

Emotions in Sports

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### (ABSTRACT)

In recent years the NCAA has had problems with the delinquent behavior of collegiate athletes on and off the field. The ability to know what causes athletes to act out will help athletic programs and reputations. Psychological behaviors have been related to sports performance and behavior in prior studies

In this study, we hypothesized that higher Emotional Intelligence in collegiate athletes, the ability to perceive, understand and manage one's emotions, will be related to lower acts of delinquent behavior on and off the field, as well as better performance during games. Study participants were Virginia Tech Soccer, Basketball, and Football male student athletes. We assessed emotional intelligence using the MSCEIT v.2.0 and also measured self report delinquent behavior and game statistics. None of our hypotheses were supported. A major reason for the lack of evidence to support our hypotheses may have been low statistical power and possible sampling biases.

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## **Introduction**

Intercollegiate athletic programs are major sources of revenue and praise for colleges and universities. Division 1 schools such as Virginia Tech are often most recognized for their athletic teams and players. The Virginia Tech football program brought in nearly 25 millions dollars of revenue in 2005 including ticket sales and contributions -

([http://www.techsideline.com/news\\_archive/showArticle-1974.php](http://www.techsideline.com/news_archive/showArticle-1974.php)) not to mention the incalculable effect game days had on local Blacksburg merchants.

The reputation of an athletic team or particular athlete affects fans, alumni, and the public's views of the school. Due to this, athletes are under a significant amount of pressure to perform on and off the field.

The National Collegiate Athletic Association has faced many problems in the past several years with disciplinary issues. These problems have given individuals, schools, and the NCAA a black mark. In the past year alone, three Virginia Tech football players have been charged with obstructing justice, disorderly conduct, and driving under the influence. In addition there was a bench clearing brawl in a University of Miami-Florida International game that marred the schools reputations with players swinging helmets as weapons. Boston College may have faced an early exit from the NCAA tournament and millions of dollars in revenue this year due to the suspension of two key players for drug issues, with one star player averaging 12.1 points, 6.9 boards and 5.0 blocks per game. The ability to identify potential problem athletes could curtail this problem before it starts.

During games, athletes are presented with many stressful situations where they must be aggressive in order to defeat their opponent, yet have to regain their composure once the whistle

blows. This pressure may translate to off-field incidents. Student athletes are in the spotlight whether it's for good or bad behavior, and are often given a bad rap because of a few exceptions.

When recruiting athletes, coaches and recruiters focus on athletic performance, GPA, and SAT scores to recruit and develop high school athletes into college stars. One hypothesis is that emotional intelligence may relate to student-athlete behavior, on and off the field. Emotional intelligence is defined as the ability to perceive, understand, and manage emotions in yourself and others. A high level of EI means athletes would not act out based on their emotions. It would be beneficial for coaches to target these players in the beginning of their college careers and offer training and counseling on emotional intelligence in order to avoid potentially troublesome situations and publicity. If emotional intelligence correlates with on-field performance teams would benefit from workshops to improve emotional intelligence.

During games athletes are placed in situations where emotions are running high and are forced to perform in these emotionally charged conditions. Another hypothesis we test is that emotional intelligence is an indicator of the likelihood of penalties during games. This relationship would provide incentives for teams to participate in such training programs, which would positively effect their players, and team performance.

A final hypothesis is that emotional intelligence in elite athletes will be higher than the general population's. Athletes that have made it to the collegiate level have managed their emotions, behaviors and actions successfully in order to reach this elite level.

We attempt to address the validity issues of the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) and its application outside of business situations. The MSCEIT assesses EI based on the four branch ability model. Currently most studies have examined the

relationship between EI and organizational structure and business leadership positions. We intend to study EI outside of a business setting.

### **Literature Review - Emotional Intelligence**

Emotional intelligence is a term that has grown in popularity as well as controversy in the last decade. The term has been the subject of several best selling books, as well as on the cover of Time magazine. EI has evolved since its inception; though there is still much debate on its meanings, measures, applications and generalizability.

Daniel Goleman popularized EI by claiming it was the best predictor of success in life since it accounts for 85- 90% of outstanding performance compared to Intelligence Quotient which accounts for 10 – 30 %. There is attraction to the idea that EI explains why some people do well in life while having average intelligence while others struggle despite possessing a high IQ (Goldenberg, Matheson, Mantler, 2006).

Currently there are two main streams of thought regarding emotional intelligence. The first, the ability model and the second and more popularized mixed trait model represent these two conceptualizations. Studies with each method have lead to different results and the conclusion that the different conceptualizations are actually measuring two different constructs, which may be EI.

The mixed trait model incorporates a wide range of personality characteristics and other traits, including dispositional, motivational and situational variables under the construct of EI (Macann Matthews, Zeidner, Roberts, 2003). EI is conceptualized as a disposition, and is measured by self report.

The ability model, the focus of this paper, concentrates on the cognitive abilities in emotional functioning, making emotion more intelligent and giving one the ability to think more intelligently about emotions. The ability model is made up of four branches that include emotional perception and expression, emotional facilitation of thinking, emotional understanding and emotional regulation (Goldenberg, Matheson, Mantler, 2006).

The ability model and its measures have a number of similarities to other types of intelligence; it develops with age and experience, can be improved through training and calls for measurement with right answers. The ability model defines emotional intelligence as the ability to accurately process emotional relevant information, and the ability to use emotions to solve problems and manage ones emotions (Tett, Fox, Wang, 2005).

Mayer, Salovey, and Caruso (2002) use a four-branch model to define emotional intelligence into a hierarchical model with more complex abilities - for example emotion management is dependent on the lower level ability of emotional perception. The first branch, perception of emotions refers to the ability to identify emotion in feelings, and thoughts; in oneself and others, and in designs and artwork (Mayer, Salovey, Caruso, 2002).

Branch two, Using emotions is composed of the abilities to use emotions to prioritize thinking, to aid judgment and memory, to change one's perspective, and to encourage different problem solving approaches (Macann Matthews, Zeidner, Roberts, 2003).

Understanding of emotions is the third branch in Mayer and Salovey's (2002) EI model, comprised of the abilities to label emotions and recognize relations among these emotions, interpret meaning of emotions and circumstances, understand complex feelings, and understand transitions among emotions (Macann Matthews, Zeidner, Roberts, 2003).



The fourth branch emphasizes managing emotion in oneself and others. This branch focuses on the ability to stay open to feelings, monitor and judge emotions in oneself and others, and manage emotion in oneself and others: minimizing negative and enhancing positive emotions (Macann Matthews, Zeidner, Roberts, 2003).

### **Sports & Emotions**

Limited research has studied the relationship between emotional intelligence and sports performance. It seems intuitive that the level of ones emotional intelligence will relate to their performance and behavior on the sports field. Research has shown psychological skills facilitate athletic performance. Relaxation training, positive thought control, self-regulation, imagery, concentration, energy control, self monitoring, and goal setting are all traits that have been correlated with athletic performance (Zizzi, Deaner, Hirschhorn, 2003). Many of these traits reflect emotional intelligence. These same traits have been correlated with work group cohesion, job performance, role conflict, and job satisfaction (Zizzi, Deaner, Hirschhorn, 2003). It seems intuitive that traits correlated with job behavior and performance also transfers to sports behavior and performance.

Elite athletes are required to perform under extremely stressful conditions to be considered successful. In these situations, anxiety and anger are common. Hanin (2000) concluded that each athlete must learn their own ideal psychological performance state, where they are most successful. To do this they must develop skills to recognize and manage their emotions. These two skills are two of the four branches measured by the ability model of emotional intelligence. It is intuitive that successful athletes who are able to reach their own individual performance state will exhibit high emotional intelligence.

