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Antecedents of Athletes' Achievement Goal Orientations

by

MATTHEW LACHMAN

(Under the Direction of Brandonn Harris)

ABSTRACT

Theorized by Nicholls (1984), achievement goal theory describes the interaction of one's perceived ability and two goal orientations, known as "task" and "ego," that an athlete employs when setting goals. These goal orientations are what athletes employ when playing their sport. The result of this interaction is an athlete's achievement behavior. Previous research has examined this theory extensively (Newton & Duda, 1999; Chin, Khoo, & Low, 2012; Smoll, Smith, & Cumming, 2007; White & Zellner, 1996). However, few studies have solely looked at factors that predict one's achievement goal orientations. The purpose of this study is to address which demographic variables (Division, gender, and year in school) as well as the theoretical constructs of achievement goal theory (perceived competence and motivational climate) have the most influence in understanding an athlete's achievement goal orientations. Furthermore, this study will isolate each demographic variable and break it down into substrates (i.e. gender: male and female) to see if there were differences between them regarding the athlete's achievement goal orientations. Participants include 143 undergraduate students from universities across the Midwest and Southeastern United States. Results of the study indicated that mastery climate and Division type scores had an impact on an athlete's task score ($r = .444, p = .001, r = .259, p = .048$), while Division type was the sole predictor of an athlete's ego scores ($r = -.340, p < .05$). Analysis of the demographic variables displayed a difference between Division type and ego

scores ($T(141) = 2.155, p = .034, d = .36$) such that Division I ($M = 2.91$) had higher ego scores compared to Division III ($M = 2.62$).

INDEX WORDS: sport psychology, motivation, achievement goal theory

Antecedents of Athletes' Achievement Goal Orientations

by

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Bachelor of Science, Baldwin-Wallace College, 2011

A Thesis Submitted to the Graduate Faculty of Georgia Southern University in Partial

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Antecedents of Athletes' Achievement Goal Orientations

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DEDICATION

I dedicate this thesis to the multitude of people who have impacted my decision to pursue a master's degree in sport psychology. From my family to my close confidants, without your constant unconditional love and support, I would not have made it through this program. My father, Chris Lachman, impressed on me at an early age that "life is a bunch of peaks and valleys, never get too high on life or beat yourself up because you never know when it is going to change direction." My mother, Eileen Lachman, is the definition of perseverance, and passed this quality onto all of her children. Without them, I would not have overcome all the obstacles that I have faced and become the strong-willed, confident man I am today. Thank you.

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CHAPTER 1

INTRODUCTION

In the current sport culture, there are many psychological skills that are utilized by athletes to help achieve success. One of these skills that play an integral part in determining the success of a task is motivation. In the present study, motivation is defined as the direction of one's intensity (Newton & Duda, 1999). More specifically, this construct addresses where someone applies their efforts. There are many theories that aim to describe different ways of enhancing motivation. Because of this, motivation is an area in sport that is highly researched and documented (Newton & Duda, 1999; Chin, Khoo, & Low, 2012; Smoll, Smith, & Cumming, 2007; White & Zellner, 1996). Within this literature, it is common to find studies that articulate how to motivate an athlete, (Gilman, 1996; Kiende, 2013; Hopper, Axel Berg, Andersen, & Madan, 2003), or to better understand motivation as a potential contributor to success (Lochbaum, & Roberts, 1993; McCarthy, 2011).

One motivation framework frequently utilized includes a set of perspectives characterized as "achievement motivation theories." These perspectives include the need achievement theory, attribution theory, competence motivation theory, and achievement goal theory. Theorized early by Murray (1938), these theories were grouped together by several factors, including how an individual puts forth energy to master a task, attain excellence, persist through obstacles, compete more effectively than others, and take pride in displaying talent. Otherwise stated, these theories not only describe how one pursues excellence, but also the psychological process that an athlete undertakes to

accomplish his or her goals. In sport, motivation is vital because it impacts why and how athletes participate in the activities they choose, influencing the quality of their efforts and ultimately the final product of their participation (Chin, Khoo, & Low, 2012).

Although all achievement motivation theories define where motivation comes from, achievement goal theory specifically examines the “why” and “how” of athletes defining their participation in sport and ultimately their success.

Achievement goal theory includes a few main factors that interact with one another to influence an individual’s motivation. The factors include achievement goal orientations, perceived competence, and achievement behavior. Theorized by Nicholls (1984), he described two bi-directional orientations, known as “task” and “ego,” that an athlete employs when setting goals. These goal-orientations are what athletes employ when playing their sport. Athletes who utilize a task goal-orientation focus on their effort, as well as seek skill development, improvement, and task mastery (Smoll, Smith, & Cumming, 2007). Thus, success is relative to the athlete’s own performance. Newton and Duda (1999) suggested that those individuals who employ more of a task-orientation have higher-enjoyment, greater intrinsic motivation, and utilize more personal achievement behaviors. Individuals are enjoying the sport more when engaged in task-orientation compared to an ego-orientation; which is one that focuses on dominance of others. It has also been suggested that people encompassing a mastery-orientation have lower levels of trait anxiety and show lower levels of pre-event state anxiety (White & Zellner, 1996). Thus, task-orientated athletes realize success frequently because it is based off of their own standards.

In addition to task-goal orientation is an ego-goal orientation. These orientations are orthogonal and can exist at the same time in the same person. Those athletes who encompass an outcome-goal orientation define success as more than just demonstrating superiority over the competition, they also use social comparison as a way of deriving feelings of adequacy (Duda et al., 1991). Perceived success is viewed through this demonstration of victory. However, Nicholls (1984) stated that this goal orientation can be further parceled out when one takes into account an athlete's perceived competence. As such, when an athlete has a high perceived ability, he or she seeks to attain these positive judgments; whereas when one has a low perceived confidence, he or she wants to avoid the critiques of others. An example of avoiding these judgments would be by creating excuses to why the outcome was not an ideal one for the athlete.

