

PREDICTING ATHLETIC PERFORMANCE: THE EFFECTS OF JUDGMENT
AND MOTIVATION

Thesis Proposal

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Abstract

The purpose of this study was to examine the influence of athlete motivation and judgment on the relationship between athletic ability and athletic performance. Much existing empirical literature has focused on motivation and cognitive ability in relation to athletic performance, but athlete judgment has received relatively little research attention. It was hypothesized that high performers will have stronger judgment and motivation scores than will lower performers. Results suggest the ability to make strategic decisions as operationalized by Systemic Judgment may be predictive of Athletic Performance.

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INTRODUCTION

Organizations, including sports teams, face the difficult task of selecting individuals to fill the different positions required for successful organizational functioning. Accordingly, the goal of selection is to identify the people who are going to perform at the highest level (Mirabile, 2005). Sports organizations spend millions of dollars a year on psychological testing to determine whether potential draft picks and free agents will be high performers (Mirabile, 2005). Therefore, for both egalitarian and financial reasons, research needs to focus on further clarifying the characteristics that predict successful future performance in a sports context and indeed the investigation of the key psychological variables which contribute to the top performance of an athlete continues to be a main focus of research in sport psychology (Beilock & McConnell, 2004). One focus of current research is motivation (Preuss, 2000), however, motivational factors are only a piece of the puzzle. Judgment appears to be an integral part of the relationship between athletic ability and athletic performance. This study defines the concept of judgment as an individual's ability to use their knowledge and values to make strong decisions in a given situation.

The problem with this ever-growing demand for knowledge of the "intangibles" is it gives rise to the careless use of psychological tests as predictors of on-the-field performance (Mirabile, 2005). The most notable of these careless implementations, is the Wonderlic in the NFL (Mirabile). This study will examine how an athlete's performance is affected by their motivation and their judgment capacity. The proposed relationship is illustrated in *Figure 1*.

Achievement Motivation

Motivation is what directs our efforts towards our goals (Locke, 1968). Motivation has been shown to be a developmental influence on athlete's behavioral variables such as learning, persistence, and performance (Locke, 1968; Duda, 1989). A perspective developed by Deci and Ryan (1985, 1991) posits that behavior can be intrinsically motivated, extrinsically motivated, and amotivated. Because motivation is such a broad construct, containing many variables that factor into it (temperament, self-efficacy, and past experience) the current researchers will examine an individual's achievement motivation in this study. Achievement motivation is a more specific motivation dealing with an individual's desire to work hard on a task, assess risk, provide innovative solutions to problems, and to venture into the unknown (Sagie, Elizur, & Yamauchi, 1996). Achievement motivation is more technically defined as the tendency of an individual to set and work hard toward the attainment of personally set goals in their social environment (Cassidy & Lynn, 1989). Through their review and study of achievement motivation, Deci and Ryan (1985) established seven main divisions for achievement motivation: intrinsic motivation to know, intrinsic motivation to accomplish things, intrinsic motivation to experience stimulation, external regulation, introjection, identification, and amotivation.

According to Deci and Ryan (1991) intrinsic motivation to know is defined as the performing of a task for the inherent pleasure an individual experiences while learning, exploring, or trying to understand something new. This sort of

intrinsic motivation relates to constructs such as learning goals, which Locke and Latham (2002) have shown to have an “energizing effect” which leads to better performance.

Intrinsic Motivation Towards Accomplishment is defined by Deci and Ryan (1991) as participating in an activity to experience the pleasure of trying to accomplish or create something. This variable is analogous to variables such as mastery motivation and efficacy motivation which have been the focus of many studies (Cassidy & Lynn, 1989; Church et al., 2001; Klein, Noe, & Wang, 2006). Mastery motivation has been shown to be a positive predictor of performance in much of the literature (Church et al., 2001; Klein, Noe, & Wang, 2006; Sideridis, 2007).

Intrinsic Motivation Towards Accomplishment also seems to be analogous with the construct “perfectionistic strivings” presented in a study conducted by Stoeber and Kersting (2007). Stoeber and Kerstings found that perfectionistic strivings were predictive of performance on a battery of reasoning and work sample tests. It is also important to know how strong an individual’s perfectionistic drive is because of the negative side of the relationship. Hewitt and Flett (2002) found that athletes who were perfectionists were particularly susceptible to psychological distress as well as motivational deficits if they do not achieve or perceive to achieve their goal of perfection. Therefore, information on an individual’s tendency towards the pursuit of excellence can help to postulate how they may do on a given task, and how they may be affected by their performance.