A major component of team sports is communicating with teammates and coaches, and working together towards a common goal. This happens when team members are aware of the feelings and emotions of themselves and others (Zizzi, Deaner, Hirschhorn, 2003).

One of the few examining the relationship between sports and emotional intelligence studied National Hockey League players' performances. The study focused on the 2003-2004-hockey season, and consisted of 79 players on 24 teams. Participants completed the Bar on – EQ – I, a trait model based self-report measure. The results found that the measure 'years since drafted' was the best indicator of performance that was measured by NHL points and games played. Intrapersonal competency and general mood added significant variance to predictions of total NHL points and games played.

NHL players averaged higher EI scores than the mean population, overall. They also scored higher in intrapersonal, stress management, and general mood, self-awareness, emotional management, and stress tolerance (Perlini, Halverson, 2006).

In another study done by Zizzi, Deaner, and Hirschhorn, (2003) 61 NCAA Division I baseball players ages 18 – 23 participated, to examine the relationship between emotional intelligence and performance. Researchers divided subjects into hitters and pitchers since each taps into different individual physical and psychological strengths. The study used a trait model-based self-report measure and found that all players had emotional intelligence above the overall norms. EI was significantly correlated to the performance of pitchers, specifically strikeouts, but not the performance of hitters. This was consistent with other psychological tests that were found to be consistent solely with pitching performance (Zizzi, Deaner, Hirschhorn, 2003).

## **Literature review - MSCEIT**

The MSCEIT (Mayer –Salovey-Caruso Emotional Intelligence Test v.2.0) assesses EI on an ability-based scale, which measures how well one performs tasks and solves emotional problems. These skills develop as a function of age, maturity, and can be improved on or trained over a period of time. Since the MSCEIT assesses the ability to solve problems, scores received are relatively unaffected by self-concept, response set, and emotional state.

The MSCEIT corresponds with the four branch model of emotional intelligence arranged hierarchically: the ability to accurately perceive emotions as the base, use emotions to facilitate thinking, problem solving and creativity, understand emotions, and manage emotions for personal growth at the top of the pyramid.

The ability to perceive emotions is measured by subscales called faces and paintings. In the faces section the subject is asked to look at a picture of a face and indicate to what degree five specific emotions are displayed. In the pictures subscale, participants judge pictures of landscapes and abstract designs based on cartoon faces (Palmer, Gignac, Manocha and Stough, 2004).

Using emotions is measured by the subscales of sensations and facilitations. In the sensations subscale, participants are asked to imagine certain emotions and indicate the extent to which they match different sensations. In the facilitations section, participants are asked to what extent certain emotions assist in cognitive tasks or behaviors - for example, how much contentment or fear is helpful when negotiating with a sales person to reduce the price of a product (Palmer, Gignac, Manocha and Stough, 2004).

Understanding emotions is measured by blends and changes subscales. In the blends subscale participants identify basic emotions that combine to form more complex feelings, for

example - “Do sadness, guilt and regret form a) grief, b) annoyance, or c) depression?” The changes subscale asks participants to identify emotions that result from the intensification of certain feelings – “When a person feels more and more ashamed and begins to feel worthless, does the person feel a) overwhelmed, b) depressed, or c) ashamed?” (Palmer, Gignac, Manocha and Stough, 2004).

The ability to manage emotions is measured by emotional management and emotional relationship subscales. In the emotional management subscale participants indicate how effective certain actions might be in regulating certain moods, such as reducing anger, or prolonging joy. In the emotional relationships subscales participants are asked to indicate how effective the actions of a person might be in regulating or managing emotions of another person (Palmer, Gignac, Manocha and Stough, 2004).

The MSCEIT can be scored in one of two ways: expert or consensus. Each item has a correct answer as concluded by consensus scoring or expert scoring, which are highly correlated ( $r = .908$ ). 21 members of the International Society of Research in Emotion determine expert scoring, while consensus scoring was normed on 5000 heterogeneous respondents varying in sex, ethnicity and age. For this study we used consensus scoring since we want to compare our sample with the average person. (Palmer, Gignac, Manocha and Stough, 2004).

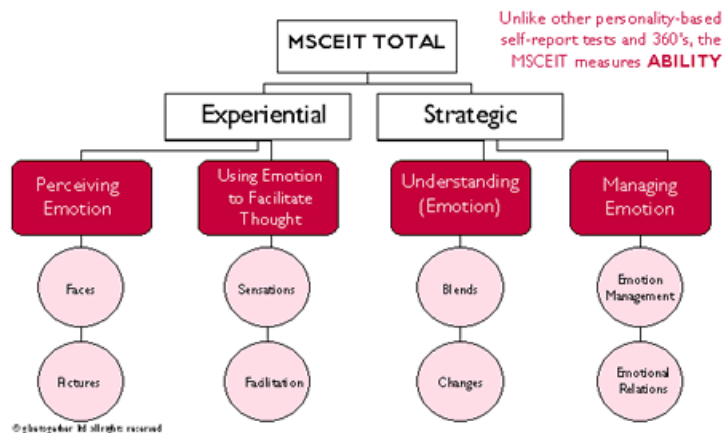
The MSCEIT provides 12 main scores: an overall emotional intelligence score, two area scores: experiential emotional intelligence score and a strategic (reasoning) emotional intelligence score, four branch scores: perceiving emotions, facilitating thought, understanding emotions, and emotional management score, and individual task scores for the two tasks that make up each branch score (Mayer, Salovey, Caruso, 2002).

The overall EI score gives an overall assessment of the subjects EI. The experimental EI area score assesses the subject’s ability to “take in” emotional experience, recognize it, compare it to other sensations and understand how it interacts with thought. The second area score, strategic (reasoning) emotional intelligence measures the respondent’s ability to understand emotional information and use it for planning and self management (Mayer, Salovey, Caruso, 2002).

The four branch scores correspond to the four branches that make up the four branch model of EI. Perceiving emotions score indicates the degree to which the respondents can identify emotion in oneself and others. The using emotions score indicates the degree to which the respondent can use emotions to improve thinking. The understanding emotions score indicates how well the respondents understand the complexities of emotional meanings, and emotional situations. The emotional management score measures how well the respondent is able to manage emotions in his or her own life (Mayer, Salovey, Caruso, 2002).

The individual task scores correspond with the two subscales that each of the four branches are comprised of. However, we will not focus on these scores as prior research has shown that these scales are subject to greater variation and are less reliable.

Figure 1. MSCEIT area, branch, and task model. [www.gluetogether.co.uk/tools/msceit.html](http://www.gluetogether.co.uk/tools/msceit.html)



## **Literature Review - Reliability/Validity of MSCEIT**

The MSCEIT has not had the benefit of widespread use in research due to its costs, and lengthy administration. Despite this, its validity and reliability have been tested and appear to be strong in many different facets. The test has shown a full scale test-retest reliability of  $r = .86$ , with individual branch scores ranging from  $r = .74 - .89$ . Subtasks scores are much less reliable and scores for these should be used with caution (Mayer, Salovey, Caruso, 2002). The MSCEIT also has face validity, whether a test appears to measure what it is supposed to,  $r = .83$ . A major concern of emotional intelligence is whether the construct being measured is distinct from already established constructs. The MSCEIT has low correlations with IQ, mood state, levels of emotional awareness scale, and the big 5 personality test. The MSCEIT does have moderate correlations with empathy and self esteem (Mayer, Salovey, Caruso, 2002).