Outcome-orientated athletes have also shown maladaptive consequences elsewhere. Inconsistent effort, higher performance anxiety, reduced persistence in the presence of failure, and even a willingness to use deception and illegal substances in order to triumph over others have been documented (Duda, et al., 1989). With this orientation surrounded in scrutiny and undesirable consequences, it is not surprising that having a task-orientated perspective motivates an individual more adequately when compared to an ego-oriented outlook. Although there have been documented hardships placed upon those who solely utilize an ego-goal orientation, when athletes combine a high task-goal orientation with an ego-goal orientation, athletes have been shown to employ positive aspects of both orientations (Duda, 1989; Harwood & Swain, 2002; Roberts, Treasure, & Kavussanu, 1996).

Previous researchers have examined some of the individual differences among collegiate players that may influence goal orientation among athletes. For example, in a study involving NCAA (Division I and III) athletes and achievement goal orientations, Gentile (2002) found that NCAA Division I athletes scored higher on both task and ego goal orientations compared to NCAA Division III athletes. Gender has also been a focus when examining achievement goal orientations. White and Zellner (1996) and Gentile (2002) indicated in their studies that men had the tendency to be greater in ego orientation than women, while women were constantly higher in task-orientation. Having said that, it would give the impression that differences in one's goal orientation is correlated to an individual's gender. However, Omar-Fauzee and colleagues (2008) noted no variance regarding gender and goal-orientations. In addition to gender and NCAA Division differences, an individual's academic year in school was investigated, although in more of an academic sense. Lynch (2008) found college freshman were more eager to learn the new material and persist through a more difficult class, thus, displaying signs of a task-orientation.

As previously touched upon, perceived competence is also believed to influence one's achievement behavior. Perceived competence in a task is determined by the individual's interpretation of success, which is mirrored by their goal-orientations (Nicholls, 1984). An athlete either has a high perceived competence of a task, suggesting the athlete perceived themselves to be capable in how to carry it out, or a low perceived competence, which means the athlete is unsure of how to carry out the task (Newton & Duda, 1993). Research has shown that having a high ego-orientation is correlated with feelings of accomplishment when the athlete can demonstrate his or her high ability

(Papaioannou & Kouli, 1999). Elliot and Church referred to this as *approach motivation*, as the individual is deciding to participate due to the perceived favorable outcome (1997). Previous literature has also concluded that when the athlete lack this high competence, negative feelings of failure arise, and as a result, these individuals tend to withdraw from a task or reduce their effort when faced with defeat (Papaioannou & Kouli, 1999). Elliot and Church suggested this reluctance be considered *avoidance motivation* as the individual is choosing not to participate due to the perceived negative outcome (1997). In regards to perceived competence and a task-orientation, it is easier for a task-oriented person to feel adequate about their abilities because their outlooks are based off their own standards (White & Zellner, 1996). Otherwise stated, these athletes perceive more competence than those ego-oriented individuals. When exploring research on competence motivation and the athlete, there is limited research out there to suggest that there is a relationship between motivation and Division type. However it has been suggested that individuals who participate in NCAA Division I sports have higher levels of intrinsic and extrinsic motivation when compared to athletes who compete in NCAA Division III sports due to many external factors including scholarship pressure, social status, and the pressure to succeed (Stults-Kolehmainen et al, 2013).

In addition to goal orientation, achievement goal theory also includes additional elements believed to influence an athlete's achievement behavior. More specifically, motivational climate refers to the environment that is most opportune to facilitate learning for the athlete. To achieve success; one must match the motivational climate to that of his or her achievement goal-orientation (Duda et al, 2007). Again, this climate can be task, ego-approach, or ego-avoidance in nature. As with achievement goal

orientations, motivational climate is bi-directional and can change depending on the situations. If an individual is more of a task-orientated athlete, he or she is going to prefer to be in a climate that is more task-focused. This climate is one that encourages self-improvement, task-mastery, and exhibiting maximum effort and dedication (Bortoli et al, 2011). This environment gives athletes the opportunity to select challenging tasks and display persistence. Those who seek more of an ego-orientated climate are those who want praise for showing mastery over the competition, receive praise for winning, but also scolded when doing something wrong as to facilitate a chance to improve their skill (Smoll et al, 2007). An ego-orientated environment boasts social comparison and dominance as a way of receiving praise. The difference between an ego-approach and ego-avoidance environment can be explained when considering an athlete's perceived competence. If the ego-goal oriented athlete is more performance-approach, he or she will view the environment as challenging and as an opportunity to produce success; whereas a performance-avoidance athlete will potentially view challenges as a threat and therefore reduce their efforts (Elliot & Church, 1997).

Although much of the research on the achievement goal theory exists, there still appears to be a few areas that are overlooked. One area that has not had been investigated is the athlete's academic year in school. As previously discussed, Lynch (2008) examined collegiate grade level and academic motivation. The conclusion that seniors in college tend to produce less effort and less persistence when faced with difficult classes when compared to freshman may not be duplicated on the court

In another study conducted by Hung, Chou, Chen, and Own (2010) on readiness to take online courses, it was found that senior students had greater readiness in the

dimensions of self-directed learning and motivation for learning than did freshmen and sophomores. This conclusion may suggest that students' maturity may play an important role in their motivation in the classroom and in their understanding of how to properly motivate themselves. Being that athletes are also students, examining how one is motivated in the classroom may also shed light on how one is motivated in sport.

Finally, few studies exist in which NCAA Division I and Division III athletes have been compared on these variables. One area that had been investigated is athletic identity. It has been documented that NCAA Division I athletes have a higher athletic identity when compared to NCAA Division III athletes (Griffith & Johnson, 2002). Further, Leydig, Russo, and Greenberg (2012) examined athletes' sport motivation and athletic identity and found that athletes who have a higher athletic identity may also be more intrinsically motivated when compared to athletes with lower athlete identity. Given individuals who have higher intrinsic motivation tend to also set task-oriented goals, NCAA Division I athletes may also be more task oriented in their goals.

