals in research have consistently been found to be maladaptive and the prospect of failure is likely to elicit anxiety, self-protective withdrawal of cognitive resources, and disrupt concentration. This type of goal has also been found to be predictive of self-handicapping strategies and low competence evaluation (Elliot & Church, 1997). The performance avoidance goal adoption has negative antecedents but also consequences as well that not only affect the cognitive state of the individual but also the performance of that person in a task.

Implicit Theories, Goal Orientation, and Self-Efficacy

Research has shown that implicit theories and self-efficacy are antecedents of goal orientation (Payne, Youngcourt, & Beaubien, 2007). Implicit theories and self-efficacy have been found in research to influence the adoption of goals (Stenling, Hassmen, & Holmstrom, 2014; Huang, 2016; Bandura & Wood, 1989; Wang, Liu, Lochbaum, and Stevenson, 2009; Cury, Elliot Da Fonseca, and Moller, 2002). This research has been supported by researchers using the trichotomous and the 2 x 2 achievement goal theory constructs. Using the trichotomous construct Hsieh, Sullican, and Guerra (2007) suggest that self-efficacy is significantly correlated with mastery goals. The 2007 meta-analysis by Payne, Youngcourt, and Beaubien also found self-efficacy to have a strong positive relationship with learning (mastery) goal orientation. The findings were supported in 2015 study by Dull, Schleifer, and Mcmillan, the researchers

hypothesize that students with higher adoption of mastery goals may not be adversely affected by setback as much as students with higher performance orientation (Grant & Dweck, 2003).

In the 2 x 2 construct, a 2016 meta-analysis conducted by Huang suggested that self-efficacy was positively correlated with mastery-approach goals and performance approach goals, with mastery having a strong correlation and performance approach having a moderate positive correlation. This supports research by Elliot (1999) that linked approach-valenced goals to higher levels of self-efficacy while lower levels would be linked to avoidance goals. The meta-analysis further supports this by finding statistical differences between mastery approach and mastery avoidance, as well as performance approach and performance avoidance goals.

Achievement goal adoption has also been linked to mindset in research. Early work by Dweck and colleagues (Dweck, 1986; Dweck & Legget, 1988) suggests incremental (growth) mindset is linked to mastery goals while entity (fixed) mindset is linked to performance goals, and research has provided support for this. Cury et al. (2002) suggest in their research that entity theory was a positive predictor of performance-approach and performance-avoidance goals, and incremental theory was a predictor of mastery-approach and mastery-avoidance goals. The 2014 study conducted by Stenling et al. provided more support for the early research but in a sport setting, suggesting that athletes with an incremental belief with adopt mastery approach goals to a higher extent than performance approach goals. The study also goes on to suggest that athletes with entity beliefs adopt performance avoidance goals to a greater extent.

In a slightly different research construct, Wang et al. (2009) examined the relationship between sport ability, 2 x 2 achievement goals, and intrinsic motivation with perceived competence as a moderator in sport and exercise. The research suggests that higher competence group had higher mastery-approach and performance approach goals compared to moderately low perceived

competence group. The research also suggested that when perceived competence is high, entity beliefs predict performance approach goals. In regard to the incremental theory, when perceived competence was high mastery approach goals were predicted, and when perceived competence was low mastery avoidance goals were predicted. While self-efficacy and perceived competence are not the same construct, the results in this research setting are similar. Perceived competence is more related to a perception developed over time rather than a state specific perception, and focuses on the abilities that one has developed and not the perception of what one can accomplish (Bandura, 1997; Feltz, Short, and Sullivan, 2008).

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APPENDIX B
DEMOGRAPHICS QUESTIONNAIRE

Age: _____

Gender Identity: _____

Race: _____

Ethnicity: _____

Sport: _____

Year in College: _____

For the following questions please circle the answer that applies to you:

At what level are you currently competing?

NCAA Division I NCAA Division II NCAA Division III NAIA

Are you currently in or out of competitive season?

In Out

Have you ever participated in an NCAA or NAIA sporting event?

Yes No

APPENDIX C

SELF-EFFICACY QUESTIONNAIRE

To answer each question please indicate what percentage of the time you are confident in that particular situation. Zero = zero percent of the time while 100 = 100 percent of the time

0	10	20	30	40	50	60	70	80	90	100
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1. I am confident that I can perform to the best of my abilities in competition

2. I am confident that I can beat the other competitors in a competition

3. I am confident that I can achieve my competition goals for the season

4. I am confident that I can be mentally tough throughout a competition

5. I am confident that I can perform to the best of my abilities in pressure situations

APPENDIX D

CONCEPTIONS OF THE NATURE OF ATHLETIC ABILITY QUESTIONNAIRE – 2

In the follow statements please circle the number that represents your belief.

1 = “Strongly Disagree” and 5 = “Strongly Agree”

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

APPENDIX E

2 x 2 ACHIEVEMENT GOAL QUESTIONNAIRE FOR SPORT (AGQ-S)

In the following statements please circle the number that represents your beliefs

1 = “ not at all like me” 7 = “completely like me”

1: It is important to me to perform as well as I possibly can	1	2	3	4	5	6	7
2: I worry that I may not perform as well as I possibly can	1	2	3	4	5	6	7
3: It is important to me to do well compared to others	1	2	3	4	5	6	7
4: I just want to avoid performing worse than others	1	2	3	4	5	6	7
5: I want to perform as well as it is possible for me to perform	1	2	3	4	5	6	7
6: Sometimes I'm afraid that I may not perform as well as I'd like	1	2	3	4	5	6	7
7: It is important for me to perform better than others	1	2	3	4	5	6	7
8: My goal is to avoid performing worse than everyone else	1	2	3	4	5	6	7
9: It is important for me to master all aspects of my performance	1	2	3	4	5	6	7
10: I'm often concerned that I may not	1	2	3	4	5	6	7

perform as well as I can perform							
11: My goal is to do better than most performers	1	2	3	4	5	6	7
12: It is important for me to avoid being one of the worst performers in the group	1	2	3	4	5	6	7