One of the problems with self report models of emotional intelligence is it measures a composite of previous measures rather than a new construct. Though this composite measure may be useful, it is not necessarily EI. In addition, the popularity of self-report tests may be due to their accessibility, ease of administration and costs rather than their superiority. This provides further justification of the use of ability model, and the MSCEIT in this study.

The MSCEIT - because it is an ability model and directly assesses individual performance level on tasks - shows little social desirability with  $r = .02$  to  $.12$ . This, however is not the case for self report as it is subject to this constraint. In addition, self report is one's own perception of their emotional intelligence rather than the actual intelligence. When measuring IQ, one's perception of their intelligence and their actual intelligence has rarely been correlated.

## **Literature Review - Self-Report Delinquent Behavior**

It has been a challenge for criminologists to accurately measure criminal and deviant behavior. It is difficult to observe the behavior, and the information is not complete due to it not being reported or caught, self-report may be the nearest source to actual behavior (Thornberry, Krohn, 2000).

The main limitation to self report is participants not wanting to incriminate themselves. However studies over the years have proven otherwise. Porterfield, (1943) and Wallerstein and Wylie (1947) were the first to find that respondents were willing to self-report delinquency and criminal behavior.

Self report delinquent behavior tests have a test retest reliability range from  $r = .85 - .99$  (Thornberry, Krohn, 2000). Another major concern for self-report tests is its criterion validity. There have been contradictory studies regarding this matter. Several studies found that white males, white females and African American females had a correlation between official measures of delinquency(criminal records) and self report measures that was between  $r = .58 - .65$  which is fairly strong. However African American males had a correlation between  $r = .3 - .35$ . There is no research on the cause of this difference, whether it is a problem with the self report measures, the official measures or both (Thornberry, Krohn, 2000).

However, Farrington (1996) found that black males were no more likely than white males to self report delinquent behavior, and were actually more likely to admit actual arrest.

We developed a self-report measure based off of the Elliott et al. 24 item self-reported delinquency scale to measure delinquent behavior. (Appendix A)

The number of delinquent behaviors measured was reduced to 18 since it was paired with the MSCEIT questionnaire. The behavior on the test is modified from the original test based on

a pilot study of college students of typical delinquent behavior. We wanted to display a wide range of the seriousness of offenses to offer more construct validity, and increase the overall validity - since subjects are less likely to admit to serious offenses.

Ordinal responses are used in order to reduce the problem of errors in self reporting by low frequency offenders, which are likely to be less than high frequency offenders and to discriminate between high and low rate offenders (Piquero, Macintosh, and Hickman, 2002). In addition, given the rarity of involvement in delinquent acts within the past year subjects will respond negatively to most items.

There has been support for computer administered self report delinquent behavior questionnaires as the best means to administer the test because it increases confidentiality of responses, and in the past has elicited higher rates of delinquent behavior than those subjects interviewed in person or by paper and pencil.

## **Sample**

Our sample included varsity male soccer student athletes at Virginia Tech in the 2006 – 2007 season, a convenience sample of football and basketball student athletes, and Virginia Tech alumni athletes. These sports were selected for several reasons; football and men’s basketball bring in the most revenue for Virginia Tech and many other NCAA schools. These teams would benefit most from emotional intelligence training as they receive the most praise as well as negative attention due to a losing season or problematic behavior patterns on and off the playing field. The other male varsity sports that Virginia Tech offers are tennis, baseball, wrestling, track and field, golf, and swimming and diving. These sports are not included in the study because many of these sports are individual sports, and though emotional intelligence may still play a factor in these, they do not address the issues of working with teammates, do not earn penalties



or fouls during games, and are assessed on points or times rather than score. This would not allow for the use of data to test the hypothesis on behavior during the game.

We included only male athletes for several reasons: The MSCEIT has predicted deviant behavior and quality of social interaction in only men. The costs of using the MSCEIT makes it impractical to have female athletes participate since few studies have shown differentiation in women, possibly because of a threshold effect; that is, women's emotional intelligence on average is higher than men's (Adams, Kuebli, Boyle, & Fivush, 1995; Fivush 1991, 1998; Fivush, Brotman, Buckner & Goodman, 2000).

### **Procedures**

Soccer student athletes participated due to their coaches' influence, while football, basketball, and alumni athletes participated voluntarily. This may affect our results as current soccer student athletes had concerns about anonymity and confidentiality. Current soccer athletes took the test in a controlled laboratory while, all other respondents took the test in uncontrolled environment.

Alumni athletes were asked to participate in study, but their performance statistics were from prior years. Since EI should improve with age when measured as ability, these subjects may bias our results as their emotional intelligence may have improved since leaving college

Subjects first answered the self-report delinquent behavior questionnaire, followed by the MSCEIT. Game performance and behavior was collected by the researcher from public websites and statistics.

## Analysis

We created composite variables for basketball game performance, basketball game behavior, soccer performance, soccer behavior, and off field delinquent behavior. To do this, we correlated the questions that measured each of these outcome measures.

Off field behavior was measured using four main constructs: Academic (skipping class, and cheating on a test,  $r = .459, p < .01$ ), Assault (getting in a fight, and threatening to hit someone  $r = .532, p < .01$ ), Substance use (smoked weed, and driving while under the influence of alcohol,  $r = .581, p < .001$ ) and stolen goods (holding knowing stolen goods, and having stolen something worth less than \$50,  $r = .738, p < .001$ )

The composite variable for basketball in game behavior consisted of foul outs per game, and fouls per game ( $r = .931, p < .03$ ). Soccer game performance was measured by yellow cards since only one player received a red card during the season. Basketball game performance was measured in three ways. The first was playing time measured on percent games started and percent games played. Game performance was divided into two categories, most simply guard and forward statistics with steals and assists forming one composite variable ( $r = .873, p < .03$ ) and block, points and rebounds forming the other (Table 1).

Table 1. Correlations that form composite variable measuring “forward” performance

		%Reb	%Blks
%Blks	Pearson Correlation	.925(**)	1
	N	6	6
%Pts	Pearson Correlation	.942(**)	.820(*)
	N	6	6

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

Soccer game performance was also measured in several ways. The first was playing time, which was measured the same way as playing time for basketball so the two measures

could be combined. The second was a combination of the percentage of points, shots, goals and assists each individual had out of their team total.

We then correlated the composite variables as well as various other variables with total EI scores, two area scores, and four branch scores. (Table 2, 3, 4)

Table 2 Correlations of Deviant Behavior composite variables with EI scores

		Criminal	Academic	Drug use	Assault
SS_TOT	Pearson Correlation	-.158	-.183	.178	.196
SS_REA	Pearson Correlation	-.178	-.140	.020	.116
SS_EXP	Pearson Correlation	-.123	-.213	.225	.193
Perceive	Pearson Correlation	-.050	-.289	.168	.154
Using	Pearson Correlation	-.206	-.089	.208	.173
Understanding	Pearson Correlation	-.079	-.172	.043	-.074
Managing	Pearson Correlation	-.243	-.080	.021	.214

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

Table 3. Correlations of Basketball in game behavior and performance with EI scores

		SS_TOT	SS_REA	SS_EXP	Perceive	Using	Understanding	Managing
Game behavior	Pearson Correlation	-.017	-.127	.063	.016	-.078	.036	-.281
	N	5	5	5	5	5	5	5
Forward	Pearson Correlation	.283	.198	.201	.140	.074	.369	.052
	N	6	6	6	6	6	6	6
Guard	Pearson Correlation	.421	.236	.290	-.019	.731	.154	.416
	N	6	6	6	6	6	6	6
Playing time	Pearson Correlation	-.060	-.173	.035	.001	-.136	-.008	-.323
	N	5	5	5	5	5	5	5

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

Table 4. Correlations of Soccer in game performance and behavior with EI scores

		SS_TOT	SS_REA	SS_EXP	Perceive	Using	Understanding	Managing
playingtime2	Pearson Correlation	-.584(**)	-.509(*)	-.489(*)	-.328	-.557(**)	-.422(*)	-.543(**)
	N	23	23	23	23	23	23	23
Yellow Card	Pearson Correlation	.048	-.016	.029	-.033	.108	-.053	.040
	N	22	22	22	22	22	22	22
Points	Pearson Correlation	.343	.173	.303	.364	.134	.088	.105
	N	18	18	18	18	18	18	18
Shots	Pearson Correlation	.415	.392	.224	.145	.183	.346	.242
	N	22	22	22	22	22	22	22

We examined several models to assess whether Emotional intelligence was a determinant of delinquent behavior and player performance. As stated previously we hypothesized that lower EI levels would lead to increased on field and off field behavior incidents, as well as lower levels of play.