Deci and Ryan (1991) defined Intrinsic Motivation to Experience Stimulation as one's drive to participate in activities in order to experience stimulating sensations. These stimulating sensation are things such as sensory pleasure, aesthetic experiences, fun, and excitement.

Deci and Ryan's (1975) model of achievement motivation also measures external motivation, which pertains to many different behaviors that are used as a means to an end and not for their own sake. They propose three types of external motivations along a continuum of lower to higher self-determination. These external motivations are external regulation, introjections, and identification.

Deci and Ryan (1985) define external regulation as behaviors that are controlled by external factors, such as rewards and constraints imposed by others. In such a case, an athlete would be participating in a sport not for the fun, but instead for rewards or to avoid criticisms (Pelletier, et al., 1995). Status aspiration would fall into this category of external motivation

Cassidy and Lynn (1989) defined status aspiration as the desire of an individual to climb the "social ladder" to try to gain power and dominance over others. Status aspiration has been shown to be a strong predictor of performance (Lynn, Hampson, & Magee, 1983). Lynn et al. found that an individual's level of status aspiration significantly predicted their performance in an educational setting.

Next, external motivation can be found in the form of introjection. Deci and Ryan (1985) define introjection as the internalization of external motivations. This

means that the external motivations such as rewards or criticisms have been internalized by the athlete and manifest themselves in feelings of internal pressure to perform certain behaviors even when the external motivators are not present. An example of this would be an athlete who participates in a sport because they feel pressure to be in good shape for aesthetic reasons, and feel shame when they are not in top form (Pelletier, et al., 1995).

Lastly, external motivation can take the form of identification (Deci, & Ryan, 1985). Identification takes place when an individual comes to value and judge the behavior as important, and therefore performs the behavior out of choice (Pelletier, et al., 1995). Individuals still perform the behaviors due to external motivations, such as personal goals, except it is internally regulated and self determined (Pelletier, et al., 1995). Work ethic, competitiveness, and mastery goals seem to fit into this type of external motivation.

Work ethic is defined as the desire of an individual to work hard, because the intrinsically reinforcing nature of the work itself (Cassidy and Lynn, 1989). Childs and Klimoski (1986) found work ethic to be a significant predictor of career success, which seems to imply successful performance. Preuss (2000) found that work ethic along with other motivational factors such as the ones focused on in this study were predictive of an individual's athletic performance. This was true across different races and other demographics in his sample.

Competitiveness is the desire of an individual to compete and outperform others in an activity (Cassidy & Lynn, 1989). A study conducted by Valenti (2007) found that competitiveness accounted for a significant amount of variance in

college GPA as well as a significant amount of variance in monthly sales for insurance agents. Jansen, Van Den Bosch, and Volberda (2006) found that competition led to a higher level of organizational performance. The literature on the relationship between competition and performance seems to support the thought that competitiveness has a positive effect on performance.

Mastery is an individual's drive to solve difficult, challenging problems (Cassidy & Lynn, 1989). Mastery goals have been shown to be positive predictors of performance in much of the literature (Church et al., 2001; Klein, Noe, & Wang, 2006; Sideridis, 2007).

Achievement Motivation's last main part is Amotivation. This construct is closely tied to the widely studied construct of self-efficacy, which is defined as goal-specific confidence (Bandura, 1997). Deci and Ryan (1985) state, "they (individuals who are amotivated) experience feelings of incompetence and lack of control," and do not perceive a relationship between their efforts and the following outcomes. It has been shown that self-efficacy effects goal commitment and performance (Locke, Latham, & Erez, 1988).

Judgment

There is little existing literature on the impact of judgment capacity on athletic performance, but it seems fairly intuitive that an individual's ability to make good decisions would affect how they perform on a given task. As an applied example it can be argued that judgment is what has made Peyton Manning a more successful NFL Quarterback than Ryan Leaf. They possessed the same set of athletic skills according to the NFL Combine scouting reports

(War Room Grading System, 1999). Arguably the discrepancy in NFL performance can be attributed to a combination of motivation and the two quarterback's judgment capacities. That is to say that Peyton Manning's ability to look at, dissect a defensive scheme in a minute amount of time, and decide where the ball needs to go, is better than Ryan Leaf's.