Given the aforementioned research regarding achievement goal theory, the purpose of this study is to address which demographic variables (Division, gender, and year in school) as well as the theoretical constructs of achievement goal theory (perceived competence and motivational climate) have the most influence in understanding an athlete's achievement goal orientations. Furthermore, this study isolated each demographic variable and broke it down into substrates (i.e. gender: male and female) to see if there were differences between them regarding the athlete's achievement goal orientations. Having many factors that influence one's achievement goal orientation,

determining which factors impact it will enhance the understanding of how to aide athletes in strengthening their goals.

It was hypothesized that the predictor variables (theoretical constructs and demographic variables) would significantly predict one's achievement goal orientations. Of the two predictor variables, it was hypothesized that theoretical constructs being examined (motivational climate and perceived confidence), would have more of an influence on an athlete's achievement goal orientations compared to the demographic variables due to previous research linking the importance of matching one's climate to the appropriate achievement goal orientation, as well as the well-documented interactions of goal orientations and competence.

While examining the individual variables, it was predicted that there would be a difference between NCAA Divisions. NCAA Division I athletes would incorporate more of an ego-oriented goal than a NCAA Division III athlete due to previous research done by Gentile (2002), the pressure applied by the coaches to succeed, as well as external pressure placed upon the athletes (scholarship, family, friends). Also, it was hypothesized that there will be a difference between academic year in school. Freshman would employ more of a task-orientation, due to previous research by Lynch (2008) and Hung, Chou, Chen, and Own (2010). Finally, it is hypothesized that there will be a difference between gender. Based on previous research (White & Zellner, 1996; Gentile, 2002), it was believed that females will be more task-oriented than males.

CHAPTER 2

METHODS

Participants

Following IRB approval, data was collected using a convenience sample of NCAA Division I (DI) and Division III (DIII) athletes. The sample consisted of approximately 143 total (DI and DIII) collegiate athletes who currently participated in their respective sport and voluntarily agreed to take part in the study. Divisional breakdown of the population indicated that 58 Division I athletes completed the survey, while 85 Division III athletes completed it. Gender breakdown displayed 30 males completing the survey to 112 females. Finally, in regards to year in school, the sample consisted of 33 freshmen, 45 sophomores, 34 juniors, 30 seniors, and 1 fifth year who completed the survey. Participants were gathered from southern and mid-western universities.

Instruments

Demographics. A demographic questionnaire was given out to participants to collect specific descriptive information such as age, gender, race, ethnicity, sport, and Divisional status. (see Appendix C).

Achievement Goal Orientation. The participants' disposition towards task and ego involvement in their sport was determined using the Task and Ego orientation in Sport Questionnaire (TEOSQ; Duda et al.,1991). This survey asked participants to recall when they felt most successful when playing their sport and to reply to 13 items intended to analyze task-oriented criteria (e.g., "I feel successful in tennis when something I learn makes me want to practice more"), and ego-oriented criteria (e.g., "I feel most successful

in tennis when I am the only one who can do the skill”) for determining success.

Participants’ responses were indicated on a 5 point Likert scale (1= strongly disagree; 5= strongly agree). Mean scale results were calculated for the Task and Ego orientation scales of the TEOSQ. Internal consistency was demonstrated in both the task and ego orientation subscales, with Duda (1992) reporting alpha coefficients of .79 for task goal orientation and .81 for ego goal orientation. For the present study, after conducting reliability statistics, alpha coefficients were considered good, with both ego and task subscales reporting .84. (see Appendix D)

Athletic Competence. To examine the participants’ perceived athletic ability, athletic competence subscale from Neeman and Harter’s (1986) Self-Perception Profile for College Students was used. This subscale is comprised of four questions, which assesses participants’ perception of their ability at physical activities and sports (e.g., “some students feel like they are better than others at sport,” “other students don’t feel they can play well”). Cronbach’s alpha was reported .92 for this section subscale. (Neeman & Harter, 1986). For the present study, after conducting reliability statistics, the alpha coefficient for the subscale was considered poor, reporting .072. (see Appendix E)

Motivational Climate. The Perceived Motivational Climate in Sports Questionnaire (PMCSQ-2; Newton, Duda, & Yin, 2000), was used to measure the participants’ perceived motivational climate on their team. This survey consists of 33-items assessing mastery climate (i.e. “In this sport, the coach makes sure participants improve on skills they are not good at”) and ego climate (i.e. “In this sport, participants are encouraged to outplay the other participants”). Answers are rated on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Cronbach alpha value has been

determined to be .87 for the mastery scale scores and .86 for the ego scale scores (Newton, Duda, & Yin, 2000). For the present study, after conducting reliability statistics, alpha coefficients were considered excellent, with both ego and task subscales reporting .93. (see Appendix F)

Procedures

A “pilot study” was conducted to alleviate any confusing questions that may have arisen. The researcher surveyed a sample consisting of graduate students at a southeastern university and received feedback on any alterations that needed to be made in order to decrease ambiguity and confirm whether the items measured what they intended to measure.

Measures were administered through Qualtrics, an online surveying website. Coaches were contacted through email to acquire permission for their athletes to participate in the study. Once permission was obtained, athletes were then contacted through email by their coach to complete the questionnaire. Before starting the questionnaire, participants were given instructions specifying the study’s purpose. Importance was placed on the confidentiality of answers to reduce social desirability and emphasize participants responding honestly. In the case of participants under the age of 18, the researcher was notified by the representative coaches and informed consent was attained from their parents or guardians prior to administration of the questionnaires. A link containing the survey was provided by the researcher. Each participant was asked to read the informed consent prior to testing and consent was provided through completion of the survey. Participants completed the four surveys (Demographics, TEOSQ-2, SPP-CS, PMCSQ-2) and then were acknowledged for their assistance. Counterbalancing of

survey implementation was used to decrease ordering effects. The assessment last approximately 15 minutes.

Data Analysis

Following the completion of the questionnaires, descriptive analyses were conducted using demographics of the participants. Calculations, including the mean and standard deviation, were conducted to evaluate the central tendency and dispersion of the data of the sample. Skewness and kurtosis tests were executed to determine if the data was normally distributed.