In our initial model, we regressed composite measures of delinquent behavior, performance as well as individual variables onto the four branch scores of Emotional Intelligence (Figures 1- 9). Next we regressed the same composite and individual variables onto the two area scores of Emotional Intelligence. (Figures 10 – 13) There were no significant relationships and our hypotheses were not supported.

Figure 2. The relationship between the four branches of EI and playing time

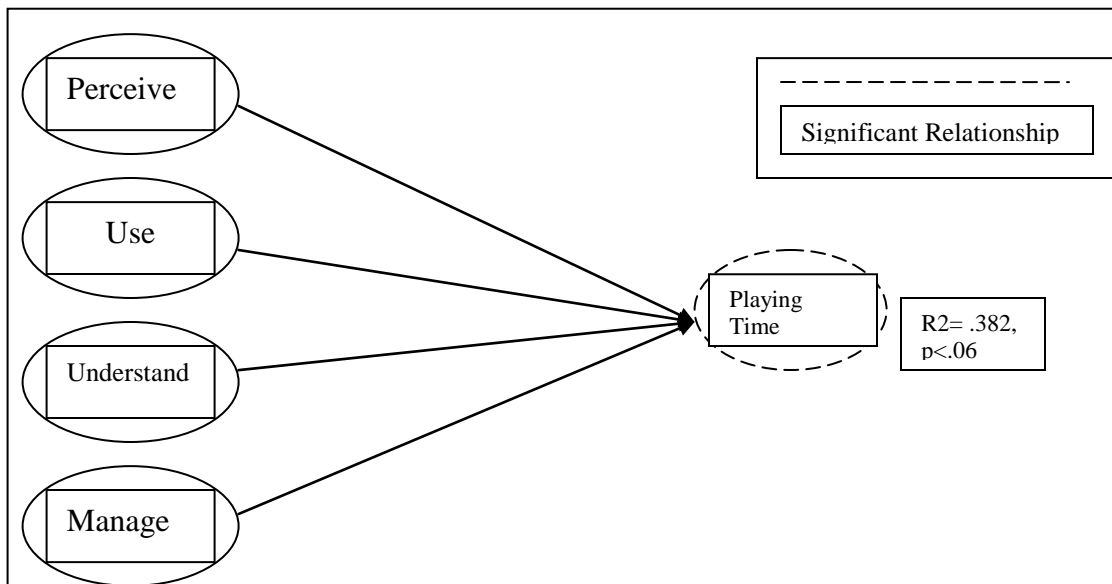


Figure 3. The relationship between the four branches of EI and skipping class

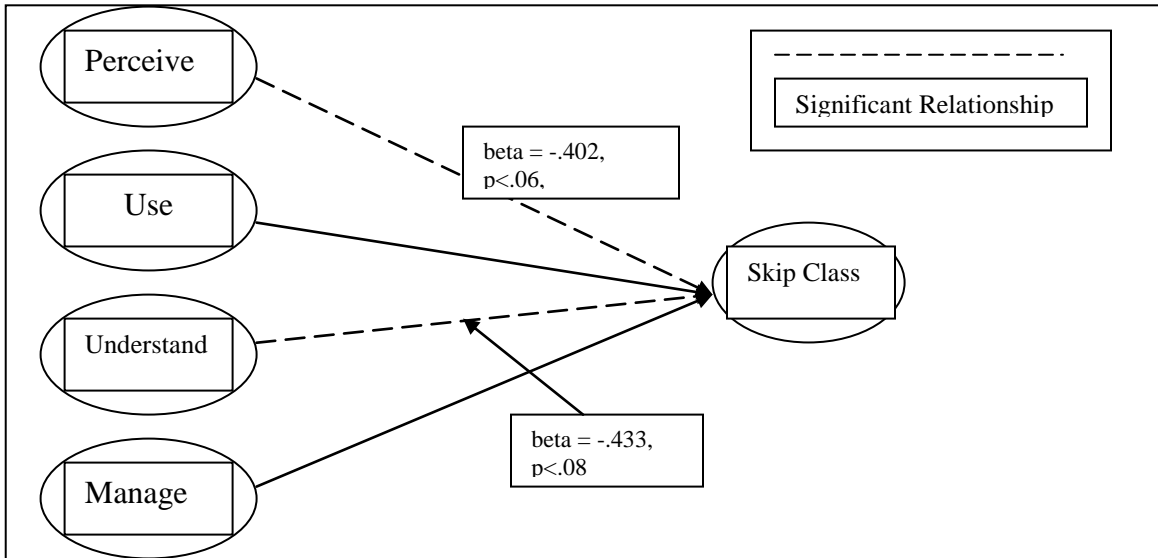


Figure 4. The relationship between the four branches of EI and selling drugs.

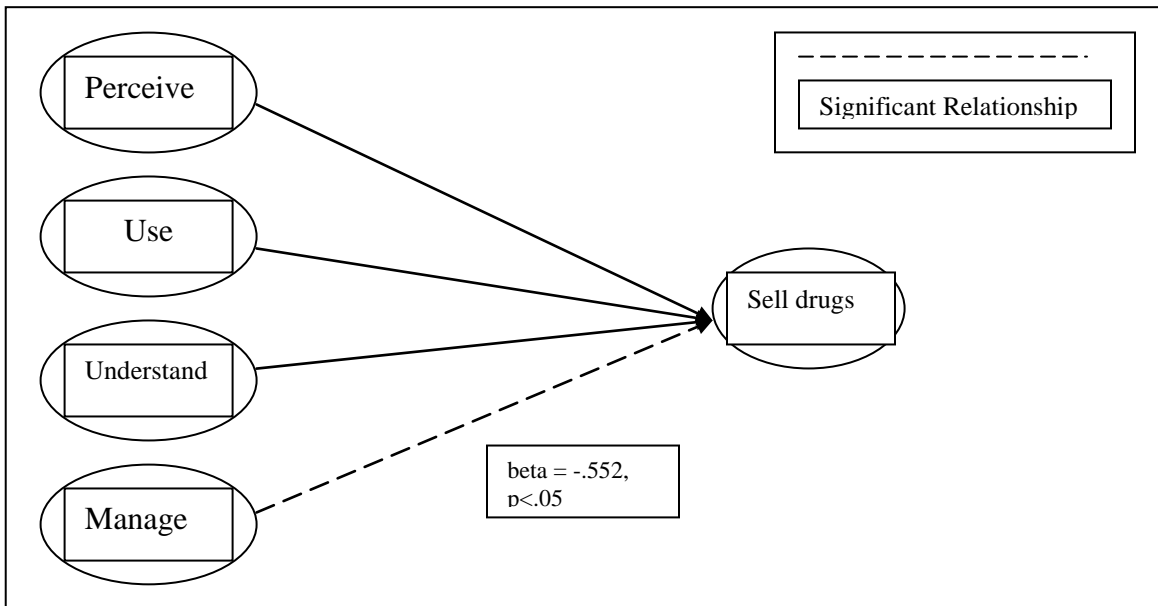


Figure 5. The relationship between the four branches of EI and Stealing a car.