It could be argued that this difference is due to an intelligence difference. However, on the Wonderlic, given at the NFL Combine, Manning scored a 28, while Leaf scored a 27. This is a negligible difference in intelligence. In a study conducted on the relationship between Wonderlic scores and collegiate passing performance, Mirabile (2005) found that there was no significant statistical relationship between Wonderlic scores and collegiate passing performance. These findings were supported as other studies have found no significant relationship between Wonderlic scores and athletic performance of NFL quarterbacks, running backs, and wide receivers (Adams & Kumitz, 2008; Lyons, Hoffman, & Michel, 2009). This is not to say that intelligence is not an important attribute for a quarterback to possess, but it is not predictive of an individual's performance. Being intelligent does not account for the ability to make good decisions. Intelligence should be thought of as more of the attribute, while judgment should be seen as the strategic use of the attribute. A person with a hammer has the potential to drive a nail into a board, but if they decide to use the hammer to sand the board, that potential is never recognized. The current researchers define judgment as the ability to use one's value system to make a good decision in a given situation.

The Wonderlic fails to successfully predict an athlete's performance because it does not tell us anything about the athlete's use of their knowledge. The Wonderlic provides information about an individual's fluid intelligence (developed from biological factors) and crystalline intelligence (developed through education and experience) (Adams & Kumitz, 2008). Without taking into consideration an individual's value system (what one basis their decisions and actions on) knowing their intelligence loses its power.

Past research has shown a relationship between individual's value systems and the way they behave at their job (Spence, 1985), the way they feel about their job (England, 1975), and their overall job satisfaction (Locke, 1976). Maglino, Ravlin, and Adkins (1989) found that job satisfaction and commitment increased as individual and organization's values became more congruent. These are all very important factors to consider when making a decision to select an athlete for a team. Taking these factors into consideration would presumably alleviate problems on the sidelines, in the locker room, and off the field, which has shown to be a significant problem for many sports organizations over the years.

As for the effect of values on field performance, a study conducted by Schwartz and Inbar-Saban (1988) showed that individuals with certain values rated higher performed significantly better in a weight-loss program than their counterparts. Based on the preceding discussion it appears that there are certain values that separate athletes who make the successful transition to the next level and those who do not.

The Judgment Index is a proprietary measurement developed from the Hartman Value Profile (Byrum, 2008), to be a quantifiable assessment of a person's value system and capacity for good judgment. The Judgment Index score is like a score in golf, the lower the better. There are 3 main scores on the Judgment Index: Intrinsic, Extrinsic, and Systemic. The Intrinsic score refers to the individual's ability to make good relational decisions. The Extrinsic score refers to an individual's ability to make good decisions related to tasks and processes. The Systemic score pertains to the ability of an individual to plan ahead strategically and take into consideration implications and consequences of their decisions.

In a validation study conducted by Weathington and Roberts (2005) the Intrinsic score was found to have no statistically significant relationship with performance, but was potentially useful in the way of employee development. Therefore, in the present study it was decided to test the Intrinsic score as a means of performance prediction to see if their results line up or differ with Weathington and Roberts. The next score the Judgment Index provides is the Extrinsic score. Weathington and Roberts found the Extrinsic score to have a statistically significant relationship with performance, therefore it will be tested as a means for performance prediction. The last score reported by the Judgment Index is the Systemic score. Weathington and Roberts' study found a statistically significant relationship between the Systemic score and performance as well, so the current researchers will test it as well as a predictor of performance.

Hypothesis 1a. Achievement motivation will be positively correlated with Athletic Performance.

Hypothesis 1b. Achievement motivation will moderate the relationship between Athletic Ability and Athletic Performance.

Hypothesis 2a: Intrinsic scores on the Judgment Index will be significantly correlated with Athletic Performance.

Hypothesis 2b: Extrinsic scores on the Judgment Index will be significantly correlated with Athletic Performance.

Hypothesis 2c: Systematic scores on the Judgment Index will be significantly correlated with Athletic Performance.

Hypothesis 2d: Intrinsic scores on the Judgment Index will moderate the relationship between Athletic Ability and Athletic Performance.

Hypothesis 2e: Extrinsic scores on the Judgment Index will moderate the relationship between Athletic Ability and Athletic Performance.

Hypothesis 2f: Systemic scores on the Judgment Index will moderate the relationship between Athletic Ability and Athletic Performance.

METHOD

Participants

Participants were 41 male student-athletes at a mid-sized southeastern NCAA Division I university. Additionally, data was collected from the coaches of the respective collegiate teams at the university. The student athletes ranged in age from 18 to 23 ($M = 20.49$, $SD = 1.28$). Of these athletes, there were 12 (30%) freshmen, 10 (24%) sophomores, 10 (24%) juniors, and 9 (22%) seniors. The athlete sample was made up of 17 (41%) Caucasian and 24 (59%) African American individuals. The sport distribution for the sample was 18 (44%) football players, 13 (32%) basketball players, and 10 (24%) golfers.

