

Predicting Persistence and Academic Performance of First Year Students: An Assessment of Emotional Intelligence and Non-Cognitive Variables

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Relevant Literature

Recent studies (Bean & Eaton, 2002; Braxton, 2002; Johnson, 2002) have explored new models and theories of retention that address the issue in a more holistic manner, including a student's psychologically motivated behaviors, a socially constructed context in which to make meaning, and academic integration. These newer approaches encourage researchers to look at persistence as engaging all aspects of a student's life. Engaged students are involved in educationally productive activities in college and are developing habits of the mind and heart that engage their capacity for continual learning and personal development (Kuh, 2003, p. 25).

Traditionally, American universities have adopted as their major admission criterion such standardized test scores as the Scholastic Aptitude Test (SAT) or American College Test (ACT). Although intelligence tests have achieved wide acceptance as tools to predict future success, some researchers have challenged this notion and presented alternative theories. These types of instruments have been widely criticized as barriers to the enrollment of non-traditional students and insufficient to address the persistence and success of all students. . Research (Jaeger 2001, Swart 1996) suggests that an important factor in predicting academic success is emotional Intelligence.

Feelings and emotions have yet to be embraced in discussions persistence, academic performance, and success. Emotions are organized responses that adaptively trigger cognitive activities and direct actions (Salovey & Mayer, 1990). The ability to recognize the meanings of emotions and their relationships, and to reason and problem solve on that basis, is the result of emotional intelligence (EI; Mayer, Caruso, & Salovey, 2000, p. 267). Adding emotional intelligence and other non-cognitive variables to the study of persistence and academic performance should add valuable insight that has yet to be fully considered.

Purpose of Research

The purpose of this research is to identify non-cognitive variables that predict alone or in combination with bio- and socio-demographic variables and/or traditional academic preparedness variables first year students' academic performance and persistence rates.

Due to the timing of this presentation, we are presenting today preliminary analyses that explore the relationship between non-cognitive variables and traditional academic preparedness variables. In addition, comparisons among our sample on the non-cognitive variables and traditional academic preparedness variables were explored.

Method

Participants

Three hundred and four first year students participated. The first year students were drawn specifically from the following programs; Academic Support Program for Athletes (ASPSA; $n = 123$), University Honors Program ($n = 95$), and Transition Program (TP; $n = 86$). The Transition program is for students who are academically eligible for admission to NC State but not into their first or second choices of college and who demonstrate academic or transitional needs. See Table 1 for demographic characteristics of the sample.

A series of Chi-square analyses were conducted to determine whether the sample population was representative of the first year student population at NC State in terms of demographic information including age, race/ethnicity, first year college generation and gender. In general, the sample population accurately reflected the demographic make up of the NC State population. No significant differences were found for age and gender between the sample population and the first year student population. Significantly more African-American students participated in the study than in the population, $\chi^2(4, 295) = 57.42, p < .001$. In addition, significantly fewer first year college generation students participated in the study than in the population, $\chi^2(1, 295) = 13.33, p < .001$.

Materials

BarOn Emotional Quotient Inventory - Short Form (BarOn EQ-i: s; Bar-On, 2002): Total Emotional Intelligence, Intrapersonal, Interpersonal, Adaptability, Stress Management, General Mood, and Positive Impression.

Noncognitive Questionnaire (NCQ; Tracey & Sedlacek, 1984, 1989): Positive Self-Concept, Realistic Self-Appraisal, Demonstrated Community Service, Knowledge Acquired in a Field, Successful Leadership Experience, Preference of Long-range Goals, Ability to Understand and Cope with Racism, and Availability of a Strong Support Person.

Demographic variables as well as traditional academic preparedness variables were taken from the University Planning and Analysis database.

Procedure

The instruments were administered to the students either during summer orientation or within the first two weeks of the fall 2003 semester. Students completed the instruments within small groups.

Results

Relationship between Non-Cognitive Variables and Traditional Academic Preparedness Variables

A series of Pearson and Spearman Rho correlations were conducted for the entire sample between the non-cognitive variables (Bar-On EQI subscales and NCQ subscales) and the traditional academic preparedness variables (High School GPA, SAT Total, Math, and Verbal) and the socio-biographic demographic variables. See Table 2 for descriptive statistics for all the variables. The following relationships were found:

- Total EI was only significantly related to the NCQ subscale of racism ($r = .17, p > .01$).
- Total EI score was not significantly correlated with high school GPA.
- Total EI score was significantly correlated with SAT total ($r = .17, p > .01$), verbal ($r = .15, p > .01$) and math ($r = .18, p > .01$).
- The only EQI subscale to correlate significantly with ethnicity was mood ($r = -.12, p > .05$). The total EI score, the interpersonal ($r = .37, p > .01$) and stress ($r = .12, p > .05$) subscales were significantly related to gender.
- The NCQ subscales were not significantly correlated high school GPA.
- The NCQ subscales of confidence ($r = -.20, -.18, -.21, p > .05$) and preference for long term goals ($r = -.14, -.14, -.14, p > .05$) were significantly correlated with SAT total, verbal and math.
- The NCQ subscales of confidence ($r = .17, p > .05$), self-appraisal ($r = .12, p > .05$), and racism ($r = .21, p > .05$) were significantly related to ethnicity. The NCQ subscales of racism ($r = .12, p > .05$) and availability of a strong support person ($r = .14, p > .05$) were significantly related to gender. None of the NCQ subscales were significantly related to first year college generation.