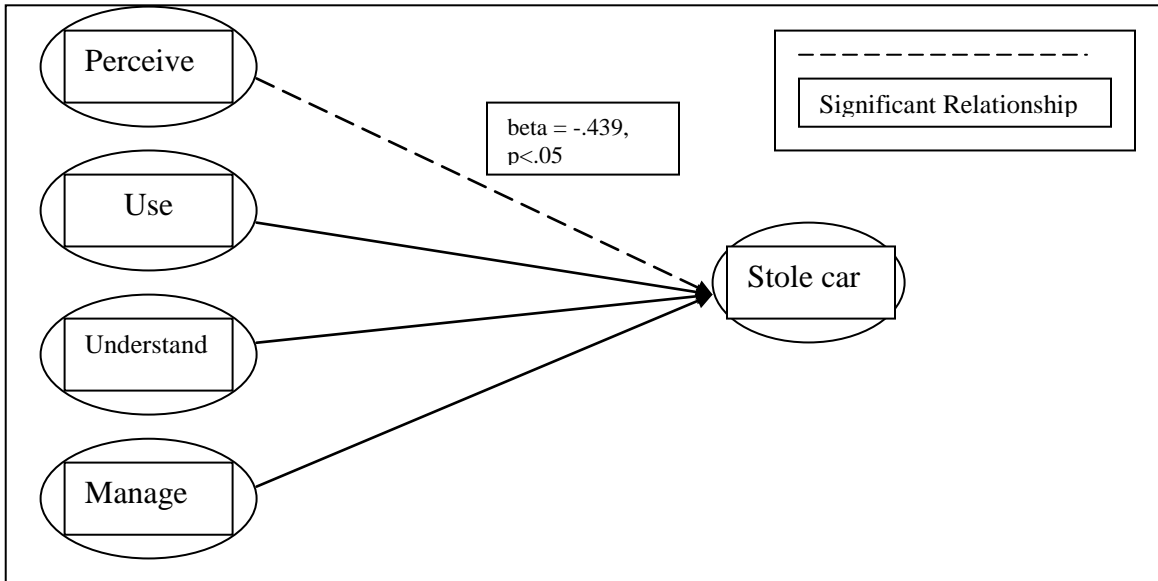


Figure 6. The relationship between the four branches of EI and attacking someone.

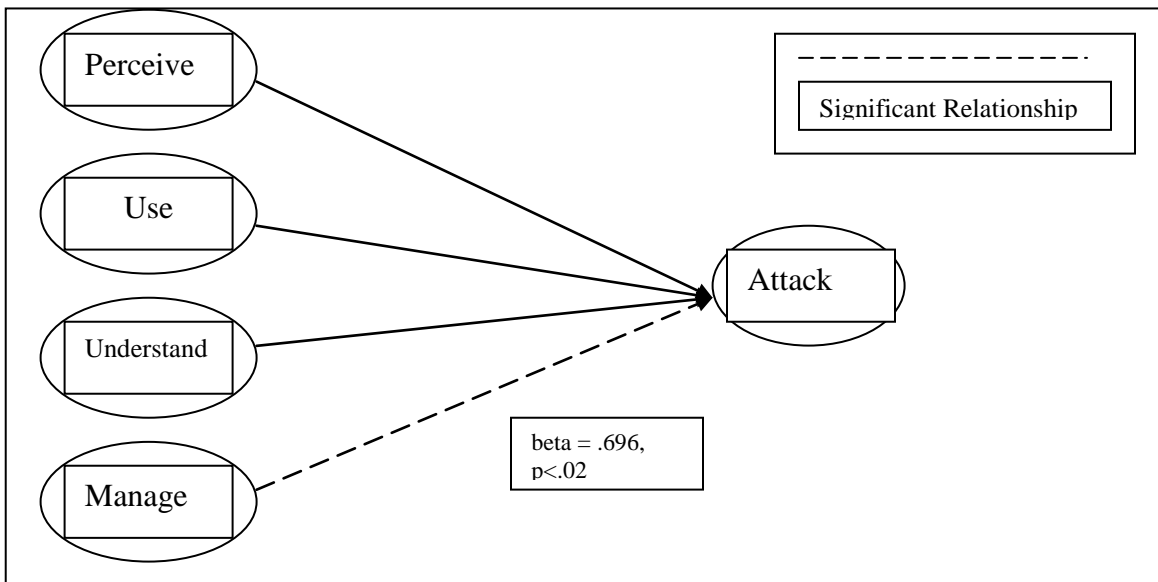


Figure 7. The relationship between the four branches of EI and hitting someone.

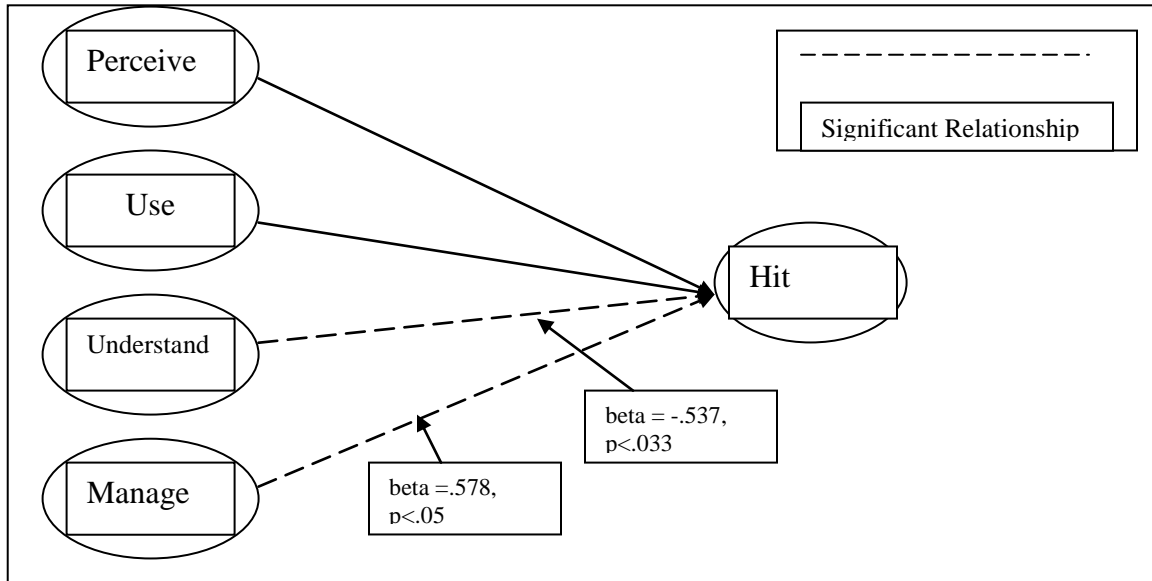


Figure 8. The relationship between the four branches of EI and SAT score.