Measures

Judgment was measured by having the student-athletes complete the Judgment Index. The Judgment Index is a proprietary tool derived from the Hartman Value Profile. There are 3 main scores on the Judgment Index: Intrinsic, Extrinsic, and Systemic.

The achievement motivation measure used in this study was borrowed from a study by Pelletier et al. (1995). It is a 28-item scale measuring individual's achievement motivation via a 1-7 point Likert Scale. Performance was measured by ratings from their coaches. Coaches were asked to rank their players athletic ability, potential achievement, and athletic performance on a Likert Scale from 1 to 7. For athletic ability, 1 represented very low athletic ability and 7 represented superior athletic ability. Potential achievement was the rating of the achievement of the athlete's potential, with 1 being not at all and 7 being full achievement.

Athletic performance was defined as an individual's performance in relation to their divisional peers, with 1 being poor performance and 7 being superior performance.

Procedure

Each athlete was given a packet. Every packet contained an informed consent form, a note card with an individual identification number on it, an instruction sheet which outlined exactly how to complete the study, and a copy of the motivation measure. The Judgment Index was taken online. The players were asked to access a website where they then entered a username and password that was provided to them. The program then led them through the process of rank ordering the two sets of 18 items. The motivation measure and informed consent forms were handed out to all student-athletes asked to participate. Packets were provided to the players so they were able to complete their participation at a time that was convenient for them. This was necessary, because the athletes were on a very tight schedule. Every participant was assigned a number, 100...300, as to provide confidentiality.

Coaches' rankings of the players were then obtained and assigned the same number tag from the player's Achievement Motivation and Judgment Index scores to their places on the coach's evaluation form. The coaches were asked to rank their players athletic ability, potential achievement, and athletic performance on a Likert Scale from 1 to 7.

RESULTS

A Pearson Correlation was run, producing means, standard deviations, and intercorrelations among the variables. These can be found in Table 1.

A reliability analysis was run for the Achievement Motivation Measure. The analysis yielded a coefficient of ($\alpha=.64$).

A regression analysis was employed to show the predictive relationship between Athletic Ability ($M = 4.66$, $SD = 1.23$) and Athletic Performance ($M = 4.24$, $SD = 1.20$), Intrinsic Judgment ($M = 30.90$, $SD = 30.07$) and Athletic Performance, Extrinsic Judgment ($M = 28.34$, $SD = 22.64$) and Athletic Performance, Systemic Judgment ($M = 33.12$, $SD = 24.22$) and Athletic Performance, and Achievement Motivation ($M = 16.51$, $SD = 3.86$) and Athletic Performance. The descriptive statistics and intercorrelations among variables can be found in Table 1.

The relationship between Athletic Ability and Athletic Performance ($\beta = .71$) was significant at the $p<.001$ level. Achievement Motivation and Athletic Performance ($\beta = -.11$) had a non-significant relationship. Intrinsic Judgment and Athletic Performance ($\beta = -.27$) were shown to have a non-significant relationship. The regression analysis also showed a non-significant relationship between Extrinsic Judgment and Athletic Performance. Systemic Judgment and Athletic Performance ($\beta = .35$) were shown to have a significant relationship at the $p<.05$ level.

As for the moderation relationships (Athletic Ability x Achievement Motivation, Athletic Ability x Intrinsic Judgment, Athletic Ability x Extrinsic

Judgment, Athletic Ability x Systemic Judgment), there were no significant moderation effects. The results of the regression analysis are shown in Table 2.

DISCUSSION

The current study examined Achievement Motivation and Judgment as they relate to the relationship between Athletic Ability and Athletic Performance. Past research has shown that motivation has a large effect on performance (Locke, 1968; Locke & Latham, 2006). Despite these past findings, results from this study did not support the hypothesis that Achievement Motivation would be significantly correlated to Athletic Performance. This may have been due to the participants not taking the time to fill out the questionnaire truthfully. The findings also failed to find support for the hypothesis that Achievement Motivation would moderate the relationship between Athletic Ability and Athletic Performance.