A hierarchical linear regression was used to examine if an athlete's achievement goal orientation was influenced by the demographic variables (Division, gender, and year in school) and theoretical constructs within the achievement goal theory (perceived competence and motivational climate). The variables were entered in the order of most probable to least probable factor influencing one's achievement goal orientation; first entered were the theoretical constructs of perceived competence and motivational climate, then the descriptive variables. Theoretical constructs entered in first due to their already existing relationship with achievement goal orientations. It was run twice to account for both the task and ego orientation scales. The regression produced beta weight values, which indicated how strong of an influence each variable had on an individual's goal orientations.

Following the regression, an ANOVA and independent samples *t*-test were used to better isolate different variables (Division, gender, year in school) and to determine their individual effects on an athlete's achievement goal orientations.

An ANOVA was used to identify the differences between the achievement goal-orientations and year in school. Tukey's and Tamhane's post-hoc tests were performed to examine the individual differences found between freshman, sophomores, juniors, and seniors. An independent samples *t*-test was used to examine the difference of goal orientations between NCAA Division I and III. Finally, due to uneven sample size, a Mann-Whitney *U* test was performed to identify any differences between goal-orientations and gender.

CHAPTER 3

RESULTS

Mean and standard deviations from the final sample ($n=143$) with regards to TEOSQ, SSP-CS-AC (athletic competence subscale), and PMCSQ-2 were compiled and can be viewed in Table 1. Two hierarchical linear regressions were conducted to determine which variables most strongly predicted an individual's task-goal orientation and ego-goal orientation. For both regressions, variables were entered in the order with which they were believed to predict the goal-orientation (most to least likely). Competence scores from the SSP-CS-AC were entered into the first block, perceived motivational climate scores from the PMCSQ-2 (mastery and performance scores) were entered in the second block, and finally demographic characteristics were entered into the third block (Division type, gender, and year in school). Due to either incomplete or missing athletic competence scores, only 64 participants were usable for both regressions. After running collinearity statistics, the researcher reviewed the results and found that tolerance scores were greater than .20 and the VIF values were less than 2.0; thus multicollinearity was shown not to be a concern for either regression analysis.

For the regression predicting task-goal orientation, mastery climate was found to have a moderate positive correlation to task score and be a significant predictor ($r = .44, p < .001$) while performance climate had a weak negative correlation ($r = -.217, p = .043$). A weak, negative relationship was found in regards to year in school ($r = -.223, p = .039$). Of all the variables entered, the only two that indicated a significant relationship in predicting an individual's task score were mastery climate ($p = .001$) and division type ($p = .048$). Of the three models, the second model generated included one predictor

variable, motivational climate, which alone accounted for 15.9% of the variance and was a moderately strong predictor of an individual's task-goal orientation ($\beta = .444, p = .001$). The third model generated (demographic variables) accounted for 19.5% of the variance and suggested that only division type was a significant addition to the previous model in predicting task-goal orientation ($\beta = .259, p = .048$).

In the second regression predicting ego-goal orientation, division was shown to have a moderately weak negative relationship with ego score ($r = -.340, p = .003$). Of all the variables entered, the only one to reveal a significant relationship in predicting an individual's ego score was division type accounting for 9.9% of the variance in ego-goal orientation ($\beta = -.349, p = .013$).

To further examine the data, two independent samples *t*-tests were run to determine individual differences between the two goal orientations (task and ego) and division level. Results indicated that there was no significant difference between Division I and Division III athletes with their task score ($p = .196$). However, there was significance between division type and ego scores ($t(141) = 2.155, p = .034, d = .36$) such that Division I athletes ($M = 2.91$) demonstrated higher ego scores compared to Division III ($M = 2.62$). Results for these analyses are presented in Table 2.

Two ANOVAs to determine differences between the goal orientations (task and ego) and year in school were conducted. Results indicated a significant main effect between task score and year in school ($F(3, 138), p = .034, \eta^2 = .061$). Tukey's post-hoc tests were run to determine individual differences between the years in school and found that there was a significant difference between freshman and juniors ($p = .043$). However, Levene's test for homogeneity was violated ($p = .044$); thus, Tamhane's post-hoc analysis

was run and there was found to be no significant difference between freshman and juniors as a result. The second ANOVA was run between ego score and year in school. Results indicated no significant difference between ego score and year in school ($p = .621$). Results for these analyses are presented in Table 3.

Finally, due to unequal sample size with gender, non-parametric tests were run to determine if there was a difference between the goal orientations and gender. Results from a Mann-Whitney U test run between task score and gender showed no significant difference between the two ($p = .219$). The same results were seen between ego score and gender ($p = .90$). Results for these analyses are presented in Table 4.

CHAPTER 4

DISCUSSION

The primary purpose of the present study was to address which demographic variables as well as theoretical concepts of achievement goal theory have the most influence in understanding an athlete's achievement goal orientations. A secondary purpose was to isolate each demographic variable and see if there were differences between them regarding the athlete's achievement goal orientations. Results from the study show that in both hierarchical linear regressions, the only significant predictor of both task-goal and ego-goal orientation was Division type, with mastery climate only predicting task-goal orientation. Three of the five hypotheses posed by the researcher were satisfied through the study.

Results of the regression analysis regarding participants' task score partially supported the first two hypotheses that the predictor variables (theoretical constructs and demographic variables) would predict achievement goal orientations, with the theoretical constructs having a greater impact on the formation of one's task goals compared to the demographic variables. Although mastery climate was the only construct to have an impact, the present results can be linked to previous research from Duda and colleagues (2007), Smoll and colleagues (2007), and Elliot and colleagues (1997) who stated that one must strive to synchronize the motivational climate to the achievement goal orientation. This is salient information because the type of climate that is perceived by the athlete will influence which type of goal orientation mindset he or she utilizes.

Although this was not concluded in the present study, the results do display a connection between athletes' who scored high in their mastery climate scores impacting

their task score. However, when analyzing the regression in regards to ego score, climate was found not be a significant predictor, while Division type produced more of an influence than any other variable. With regards to both regressions, the variables accounted for only a small part of the variance (20% for task, 10% for ego), suggesting that there are other variables that may have an influence in predicting an individual's goal-orientations. In the present study, one variable not being accounted for is sport type, which can have a crucial impact depending on if the sport is more individualized (golf and tennis) or team-based (baseball and football).