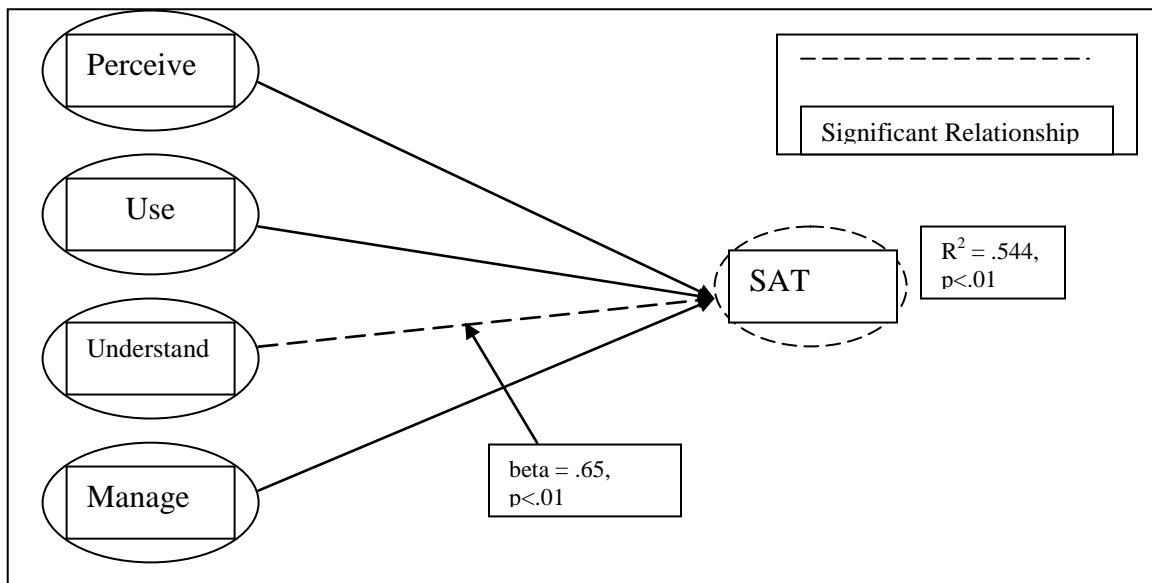


Figure 9. The relationship between the four branches of EI and Soccer Points.