Judgment has been shown to be tied to individuals' performance in past studies (England, 1975; Locke, 1976; Schwartz & Inbar-Saban, 1988; Weathington and Roberts, 2005). Similar to Weathington and Roberts' findings, this study found no support for the hypothesis that Intrinsic Judgment was significantly correlated with Athletic Performance. This study also contradicted Weathington and Roberts, finding that Extrinsic Judgment was not significantly correlated with Athletic Performance. Support was found for the hypothesis that Systemic Judgment would be significantly correlated with Athletic Performance, which is consistent with the findings of Weathington and Roberts. This finding is extremely interesting in light of the strong relationship between Athletic Ability and Athletic Performance. The fact that Systemic Judgment has a significant effect on Athletic performance seems to give us another important piece of the puzzle. This would be a very important factor for organizations looking at players

with high Athletic Ability. This could potentially be the “intangible” variable that separates a franchise player from a first round bust. These findings may also have been subject to the participants not taking the time to complete the measurement thoroughly.

As for the moderation effects of the three types of judgment, there was no statistically significant support found for the hypotheses that Intrinsic, Extrinsic, or Systemic Judgment moderated the relationship between Athletic Ability and Athletic Performance. Again, this may be due to the hasty manner in which many of the participants seemed to complete the Judgment Index.

Limitations

This study incurred several limitations. The first was due a low number of participants, which resulted in low power. Packets were distributed to 150 athletes, but only 41 were returned fully completed. All of these 41 participants were male, even though female athletes were included in the study. Athletes pose a special challenge as a participant pool due to their extremely busy schedules. An earlier start to the data collection process may have aided in obtaining more participants for the study. Also, more face to face interaction with the participants may have helped with return rate and vigilance of the measurement materials. Another limitation was there was only one university included in the study. Inclusion of multiple universities would have helped to add diversity and power to the sample. The study was also limited by the subjective nature of the Athletic Performance Measure.

Future Research

Future research should include more than one university. Including more universities will give a sample which is more representative of the population. This will increase the diversity in age, race/ethnicity, year in school, and gender. It should also increase the number of participants in the sample.

Another concern for future research should be the presentation of the data collection materials. The use of packets is not a bad choice in presentation style, but a face to face explanation of the study may increase culpability among the participants. Also being present while they complete the measurement materials may help in the reliability of the data collected.

Data collection should also be extended to different athletic groups. Motivation and Judgment measures may differ greatly among professional, college, and high school athletes. There may be relationships between Motivation, Judgment, and Performance that exist only in a given population.

Given the low correlation between the Achievement Motivation facets and Athletic Performance, it may be recommended to find a different Achievement Motivation measure. One Achievement Motivation measure to consider would be the one found in Cassidy and Lynn (1989).

Also, personality measures may be a good addition to future studies. The inclusion of constructs such as conscientiousness and work ethic may be a good starting point.

Implications

Being able to assess an individual's achievement motivation and judgment is of great value for organizations, sports or otherwise. With the millions of dollars that are spent on psychological testing and scouting of potential draft picks, the discovery of psychological variables that are predictive of performance should be at the forefront of an organization's concerns. Much research has been done on motivation's effect on performance, but there is no standardized measure of motivation that is implemented in the way the Wonderlic is in the NFL Combine. Given the large base of research on motivation's effect on athletic performance, efforts should be made to consolidate the research to create a standardized sports motivation measure. This would seem to be a better predictor of on the field performance, as well as, other desirable behaviors of prospective players.

It is also recommended that further research be done on Judgment as this study has shown that it may hold another piece of the puzzle. Creating a base of research as large as motivation's, will help to further our understanding of the construct Judgment. A good place to start would be by subjecting the Hartman Value Profile to further research. Further research may lend greater support and confidence to this measure.

REFERENCE

- Adams, A. J., & Kuzmits, F. E. (2008). Testing the relationship between a cognitive ability test and player success: The national football league case. *Athletic Insight*, Retrieved October 5, 2008, from <http://www.athleticinsight.com/Vol10Iss1/TestingSuccess.htm>.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Stanford:W.H. Freeman.
- Becker, L.J. (1978), Joint effect of feedback and goal setting on performance: A field study of residential energy conservation. *Journal of Applied Psychology*. 63. 428-433.
- Beilock, S. L., & McConnell, A. R. (2004). Stereotype threat and sport: Can athletic performance be threatened? *Journal of Sport & Exercise Psychology*, 26, 597-609.
- Byrum, S. (2008). Judgment Index Training Materials.
- Cassidy, T., & Lynn, R. (1989). A multifactorial approach to achievement motivation: The development of a comprehensive measure. *Journal of Occupational Psychology*, 62, 301 – 312.
- Childs, A., & Klimoski, R. J. (1986). Successfully predicting career success: An application of the biographical inventory. *Journal of Applied Psychology*, 71 (1), 3-8.
- Church, M. A., Elliot, A. J., & Gable, S. L. (2001). Perceptions of classroom environment, achievement goals, and achievement outcomes. *Journal of Educational Psychology*, 93, 43–54.