Hypothesis three regarding the effect of Division type on one's achievement goal orientations was partially supported. It was found that there was no difference between athlete's in Division I and Division III schools regarding their task score, but there was a difference regarding their ego score. This partially supports what Gentile (2002) found in his study that concluded that Division I athletes would have higher task and ego scores than Division III. This also only partially corroborates the claims by Stults-Kolehmainen and colleagues (2013) who stated that Division I athletes would produce more ego oriented behaviors than Division III athletes due to the different pressure placed upon them (such as pressure from coaches to succeed and worries over maintaining athletic scholarships).

Hypothesis four regarding the effect of gender on one's achievement goal orientations was not supported. It was found that there was no difference between males and females on their goal orientations. This is surprising as previous research by White and Zellner (1996) as well as Gentile (2002) indicated that men typically displayed greater ego scores than women. However, this finding does support the work of Omar-

Fauzee and colleagues (2008), who noted no difference regarding gender when comparing it to one's achievement goal-orientations. Seeing as gender is for the most part stable, it might be suggested that individuals have more control over other behaviors and can shape themselves without the influence of their gender.

Hypothesis five regarding the effect of year in school on one's achievement goal orientation was also not supported. It was found that goal orientations were not different between freshmen, sophomores, juniors, seniors, or fifth years. There is relatively limited research to review regarding this hypothesis. However, Lynch (2008) found when researching college students' ability to handle difficult academic courses that freshman were more eager to learn new material and persist through a more difficult class. Previous research by Smoll and colleagues (2007) would suggest that they were displaying task-goal qualities because of their ability to focus on their effort and perseverance. However in a study conducted by Jinkens (2009), he found that younger traditional college students are less motivated academically and focus more on being rewarded for receiving higher grades, thus, displaying qualities of an ego goal orientation. Unfortunately, neither of these findings could be replicated within an athlete sample in the present study. Having success researching differences between year in school academically, finding significance in sports is inevitable. This researcher believing small sample size to be the deciding limiting factor.

Limitations

Unfortunately, many limitations encountered throughout the study. First, by not acquiring enough participants from each Division, the analyses with which the tests were

conducted ideally would have benefitted from more power to reveal significance, excluding the non-parametric tests that were completed on gender and goal-orientation. Incomplete data was also an issue within the study. By only having a 65% completion rate, there was a good portion of data missing that could have provided additional information that influenced the results. Another was finding an effective way to communicate between coach and researcher. By only communicating through email to acquire the coach's consent to email the players on the team, the success rate was limited. There were several factors influencing why the coach might not get back in touch with the researcher, including incorrect email addresses, emails being forwarded to spam, and having coaches not check their email. By only having one form of communicating with coaches, this limited the number of people in the study and helped contribute to the low turnout.

Finally, it appeared that the scale that was being utilized to assess athletic competence (SPP-CS-AC) may not have been appropriate for this survey due to its alternative structure format. After running reliability statistics and receiving a poor alpha level, it can be deduced that the measure was not appropriate for online testing. The researcher came across this issue when the study was being piloted and although the issues had been resolved, there was still confusion seeing as only 64 of the 143 participants correctly filled out that portion of the survey.

Future Directions and Implications

Although there were limited significant results evidenced, the findings still impact the future research conducted within the field of sport and exercise psychology. First,

matching an athlete's motivational climate to the goal-orientation is still important in fostering an athlete who can learn and develop skills to become successful. By having this knowledge, coaches and parents can be educated to look for qualities within the athlete to help ensure a facilitative learning environment. Future research should be done looking at the knowledge of the reference groups of athletes in regards to the area of achievement motivation to understand the need for education of these individuals. Also, although not supported in the end, there was an initial significance found between task score and year in school; showing upper classmen (juniors) having higher task scores when compared to lower classmen (freshman). Future research should continue to examine what the reason for this difference could be; whether it being that upperclassmen are more mature and educated than underclassmen or if it is being explained by the environment, or by what previous research has stated (Hung et al., 2010; Jinkens, 2009; Lynch, 2008). This is an area of great importance being that we want our athlete's to experience the benefits of displaying high task scores laid out by Newton and Duda (1999) and White and Zellner (1996): higher enjoyment, greater intrinsic motivation, lower trait anxiety, and lower pre-event state anxiety.

Future research should also focus on better ways to recruit and survey athletes, communicate, and also broaden the range of participants. By only emailing coaches, there was limited control over who would receive the survey. By simply phoning coaches or using social media (Facebook, Twitter, etc.) to recruit athletes, the chances for a better turnout could increase. Furthermore, by presenting the survey in person, the researcher could better alleviate the issue of incomplete data and would have more control over who is taking the survey. Also, providing a more understandable competence scale could yield

more success. Seeing as the one used has never been surveyed online, using one that has had a history of being completed electronically and was more easily understood could present more complete results. Finally, future research should look into incorporating athletes from high school through post graduate. This would give a better understanding of how goal-orientations are formed and can be tracked as early as high school and through post graduate, to gain a retrospective look at how individual's viewed their athletic life.

Conclusions

The present study examined several variables and their impact on an individual's achievement goal orientations. By doing so, this added to the previously existing body of knowledge by singling out the two goal-orientations and examining the influence of several different variables. Although there were several obstacles that were encountered by the researcher and little significance found, the implications on future research are documented. This data may be used in continuing efforts to create programs aimed at increasing the awareness of parents and coaches on appropriate techniques in instructing a variety of athletes as well as educate athletes on strategies to use to avoid setting unrealistic goals.

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APPENDICES

APPENDIX A

Research Questions

The primary question of this study was to address which demographic variables (Division, gender, and year in school) as well as theoretical constructs of achievement goal theory (perceived competence and motivational climate) had the most influence in understanding an athlete's achievement goal orientations.

Secondary, the study was being conducted to examine if there were any differences between an athlete's individual achievement goal orientation based on which level of competition the participant was partaking in, (NCAA Division I or Division III), the gender of the athlete (male or female), and the athlete's year in school (freshman, sophomore, junior, or senior).