Differences Between Samples in Non-Cognitive, Traditional Academic Preparedness and Demographic Variables

A series of MANOVAS and Chi-Squares were conducted to analyze differences in the variables measured among the three sub-samples (Honors, Athletes, and Transition).

For the Bar-On EQI subscales, a significant overall model was found, $F(12, 572) = 2.23, p < .01$. Specifically, honors students reported greater adaptability than transition program students, $F(2, 291) = 5.00, p < .01$.

For the NCQ subscales, a significant overall model was found, $F(14, 556) = 3.92, p < .001$. Transition program students reported greater understanding of and dealing with racism than student athletes, $F(2, 284) = 3.88, p < .05$. In addition, Transition program students reported greater self-concept than student athletes and honors students, $F(2, 284) = 13.79, p < .001$.

For the traditional academic preparedness variables, a significant overall model was found, $F(6, 578) = 17.31, p < .001$. Specifically, Honors students had a higher SAT total ($F(2, 291) = 46.28, p < .001$), verbal ($F(2, 291) = 42.78, p < .001$) and math ($F(2, 291) = 45.05, p < .001$) score than student athletes and transition program. In addition, student athletes had a significantly higher math score than transition program students.

For the demographic variables of ethnicity and first year generation college students, significant differences were found between the groups. Specifically, there were significantly more first year generation college students in the honors program ($X^2(1, 82) = 10.44, p < .001$) and athlete program ($X^2(1, 82) = 14.63, p < .001$) than in the transition program. In addition, there were significantly more African-American students in the transition program ($X^2(1, 153) = 674.74, p < .001$) and athletes program ($X^2(1, 153) = 112.61, p < .001$). There were also significantly more African-American students in the athletes program than in the honors program, $X^2(1, 131) = 155.21, p < .001$.

Discussion

Although research on emotional intelligence has proliferated in the past decade, findings addressing the relationship between EI and GPA. SAT scores have been inconclusive. Studies (Koifman, 1998; Sutarso, Baggett, Sutarso, & Tapia, 1996) have shown no relationship between EI and GPA while others (Schutte et al., 1998; Tapia, 1998) have found a significant relationship between the two variables. In Tapia's (1998) research she also found a significant relationship between EI and PSAT scores. Our research supports both conclusions. Total EI was not correlated to a student's high school GPA, although two EI subscales, interpersonal and general mood, were significantly correlated to high school GPA. Our findings concerning EI and SAT scores support Tapia's research and conventional wisdom regarding the emotional intelligence construct and general intelligence. Mayer and Salovey (2000, p. 6), the authors who coined the term EI, contend that emotions and intelligence should connect in some way and "a low-to-moderate correlation is preferred to a nonexistent one (that it is not an intelligence at all)." Educational institutions at various levels develop policies, design programs, and commit resources to improving student SAT scores and GPAs. Developing a better understanding of how non-cognitive variables relate to GPA and SAT scores is critical to future decisions of educational administrators.

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Table 1

Sample Demographics

Variables (n)	Athletes n = 123	Honors n = 95	Transition n = 86
Gender			
Male	68	48	42
Female	53	44	40
Ethnicity			
Caucasian	84	79	35
African-American	46	8	86
American Native	12	9	9
Asian	4	20	8
Hispanic/Latino	55	15	15
First Year Generation			
Yes	58	41	22
No	63	51	60

Table 2

Descriptive Statistics for all the Variables

Variables	Athletes			Honors			Transition		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Bar-On EQI									
Total	50.9	10.24	120	52.61	8.97	92	51.00	9.17	82
Intra	52.9	12.04	120	52.53	12.64	92	24.57	11.57	82
Inter	45.06	15.42	120	46.57	13.98	92	45.79	13.14	82
Adapt	49.50	13.75	120	57.91	12.83	92	49.71	13.47	82
Stress	56.14	12.21	120	56.45	12.61	92	53.94	13.93	82
Mood	55.47	12.03	120	55.12	13.09	92	52.92	10.53	82
NCQ									
Concept	11.16	1.80	118	10.97	1.60	92	12.35	2.21	79
Self-App	7.44	1.47	119	7.53	1.72	93	7.49	1.40	83
Racism	18.25	2.37	118	18.54	2.50	93	19.33	2.67	81
Goal	6.81	1.24	120	6.65	1.28	93	6.77	1.35	83
Support	13.91	1.92	118	14.05	1.66	93	13.43	2.52	82
Leader	7.59	1.43	120	14.05	1.66	93	7.45	1.82	83
Community	4.16	.85	118	4.38	.94	93	4.20	.99	83
Academic									
HSGPA	3.10	.69	121	3.90	.97	93	2.50	.65	82
SATTOT	1163	306	121	1450	220	91	1086	256	82
SATV	560	161	121	714	116	91	536	135	82
SATM	601	151	121	731	115	91	549	131	82

Note: Intra Intrapersonal, Inter- Interpersonal, Adapt- Adaptability, Concept- Positive Self-Concept, Self-App Self-Appraisal, Racism Understanding of Racism, Goal Long Term Goals, Support Availability of a Support Person, Leader Leadership Skills, Community Demonstrated Community Service, HSGPA High School Grade Point Average, SATTOT SAT Total, SATV- SAT Verbal, SATM SAT Math