- England, G.W. (1975). *The manager and his values: An international perspective from the United States. Japan. Korea. India. and Australia.* Cambridge, MA: Ballinger.
- Erez, M., & Zidon, I. (1984), Effect of goal acceptance on the relationship of goal difficulty to performance. *Journal of Applied Psychology*, 69, 69-78.
- Hewitt, P.L., & Flett, G.L. (2002). Perfectionism and stress in psychopathology. In G.L. Flett & P.L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 255–284). Washington, DC: American Psychological Association.
- Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory innovation, exploitive innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52 (11), 1661-1674.
- Jex, S. M. (2002). *A scientist-practitioner approach: Organizational Psychology.* New York: John Wiley & Sons.
- Kanfer, R., Ackerman, P. L., Murtha, T. C., Dugdale, B., & Nelson, L. (1994). Goal setting, conditions of practice, and task performance: A resource allocation perspective. *Journal of Applied Psychology*, 79, 826–835.
- Klein, H. J., Noe, R. A., & Wang, C. (2006). Motivation to learn and course outcomes: The impact of delivery mode, learning goal orientation, and perceived barriers and enablers. *Personnel Psychology*, 59, 665–702.
- Locke, E. A. (1968). Towards a theory of task motivation and incentives. *Organizational Behavior and Human Performance*, 3, 157–189.

- Locke, E.A (1976). The nature and consequences of job satisfaction. In M.D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1349). Chicago: Rand-McNally.
- Locke, E. A., & Latham G. P. (1990). Work motivation and satisfaction: Light at the end of the tunnel. *Psychological Science, 1*, 240-246.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*: 705–717.
- Locke, E. A., Latham, G. P., & Erez. M. (1988). The determinants of goal commitment. *Academy of Management Review, 13*, 23-39.
- Locke, E. A., Smith, K., Erez, M., Chah, D., & Schaffer, A. (1994). The effects of intra-individual goal conflict on performance. *Journal of Management, 20*, 67–91.
- Lynn, R., Hampson, S. L., & Magee, M. (1989). Determinants of educational achievement at 16+: Intelligence, personality, home background, and school. *Personality and Individual Differences, 4*(5), 473-481.
- Lyons, B. D., Hoffman, B. J., & Michel, J. W. (2009). Not much more than g? And examination of the impact of intelligence on NFL performance. *Human Performance, 22*, 225-245.
- Meglino, B.M., Ravlin, E.C., & Adkins, C.L. (1989). A work values approach to corporate culture: A field test of the value congruence process and its relationship to individual outcomes. *Journal of Applied Psychology, 74*, 424-43.

- Mirabile, M. P. (2004). Intelligence and football: Testing for differentials in collegiate quarterback passing performance and NFL compensation. *The Sport Journal*. Retrieved October 4, 2008, from <http://www.thesportjournal.org/2005Journal/Vol8- No2/mac-mirabile.asp>.
- Pelletier, L. G., Fortier, M. S., Vallerand, R. J., Tuson, K. M., Briere, N. M., & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale. *Journal of Sport & Exercise Psychology*, 17, 35-53.
- Preuss, T.L. (2000). Relationship of personality themes to academic and athletic performance in college football players. *ProQuest Information and Learning*, 61, 1743.
- Sagie, A., Elizur, D., & Yamauchi, H. (1996). The structure and strength of achievement motivation: Across-cultural comparison. *Journal of Organizational Behavior*, 17, 431 – 444.
- Schwartz, S. H., & Inbar-Saban, N. (1988). Value self-confrontation as a method to aid in weight-loss. *Journal of Personality and Social Psychology*. 54, (3), 396-404.
- Sideridis, G. D. (2007). Why are students with learning disabilities depressed? A goal orientation model of depression vulnerability. *Journal of Learning Disabilities*, 40, 526–539.
- Spence, J.T. (1985). Achievement American style: The rewards and costs of individualism. *American Psychologist*, 40, 1285-1295.

Stoeber, J., & Kersting, M. (2007). Perfectionism and aptitude test performance:

Testees who strive for perfection achieve better test results. *Personality and Individual Differences*, 42, 1093-1103.

Valenti, M. C. (2007). An examination of competitiveness and personality in

relation to academic and sales performance. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 67 (10-B), 6102.

War Room Grading System. (1999). On CNNSI.com. Retrieved from

<http://sportsillustrated.cnn.com/football/nfl/events/1998/nfldraft/topplayers/byposition/QB.html>.