Limitations

There were several limitations that effect this study. First, not every athlete would have encountered the same experiences in their life that would lead them in determining whether they are ego or task-oriented. Second, the environment that the athlete was completing the survey in was potentially different from other participants and thus may have had an effect on the decision making process. Third, even though the survey was not long in length, participants may not have fully completed the survey due to apathy. Participants were not randomly selected. Participants may not understand the questions in the study Finally, participants may direct their responses towards what they believe the researcher is looking to examine.

Delimitations

A delimitation of the study involves the participants. I was only looking at NCAA Division I and Division III athletes and neglecting other Divisions, as well as younger and older athletes. Also, location was a delimitation because I was choosing a convenient sample that involves only schools located in the Southeast and Midwest.

Assumptions

First, I assumed that all participants were honest when completing the questionnaire. I assumed that participants would have competed at the collegiate level. Participants would follow the written directions correctly. Finally, I assumed that the questionnaire I was handing out would accurately test what I was looking to study.

Definitions

Motivation: Measured by the Achievement Goal Theory (more specifically the achievement goal orientations and the sub-factor motivational climate) (Nicholls, 1984).

Task-Goal Orientation: Athletes who define success based off improvement in performance and personal enjoyment. (Nicholls, 1984).

Ego-Goal Orientation: Athletes who define success based on favorable outcomes and superiority over others. (Nicholls, 1984).

Athletic Competence: Athletes will either have a high perceived ability of themselves carrying out the task (confidence), or a low-perceived ability of themselves. (Nicholls, 1984).

Motivational Climate: The environment in which an athlete learns, practices, and competes when performing his or her sport (either task oriented, ego “approach” oriented, or ego “approach” motivated) (Elliot & Church, 1997).

NCAA Division I & III: Level of Competition as determined by the NCAA.

Year in School: Academic status (Freshman, Sophomore, Junior, Senior, Fifth year).

APPENDIX B

Annotated Literature Review

Chin, N. S., Khoo, S., & Low, W. Y. (2012). Self-Determination and Goal Orientation in Track and Field. *Journal of human kinetics*, 33(1), 151-161.

Description: The purpose of this study was threefold. First, to examine the differences in the types of motivation in terms of gender, age and locality. Second, to examine the differences in achievement goal orientations in terms of gender, age group and locality. Third, to examine the relationship between the self-determination theory and achievement goal theory.

Duda, J. L. (1989). Goal perspectives and behavior in sport and exercise settings. In C. Ames & M. Maehr (Eds.), *Advances in motivation and achievement* (Vol. 4, pp. 81-115). Greenwich, CT: JAI Press.

Description: The purpose of this study was to examine the role of goal orientations, motivational climates and dispositional flows in physical education lessons on extracurricular involvement in physical activity.

Duda, J. L., Balaguer, I., Jowett, S., & Lavallee, D. (2007). Coach-created motivational climate. *Social psychology in sport*, 117-130.

Description: The purpose of this study was to explore the extent to which athletes' direct and meta-perceptions of their relationship with the coach (as defined by closeness, commitment, and complementarity) are linked to athletes' perceptions of the degree to which the coach-created climate on their team is more or less task- involving and ego-involving.

Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of personality and social psychology*, 72(1), 218.

Description: A hierarchical model of approach and avoidance achievement motivation was proposed and tested in a college classroom. Mastery, performance-approach, and performance-avoidance goals were assessed and their antecedents and consequences examined. Results indicated that mastery goals were grounded in achievement motivation and high competence expectancies; performance-avoidance goals, in fear of failure and low competence expectancies; and performance-approach goals, in achievement motivation, fear of failure, and high competence expectancies.

Gaston-Gayles, J. L. (2004). Examining academic and athletic motivation among student athletes at a Division I university. *Journal of College Student Development, 45*(1), 75-83.

Description: Academic motivation as a predictor of academic performance for college athletes has been debated in the literature. This study examined the utility of academic and athletic motivation as a key variable in predicting academic performance among 211 college athletes at a Division I institution in the Midwest. After controlling for background characteristics, results revealed that ACT score, ethnicity, and academic motivation were significant in the regression model.

Gilman, M. B. (1996). The use of heart rate to monitor the intensity of endurance training. *Sports Medicine, 21*(2), 73-79.

Description: To obtain optimal training effects and avoid overtraining, it is necessary to monitor the intensity of training. In cycling, speed is not an accurate indicator of exercise intensity, and therefore alternatives have to be found to monitor exercise intensity during training and competition. Power output may be the most direct indicator, but heart rate is easier to monitor and measure. There are, however, limitations that have to be taken into account when using a heart rate monitor

Gilson, T. A., Chow, G. M., & Ewing, M. E. (2008). Using goal orientations to understand motivation in strength training. *The Journal of Strength & Conditioning Research, 22*(4), 1169-1175.

Description: Despite the importance that today's athletics place on strength training, research exploring the motivation of athletes in this arena is sparse. It is known that not all athletes will use the same motivational cognitions as inspiration, and these differences can be explored through achievement goal orientations. Through questionnaire data and semistructured interviews, the present study investigated how collegiate athletes maintain high levels of motivation over a period of time during strength training and explored relationships among five goal orientations: task-orientation, self-enhancing ego-orientation, self-defeating ego-orientation, social-approval orientation, and work-avoidance orientation.

Griffith, K. A., & Johnson, K. A. (2002). Athletic identity and life roles of Division I and Division III collegiate athletes. *Journal of Undergraduate Research, 5*, 225-231.

Description: Previous research has suggested that athletes who place too strong of a centrality on the athletic life role may be at risk for psychological problems, particularly during a sport transition period. If the athlete only identifies with the athletic role and it is terminated, he/she may be at risk for psychological problems (Brewer, VanRaalte, & Linder, 1993). The purpose of the current study was to analyze how division affiliation may influence the many roles of collegiate athletes. Track and field athletes from a Division I and Division III college completed measures of athletic identity, self-concept, and importance of life roles. Division I athletes ranked the athletic life role significantly higher than Division III athletes. However, both groups placed more emphasis on other roles in their lives, suggesting a decreased risk of psychological distress during sport transition periods.