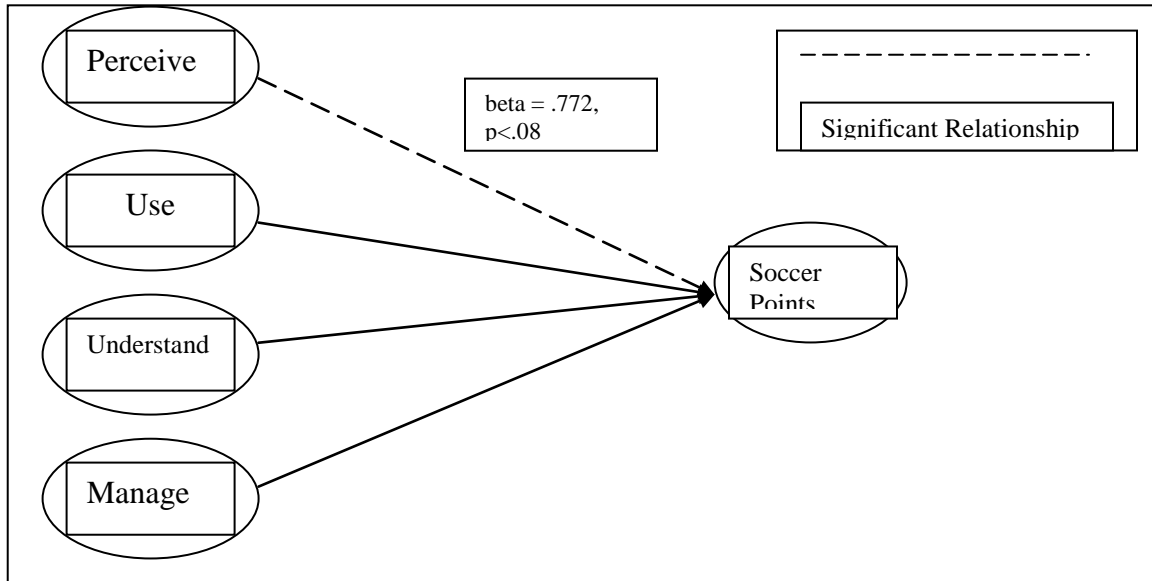


Figure 10. The relationship between the four branches of EI and Assault

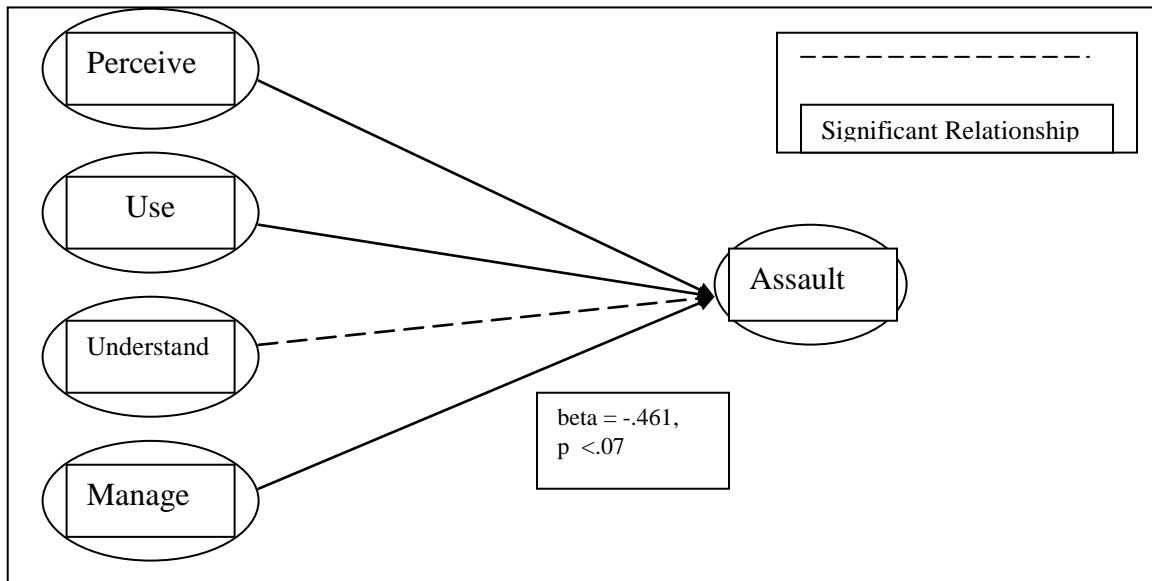




Figure 11. The relationship between the two area scores of EI and SAT scores

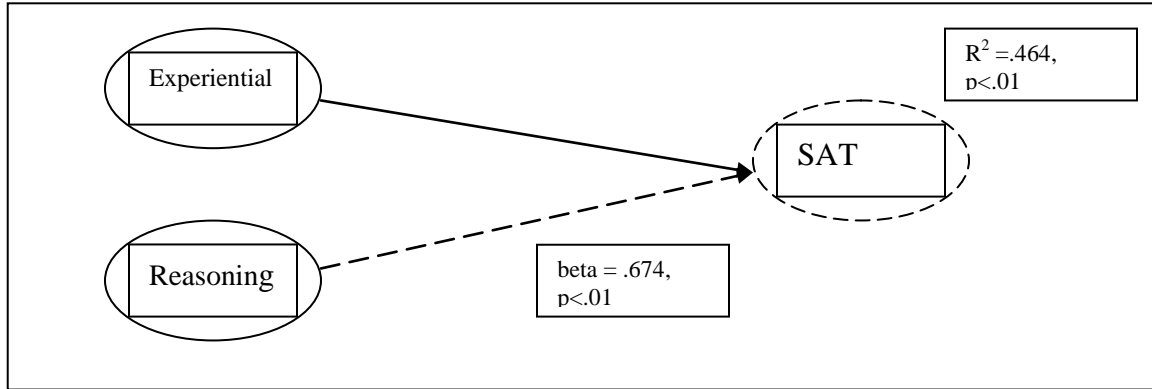


Figure 12. The relationship between the two area scores of EI and Playing time

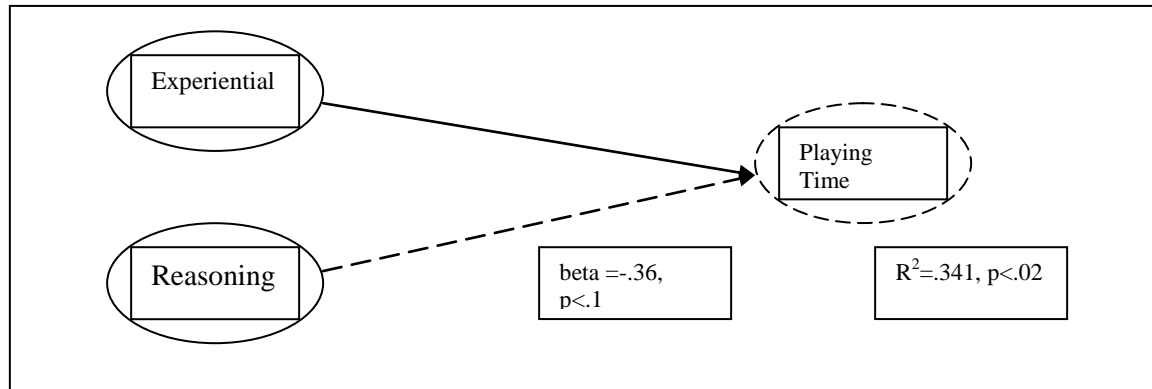


Figure 13. The relationship between the two area scores of EI and being involved in a fight.

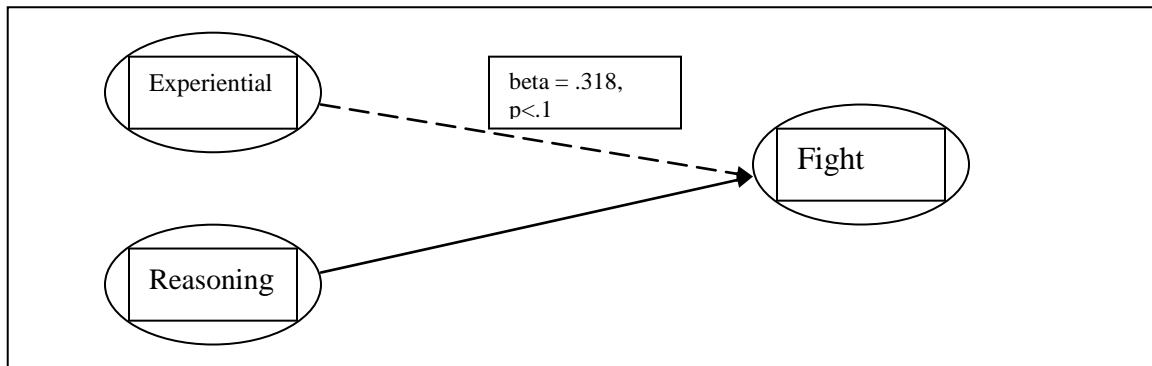
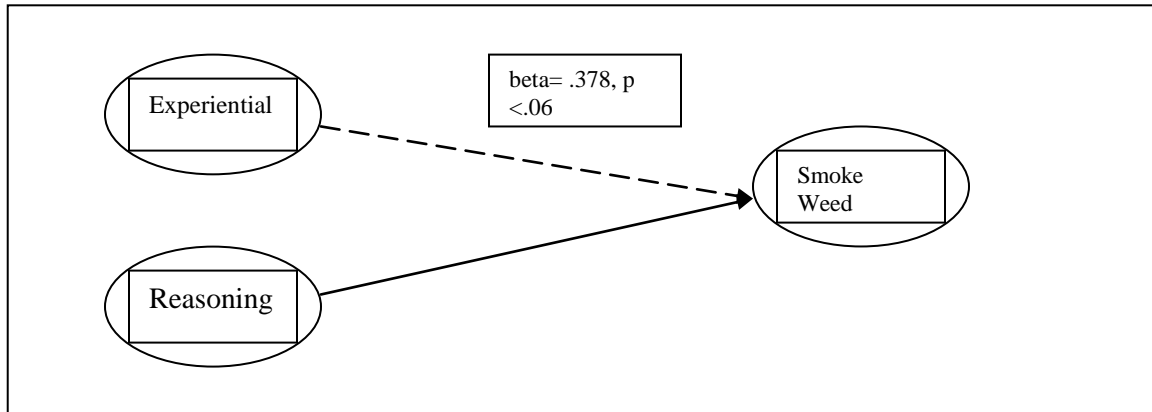


Figure 14. The relationship between the two area scores of EI and Smoking Weed.



## Discussion

The first hypothesis is that lower emotional intelligence will be correlated with an increased rate of on-field and off-field behavioral incidents. There was no relationship with emotional intelligence or any of the area or branch scores with on-field incidents.

We found no relationship between on-field behavior (personal fouls, foul outs, red cards and yellow cards), but there may be several explanations for this lack of significant findings. In soccer, many fouls occur during games that do not warrant red or yellow cards. However neither schools, nor officials keep track of this statistic, which may have been more indicative of in-game behavior. In addition, the Virginia Tech men's soccer team had an uncharacteristically low number of red and yellow cards. In fact, they won the ACC Sportsmanship Award for least number of red and yellow cards.

Off-field delinquent behavior also showed no correlation between delinquent behavior and emotional intelligence scores.

However, when conducting regression models there were some significant coefficients. Using the area scores as indicators, fighting was marginally significant with experiential EI, while smoking weed was slightly more significant, meaning that increased in experiential EI led

to an increase in these behaviors, the opposite direction of our hypotheses. Using the four branch scores as indicators, there were significant indicators, but never significant indicators within a significant model. Selling drugs had a negative relationship with managing emotions ( $p < .05$ ). Attacking someone with the intent to seriously hurt or kill had a positive relationship with managing emotions, ( $p < .02$ ). Hit or threatened to hit had a negative relationship with understanding emotions ( $p < .04$ ) and a positive relationship with managing emotions. ( $p < .05$ )

The lack of significant results may be due to the subjects' reluctance to report criminal behavior. Athletes, more so than the general population, face greater repercussions from delinquent behavior. This includes not only legal consequences, but possibility of losing scholarships, playing time and facing negative publicity.

A third hypothesis was higher emotional intelligence will lead to better on-field performance. Playing time of both sports combined was the only variable correlated significantly with any EI measures. It was correlated with total EI, both area scores, and the branch scores except for the ability to perceive emotions, however all in the opposite direction that predicted. Lower EI was related to an increase in playing time. Playing time was marginally significant negatively related with the reasoning branch using the two area scores as indicators. In addition, soccer points, which encompass goals and assists, were marginally correlated with the "ability to perceive emotions" score using the four branches as indicators.

Playing time may have had a negative relationship with EI because subjects included freshman who played in 0 games and would probably play more in following years.