Weathington, B. L., & Roberts, D. P. (2005). Validation analysis of the Hartman

Value Profile. Organization Consulting Report.

Wood, R.. & Bandura, A. (1989). Social cognitive theory of organizational

management. *Academy of Management Review*, 14, 361-384.

Wood, R.E., Mento, A. J. & Locke, E.A. (1987). Task complexity as a moderator of

goal effects: A meta-analysis. *Journal of Applied Psychology*, 72. 416-425.

TABLES

Table 1
Descriptive Statistics and Intercorrelations Among Variables

Measure	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Intrinsic	30.90	30.07	--	.82 **	.69 **	-.04	-.36 *	-.27	.32 *	.22	-.40 **	-.10	.04	.07	.03
2. Extrinsic	28.34	22.64		--	.80 **	-.04	-.24	-.23	.31 *	.28	-.44 *	.06	.06	.12	.12
3. Systematic	33.12	24.22			--	.05	-.12	-.19	.37 *	.37 *	-.36 *	-.16	.13	.27	.26
4. Know	19.73	3.42				--	.29	.56 **	.29	-.02	.40 **	-.22	-.08	-.04	-.05
5. Accom	21.15	3.56					--	.62 **	-.16	.00	.25	.05	-.06	-.18	-.10
6. ExpStim	20.98	3.21						--	.06	.06	.41 **	.05	-.14	-.25	-.22
7. ExtReg	16.51	3.86							--	.57 **	.08	.01	.27	.35 *	.24
8. Intro	14.93	3.86								--	.03	.25	.21	.28	.11
9. Identify	17.98	3.13									--	.03	-.11	-.01	-.13
10. Amot	5.75	2.62										--	-.22	-.23	-.19
11. AthAbil	4.66	1.23											--	.68 **	.75 **
12. PotAch	4.29	1.10												--	.82 **
13. AthPerf	4.24	1.20													--

* $p < .05$. ** $p < .01$.

Table 2

Summary of Regression Analysis for Variables Prediction Athletic Performance

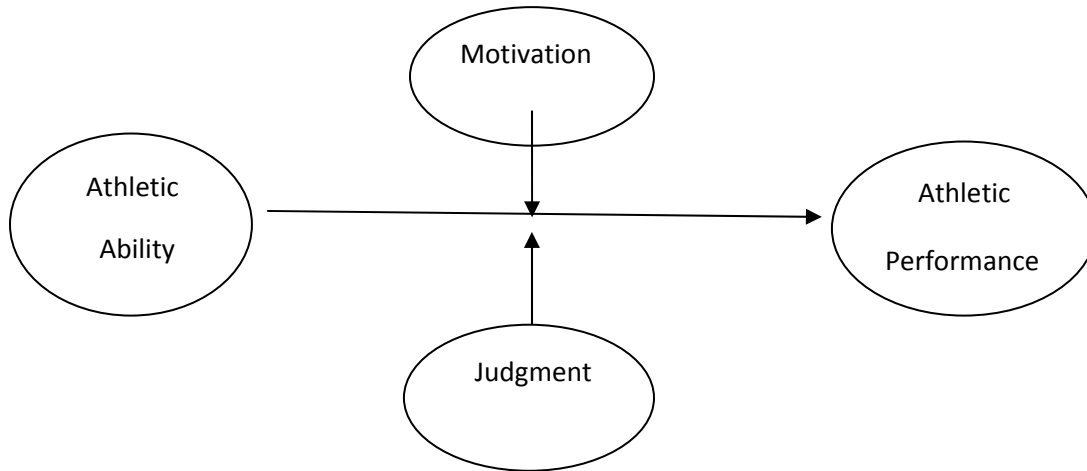
Predictors		Athletic Performance			
		β		ΔR^2	
Step 1	Athletic Ability	.71	***	.61	***
	Achievement Motivation	-.11			
	Intrinsic	-.27			
	Extrinsic	-.01			
	Systemic	.35	*		
Step 2a	Athletic Ability X Achievement Motivation			.02	
Step 2b	Athletic Ability X Intrinsic			.00	
Step 2c	Athletic Ability X Extrinsic			.00	
Step 2d	Athletic Ability X Systematic			.02	

Note. Steps 2a-2d represent the ΔR^2 for the cross-product term entered immediately after Step 1.

* $p < .05$. ** $p < .01$. *** $p < .001$.

FIGURES

Figure 1



APPENDIX

Appendix A

Why Do You Practice Your Sport?