Harwood, C. G., & Swain, A. B. (2002). The development and activation of achievement goals within tennis: II. A player, parent, and coach intervention. *Sport Psychologist, 16*(2), 111-137.

Description: The project investigated the effects of a season-long player, parent, and coach intervention program on goal involvement responses, self-regulation, competition cognitions, and goal orientations of three junior tennis players. Post intervention, positive directional changes were reported in all players except the control participant.

Hung, M. L., Chou, C., Chen, C. H., & Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education, 55*(3), 1080-1090.

Description: The purpose of this study was to develop and validate a multidimensional instrument for college students' readiness for online learning. Through a confirmatory factor analysis, the Online Learning Readiness Scale (OLRS) was validated in five dimensions: self-directed learning, motivation for learning, computer/Internet self-efficacy, learner control, and online communication self-efficacy. Research data gathered from 1051 college students in five online courses in Taiwan revealed that students' levels of readiness were high in computer/Internet self-efficacy, motivation for learning, and online communication self-efficacy and were low in learner control and self-directed learning.

Jinkens, R. C. (2009). Nontraditional Students: Who Are They?. *College Student Journal, 43*(4), 979-987.

Description: Past research has indicated that different students learn differently. If we could identify into which group(s) students were more closely aligned, then we could

help students learn more effectively. One such classification has been whether students were considered to be traditional or nontraditional, where traditional students were frequently considered to be those less than 24 years of age, and nontraditional students were frequently considered to be those 24 years of age or older. The composite opinion of 30 faculty indicated that age may not properly identify whether students are traditional or nontraditional, but that a life changing event does. While some students might possess the characteristics of a traditional student all of their lives, others may exhibit nontraditional characteristics early in life. Traditional may need more motivation (e.g. grade credit for homework and class attendance), whereas with nontraditional students faculty perhaps could concentrate more on the subject matter of the class.

Newton, M., & Duda, J.L. (1993). Elite adolescent athletes' achievement goals and beliefs concerning success in tennis. *Journal of Sport & Exercise Psychology, 15*, 437-448.

Description: The present study examined the perceived causes of success among elite adolescent tennis players and investigated the function of gender in the interdependence of goal orientation and beliefs concerning tennis achievement. In the case of males, an ego goal-belief dimension emerged.

Papaioannou, A., & Kouli, O. (1999). The effect of task structure, perceived motivational climate and goal orientations on students' task involvement and anxiety. *Journal of Applied Sport Psychology, 11*(1), 51-71.

Description: This study examined the effect of task structure, perceived motivational climate, and goal orientations on students' task involvement and anxiety in the physical education lesson. Two hundred thirty-nine junior high school students participated in a physical education lesson comprised of four task-involving tasks and in a physical education lesson consisting of three ego-involving tasks. After the completion of each task the students responded on a questionnaire measuring concentration, autotelic experience, and loss of self-consciousness.

Roberts, G. C., Treasure, D. C., & Kavussanu, M. (1996). Orthogonality of achievement goals and its relationship to beliefs about success and satisfaction in sport. *Sport psychologist, 10*, 398-408.

Description: The present study examined the relationship between dispositional achievement goal orientations and satisfaction and beliefs about success in sport. Participants were 333 students who were administered the Perception of Success Questionnaire (POSQ) (Roberts & Balague, 1989,1991; Roberts, Treasure, &

Balague, 1995), Beliefs about Success, and Satisfaction Interest Boredom Questionnaires (Duda & Nicholls, 1992). Consistent with theory (Nicholls, 1984, 1989) and previous research, task and ego goal orientations were found to be orthogonal

Smoll, F. L., Smith, R. E., & Cumming, S. P. (2007). Effects of a motivational climate intervention for coaches on changes in young athletes' achievement goal orientations. *Journal of Clinical Sport Psychology, 1*(1), 23-46

Description: An intervention was developed for youth sport coaches designed to promote a mastery motivational climate, and a field experiment was conducted to assess its effects on changes in athletes' achievement goal orientations over the course of a sport season. The coach intervention resulted in higher Mastery-climate scores and lower Ego-climate scores compared with the control condition, and athletes who played for the trained coaches exhibited significant increases in Mastery goal orientation scores and significant decreases in Ego-orientation scores across the season, whereas control group participants did not.

White, S. A., & Zellner, S. R. (1996). The relationship between goal orientation, beliefs about the causes of sport success, and trait anxiety among high school, intercollegiate, and recreational sport participants. *Sport Psychologist, 10*(1), 58-72.

Description: This study examined the link between an individual's persona! Goals, wider views about how sport operates, and trait anxiety level prior to or during competition. This investigation also determined the relation of gender and sport group to goal orientations, beliefs about the causes of success in sport, and multidimensional trait anxiety among sport participants. Canonical correlation analysis revealed that sport participants higher in ego orientation than task orientation were more likely to experience concentration disruption prior to or during performance and believed that taking an illegal advantage, such as blood doping, would lead to success in sport. In general, women were more task oriented than men. And reported worrying and being somatically anxious prior to or during competition.

APPENDIX C

Demographic Questionnaire

Directions: Please complete the following demographic information.

Division (please circle): Division I Division III

Gender (please circle): Male Female

Age: _____

Year in School (please circle):

Freshman

Sophomore

Junior

Senior

5th Year or Graduate

Ethnicity (please circle):

Caucasian

African-American

Asian-Pacific Islander

Hispanic/Latino

Multi-racial

Other _____

8) I work really hard

Strongly Disagree				Strongly Agree
1	2	3	4	5

9) I score the most points/goals/hits, etc.