A final hypothesis was that athlete emotional intelligence would be higher than the general public. A score of 100 is considered average on the MSCEIT with a standard deviation of 15. This sample the average score was 89.79 with a standard deviation of 14.95. The highest

mean was for “perceiving emotions”, with a mean of 95.36 and a standard deviation of 17.31, while the lowest was “using emotions” with a mean of 89.06 and a standard deviation of 15.01. Males’ emotional intelligence is usually lower than average which may explain our results since the data was not normed to gender

### **Overall Conclusion**

Psychological skills have been correlated with player performance, however this study shows the effect of emotional intelligence on performance and behavior is still in question.

### **Limitations**

One issue with the validity of the results was data collection. The VT men’s soccer team was required to participate by their coach. Despite the assurance of anonymity, players were worried their coach would see their responses. In addition, current soccer players took the study in a lab environment while former VT and collegiate athletes voluntarily participated in the study from their own homes. Alumni athletes and those from other universities did not have the same playing statistics available as current athletes at Virginia Tech.

### **MSCEIT**

Participants may have tired taking the MSCEIT which consists of 8 sections and takes approximately 35 – 40 minutes. We were unable to offer incentives to the participants due to NCAA regulations.

Norming the data to gender may have provided further insight into the relationship between Emotional Intelligence and sports. However this was not an option because of the cost.

This study shows that further research needs to be done on the applications of the MSCEIT. Based on these results it appears there is little relationship between the MSCEIT and athletic behavior, although the limitations on the study may have played a major role

Appendix 1  
Self Report Delinquent Behavior  
3 digit ID number:

Are you on Scholarship?

- Yes  
 No

College G.P.A.

- Below 1.0  
 1.0 - 1.4  
 1.5 - 1.9  
 2.0 - 2.4  
 2.5 - 2.9  
 3.0 - 3.4  
 3.5 - 4.0

SAT Score:

How many times in the past year have you:

	Daily	2-3 Times a week	Once a week	Once every 2-3 weeks	Once a month	Once every 2-3 months	Once or twice in the past year	Never
Cheated on a test?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stolen (or tried to steal) something worth more than \$50?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Skipped Class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stolen or tried to steal a motor vehicle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used hard drugs? (heroin, cocaine, ecstasy, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sold hard drugs? (heroin, cocaine, ecstasy, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stolen (or tried to steal) something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

worth less than \$50?

Knowingly bought, sold, or held stolen goods

How many times in the past year have you:

	Daily	2-3 Times a week	Once a week	Once every 2-3 weeks	Once a month	Once every 2-3 months	Once or twice in the past year	Never
Been reprimanded for being loud, rowdy, or unruly in a public place?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had or tried to have sexual relations with someone against their will?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Broken into a building or vehicle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoked Marijuana?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sold Marijuana?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attacked someone with the intent of seriously hurting or killing them?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been under the influence of alcohol while operating a motorized vehicle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been involved in a fight?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hit (or threatened to hit) another individual?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carried a hidden weapon?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## References

- Brackett, M., Rivers, S., Shiffman, S., Lerner, N., Salovey. (2006). Relating Emotional Abilities to Social Functioning: A comparison of Self-Report and Performance Measures of Emotional Intelligence. *Journal of Personality and Social Psychology*, 91 780-795.
- Conte, J. (2005). A Review and Critique of Emotional Intelligence Measures. *Journal of Organizational Behavior*, 26, 433-440.
- Goldenberg, I., J., Matheson, K., & Mantler, J. (2006). The assessment of Emotional Intelligence: A Comparison of Performance-Based and Self Report Methodologies. *Journal of Personality Assessment*, 86, 33-45.
- MacCann, C., Matthews, G., Moshe, Z., Roberts, R. (2003) Psychological Assessment of Emotional Intelligence: A Review of Self Report and Performance-Based Testing. *International Journal of Organizational Analysis*, 11, 247 -274.
- Mayer, J., Salovey, P., Caruso, D. (2002). *MSCEIT User's Manual*. North Towanda, NY Multi-Health Systems,
- Palmer, B., Gignac, G., Manocha, R., Stouch, C. Science Direct. (2003, September 17). A psychometric evaluation of the Mayer Salovey-Caruso Emotional Intelligence Test Version 2.0
- Perlini, A., Halverson, T. (2006). Emotional Intelligence in the National Hockey League. *Canadian Journal of Behavioral Science*, 38, 109.
- Piquero, A., Macintosh, R., Hickman, M. (2002). The Validity of a Self Reported Delinquency Scale. Comparisons across Gender, Age, Race and Place of Residence. *Sociological Methods and Research*, 30, 492 – 529.
- Sjoberg, Lenart. (2001). Emotional Intelligence: A psychometric Analysis. *European Psychologist*, 6, 79-95.
- Tett, R., Fox, K., Wang, A. (2005). A Development and Validation of a Self-Report Measure of Emotional Intelligence as a Multidimensional Trait Domain. *PSPB*, 31, 859-888.
- Thornberry, T., Krohn, M. (2000) The Self Report Method for measuring Delinquency and Crime. *Criminal Justice 2000*, 4, 33 – 74
- Zizzi, S., Deaner, H., Hirschhorn, D. (2002). The Relationship between Emotional Intelligence and Performance among College Baseball Players. *Journal of Applied Sports Psychology*, 15, 262-269.

# Rowena Crabbe

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## Education

M.S. Business Administration. Concentration: Marketing Research May 2007  
Virginia Polytechnic and State University (Virginia Tech), Blacksburg, VA GPA 3.71  
Thesis: The relationship between emotional intelligence and on and off  
field performance and behavior in athletes.

**International Exchange Program**, L'Universita della Svizzera Italiana (USI),  
Lugano, Switzerland. Spring 2006

B.S. Marketing Management December 2005  
Virginia Polytechnic and State University (Virginia Tech), Blacksburg, VA GPA 3.36

## Marketing Experience

**Graduate Research Assistant**, Virginia Tech Marketing Dept., Blacksburg, VA  
Spring 2005 – Present

### *Imbewu South Africa*

- Working with Non-Government Organization to develop strategic and marketing plans for sustainability.
- Traveled to Port Elizabeth, South Africa to conduct face to face interviews with all parties involved with Imbewu.

### *Planned Parenthood*

- Developed survey to evaluate perceptions of Planned Parenthood in Blacksburg.
- Analyzing data and preparing to develop a report presenting the findings.

**Graduate Research Assistant**, Virginia Tech Sloan Forest Industry Center, Blacksburg, VA  
Summer 2005 – Present

### *American Woodmark Corporation*

- Conducted in-depth and phone interviews with customers of a national brand cabinet company.
- Analyzed data and drafted a report to present to senior management on the reasons for supplemental customer transaction behavior and preferences.

### *Managing and Understanding the Hispanic Workforce*

- Researched prior diversity workshops, as well as current patterns and laws dealing with immigration.

## Other Work Experience

**Teachers Assistant**, Honors Marketing Management Project, Blacksburg, VA Fall 2006

- Offered guidance to students on planning and focus groups for project assessing Northrop Grumman's recruitment efforts.

**Tutor**, Center for Academic Enrichment, Blacksburg, VA August 2004-May 2005

- Tutored undergraduates in calculus, accounting, and economics.



**Administrative Assistant**, Cushman Insurance Agency, Herndon, VA Summer 2003, 2004

- Billed and processed incoming claims, personal lines, renewals, and endorsements of insurance.
- Researched and compiled claim history reports on clients.

### **Activities**

Delta Zeta Sorority, Treasurer, 2003-2006

- Collected dues; Set and maintained budget of over \$30,000.
- Upheld rules of sorority as executive board member.

Virginia Tech Club Field Hockey, 2002-2006

### **Honors**

Dean's List, 6 of 8 semesters

Delta Sigma Theta, Fairfax County Alumnae Chapter Scholarship, 2002