Using the scale below, please indicate to what extent each of the following items corresponds

to one of the reasons for which you are presently practicing your sport.

		Does Not Correspond at All		Corresponds Moderately		Corresponds Exactly	
	1	2	3	4	5	6	7
1. For the pleasure I feel in living exciting experiences.	1	2	3	4	5	6	7
2. For the pleasure it gives me to know more about the sport that I practice.	1	2	3	4	5	6	7
3. I used to have good reasons for doing sports, but now I am asking myself if I should continue doing it.	1	2	3	4	5	6	7
4. For the pleasure of discovering new training techniques.	1	2	3	4	5	6	7
5. I don't know anymore; I have the impression that I am incapable of succeeding in this sport.	1	2	3	4	5	6	7

6. Because it allows me to be well regarded by people that I know.	1	2	3	4	5	6	7
7. Because, in my opinion, it is one of the best ways to meet people.	1	2	3	4	5	6	7
8. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.	1	2	3	4	5	6	7
9. Because it is absolutely necessary to do sports if one wants to be in shape.	1	2	3	4	5	6	7
10. For the prestige of being an athlete.	1	2	3	4	5	6	7
11. Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
12. For the pleasure I feel while improving some of my weak points.	1	2	3	4	5	6	7
13. For the excitement I feel when I am really involved in the activity.	1	2	3	4	5	6	7

14. Because I must do sports to feel good about myself.	1	2	3	4	5	6	7
15. For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
16. Because people around me think it is important to be in shape.	1	2	3	4	5	6	7
17. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
18. For the intense emotions that I feel while I am doing a sport that I like.	1	2	3	4	5	6	7
19. It is not clear to me anymore; I don't really think my place is in sport.	1	2	3	4	5	6	7
20. For the pleasure that I feel while executing certain difficult movements.	1	2	3	4	5	6	7
21. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7

22. To show others how good I am at my sport.	1	2	3	4	5	6	7
23. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7
24. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
25. Because I like the feeling of being totally immersed in the activity.	1	2	3	4	5	6	7
26. Because I must do sports regularly.	1	2	3	4	5	6	7
27. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
28. I often ask myself; I can't seem to achieve the goals that I set for myself.	1	2	3	4	5	6	7
21. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7

22. To show others how good I am at my sport.	1	2	3	4	5	6	7
23. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7
24. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
25. Because I like the feeling of being totally immersed in the activity.	1	2	3	4	5	6	7
26. Because I must do sports regularly.	1	2	3	4	5	6	7
27. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
28. I often ask myself; I can't seem to achieve the goals that I set for myself	1	2	3	4	5	6	7

Appendix B

Please rate each player's overall athletic ability on a scale from 1-7 (1 being very low athletic ability and 7 being superior athletic ability). Next, rate the player's achievement of their potential from 1-7 (1 being not at all and 7 being full achievement). Lastly, rate each player's athletic performance in relation to divisional peers from 1-7 (1 being poor performance and 7 being superior performance).

Scale

Low Moderate High
 1-----2-----3-----4-----5-----6-----7

#	Name	P	HT	WT	YR	Athletic Ability	Potential Achievement	Athletic Performance
0		G	5-11	185	Gr.			
1		G	6-2	189	Fr.			
2		G	6-1	160	Fr.			
4		F	6-6	201	Fr.			
5		F	6-7	235	Fr.			
10		G	6-1	164	Sr.			
14		G	6-5	195	RSo.			
22		G	6-5	170	Fr.			
23		G	6-6	182	Jr.			
31		G	6-2	184	Sr.			
33		F	6-5	202	Sr.			
34		F	6-7	239	Sr.			
44		F	6-8	222	Sr.			
53		C	7-1	225	RSo.			

Appendix C



Institutional Review Board
Dept. 4905
615 McCallie Avenue
Chattanooga, TN 37403-2598
Phone: (423) 425-4443

MEMORANDUM

TO: Erik Smallwood
Dr. Bart Weathington **IRB # 09-004**

FROM: Lindsay Pardue, Director of Research Integrity
M. D. Roblyer, IRB Committee Chair

DATE: February 25, 2009

SUBJECT: IRB# 09-004: Athletic Performance: Effects of Motivation and Judgement

The UTC Institutional Review Board has reviewed and approved your application contingent upon the following:

- Please ensure that there is a statement on your informed consent letter that indicates that participants can opt out of the study at any time.

Please submit a copy of the requested documents to instrb@utc.edu before proceeding with your research.

You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project # 09-004.

Please remember that you must complete Form C when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page <http://www.utc.edu/irb> or email instrb@utc.edu