Strongly Disagree				Strongly Agree
1	2	3	4	5

10) Something I learn makes me want to go practice more

Strongly Disagree				Strongly Agree
1	2	3	4	5

11) I am the best

Strongly Disagree				Strongly Agree
1	2	3	4	5

12) A skill I learn really feels right

Strongly Disagree				Strongly Agree
1	2	3	4	5

13) I do my very best

Strongly Disagree				Strongly Agree
1	2	3	4	5

APPENDIX E

Self-Perception Profile for College Students (SPP-CS)

Athletic Competence

Directions: The following are statements that allow college students to describe themselves. There are no right or wrong answers since students differ markedly. Please read the entire sentence across. First decide which one of the two parts of each statement best describes you; then go to that side of the statement and check whether that is just *sort of true* for you or *really true* for you. You will just check **ONE** of the four boxes for each statement. Think about what you are like in the college environment as you read and answer each one

Really True For Me	Sort of True For Me			Really True For Me	Sort of True For Me
_____	_____	Some students feel they could do well at just about any new athletic activity they haven't tried before	<u>But</u>	_____	_____
				Other students are afraid they might not do well at athletic activities they haven't ever tried	
_____	_____	Some students don't feel like they are very athletic	<u>But</u>	_____	_____
				Other students do feel like they are athletic	
_____	_____	Some students feel they are better than others at sports	<u>But</u>	_____	_____
				Other students don't feel they can play that well	
_____	_____	Some students don't do well at activities requiring physical skill	<u>But</u>	_____	_____
				Other students are good at activities requiring physical skill	

APPENDIX F

Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2)

Directions: Please think about how it has felt to play on your team throughout this season. What is it usually like on your team? Read the following statements carefully and respond to each in terms of how you view the typical atmosphere on your team. Perceptions naturally vary from person to person, so be certain to take your time and answer as honestly as possible. Circle the number that best represents how you feel.

- | | | | | |
|--|---|---|---|----------------|
| 1.) On this team, the coach wants us to try new skills. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 1.) On this team, the coach gets mad when a player makes a mistake. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 1.) On this team, the coach gives most of his or her attention to the stars. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 4.) On this team, each player contributes in some important way. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 5.) On this team, the coach believes that all of us are crucial to the success of the team. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 6.) On this team, the coach praises players only when they outplay teammates. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 7.) On this team, the coach thinks only the starters contribute to the success of the team. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 8.) On this team, players feel good when they try their best. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 9.) On this team, players are taken out of a game for mistakes. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
| 10.) On this team, players at all skill levels have an important role on the team. | | | | |
| Strongly Disagree | | | | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |

- 11.) On this team, players help each other learn.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 12.) On this team, players are encouraged to outplay the other players.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 13.) On this team, the coach has his or her own favorites.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 14.) On this team, the coach makes sure players improve on skills they're not good at.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 15.) On this team, the coach yells at players for messing up.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 16.) On this team, players feel successful when they improve.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 17.) On this team, only the players with the best 'stats' get praise.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 18.) On this team, players are punished when they make a mistake.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 19.) On this team, each player has an important role.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 20.) On this team, trying hard is rewarded.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 21.) On this team, the coach encourages players to help each other.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 22.) On this team, the coach makes it clear who he or she thinks are the best players.**
Strongly Disagree 1 2 3 4 5 Strongly Agree
- 23.) On this team, players are 'psyched' when they do better than their teammates in a game.**
Strongly Disagree 1 2 3 4 5 Strongly Agree

- 24.) On this team, if you want to play in a game you must be one of the best players.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 25.) On this team, the coach emphasizes always trying to do your best.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 26.) On this team, only the top players 'get noticed' by the coach.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 27.) On this team, players are afraid to make mistakes.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 28.) On this team, players are encouraged to work on their weaknesses.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 29.) On this team, the coach favors some players more than others.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 30.) On this team, the focus is to improve each game/practice.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 31.) On this team, the players really 'work together' as a team.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 32.) On this team, each player feels as if they are an important team member.**
 Strongly Disagree 1 2 3 4 Strongly Agree 5
- 33.) On this team, the players help each other to get better and excel**
 Strongly Disagree 1 2 3 4 Strongly Agree 5

APPENDIX G
TABLES AND FIGURES

Table 1: Descriptive Statistics

	f	Min.	Max.	M	SD
What Division is your school?	143	1	2	1.59	.493
What is your gender?	142	1	2	1.79	.410
What is your current academic year in school?	143	1	5	2.45	1.086

	Frequency	Valid Percent
Division I	58	40.6
Division III	85	59.4

	Frequency	Valid Percent
Male	30	21.1
Female	112	78.9
Total	142	100.0
Missing	1	

	Frequency	Valid Percent
Freshman	33	23.1
Sophomore	45	31.5
Junior	34	23.8
Senior	30	21.0
5th year (graduate student)	1	.7
Total	143	100.0

Table 2

Results of independent samples t-test and descriptive statistics for task score by division type

	Division		<i>t</i>	<i>df</i>
	Division I	Division III		
Task Score	4.12 (.63)	4.33 (.53)	-1.34*	141

Note. * = $p > .05$. Standard Deviations appear in parentheses below means.

Results of independent samples t-test and descriptive statistics for ego score by division type

	Division		<i>t</i>	<i>df</i>
	Division I	Division III		
Task Score	2.91 (.79)	2.62 (.78)	2.12*	141

Note. * = $p < .05$. Standard Deviations appear in parentheses below means.

Table 3

Results of ANOVA and descriptive statistics for ego score by year in school

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
<i>Year in School</i>	3	1.13	.377	.59	.621*
<i>Error</i>	138	87.94	.637		
<i>Total</i>	141	1154.71			

Note * = $p > .05$

Results of ANOVA and descriptive statistics for task score by year in school

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
<i>Year in School</i>	3	2.87	.958	2.97	.034*
<i>Error</i>	138	44.45	.322		
<i>Total</i>	141	2646.92			

Note * = Levene's test for homogeneity was violated ($p = .164$). Tamhane's post-hoc test was run and concluded no significant difference between year in school.

Table 4

Results of Mann Whitney U for task score by gender

	Gender		Mann-Whitney U	z	p
	Male	Female			
<i>n</i>	30	112			
Task score	142	1935.00	8.263.00	1.28	.200

Results of Mann Whitney U for ego score by gender

	Gender		Mann-Whitney U	z	p
	Male	Female			
<i>n</i>	30	112			
Ego score	142	1353.00	7681.00	-1.637	.102