On the Emotional Core of Students’ Academic Achievement:

The Role of Negative Affectivity

Michelle YIK
The Hong Kong University of Science and Technology

October 29, 2006
**Big Five Predictors of Academic Achievement**

- **Conscientiousness** was found to yield positive relations with academic performance (Caprara et al., 2003; Goff & Ackerman, 1992; Paunonen & associates, 1998, 2001, 2003).

- **Neuroticism** was found to yield inconsistent relations with academic performance.
  - *positive* relations to the award of the diploma and pass in group work among the hi-superego students (McKenzie & associates, 1989, 2000; Ross et al., 2001).
  - *negative* relations to intelligence measures (Furnham & associates, 2005, 2006).
Neuroticism

- Neuroticism reflects a tendency to experience negative emotions and was relabeled as Negative Affectivity (Tellegen, 1985).

**N as a bad guy** … a significant predictor of
  - psychiatric disorders such as depression and anxiety (Claridge & Davis, 2001);
  - impaired physical health (Neeleman et al., 2002);
  - relationship / social failures (Kelly & Conley, 1987)

**N as a good boy** … a significant predictor of
  - behavioral inhibition → safety benefits
  - avoidance of acute dangers
  - competitiveness (Ross, Stewart, Mugge, & Fultz, 2001)
Research Question

Is Negative Affectivity beneficiary to Academic Performance?
Sample 1

\[ N = 222 \]

70% females

Age = 18 – 22 (mean = 19)

---

Time 1

**Predictor:** Personality Factors

Time 2

**Criterion:** Cumulative Grade Average

10 months
## Correlations with CGA

<table>
<thead>
<tr>
<th>Personality Facets</th>
<th>CGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1_Competence</td>
<td>0.13</td>
</tr>
<tr>
<td>C2_Order</td>
<td>-0.04</td>
</tr>
<tr>
<td>C3_Dutifulness</td>
<td>0.25</td>
</tr>
<tr>
<td>C4_Achievement Striving</td>
<td>0.12</td>
</tr>
<tr>
<td>C5_Self-discipline</td>
<td>0.11</td>
</tr>
<tr>
<td>C6_Deliberation</td>
<td>0.11</td>
</tr>
<tr>
<td>CONSCIENTIOUSNESS</td>
<td>0.14</td>
</tr>
<tr>
<td>N1_Anxiety</td>
<td>0.08</td>
</tr>
<tr>
<td>N2_Angry Hostility</td>
<td>-0.05</td>
</tr>
<tr>
<td>N3_Depression</td>
<td>0.05</td>
</tr>
<tr>
<td>N4_Self-consciousness</td>
<td>0.08</td>
</tr>
<tr>
<td>N5_Impulsiveness</td>
<td>-0.06</td>
</tr>
<tr>
<td>N6_Vulnerability</td>
<td>0.02</td>
</tr>
<tr>
<td>NEUROTICISM</td>
<td>0.03</td>
</tr>
</tbody>
</table>
Predicting CGA

\[ N \rightarrow CGA \quad 0.21 \]

\[ Lo C \rightarrow CGA \quad -0.29 \]

\[ N \rightarrow Lo C \quad 0.56 \]

Chi-sq (63, 222) = 303.41
RMSSR = 0.10
VAF = 5.9%
Sobel Test = 3.09
Sample 2

\[ N = 555 \]

54% females

Age = 21 – 25 (mean = 20)

Time 1
Predictor:
Personality Factors

Time 2
Criterion:
- Cumulative Grade Average
- Course Performance

3 months
## Correlations with CGA et al.

<table>
<thead>
<tr>
<th>Personality Facet</th>
<th>CGA</th>
<th>Self-eval</th>
<th>Peer-eval</th>
<th>Class Participation</th>
<th>Quizzes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1_Competence</td>
<td>0.16</td>
<td>0.10</td>
<td>0.07</td>
<td>0.26</td>
<td>0.06</td>
</tr>
<tr>
<td>C2_Order</td>
<td>0.12</td>
<td>0.06</td>
<td>0.08</td>
<td>0.17</td>
<td>0.07</td>
</tr>
<tr>
<td>C3_Dutifulness</td>
<td>0.21</td>
<td>0.06</td>
<td>0.16</td>
<td>0.23</td>
<td>0.08</td>
</tr>
<tr>
<td>C4_Achievement Striving</td>
<td>0.17</td>
<td>0.10</td>
<td>0.07</td>
<td>0.17</td>
<td>0.09</td>
</tr>
<tr>
<td>C5_Self-discipline</td>
<td>0.23</td>
<td>0.12</td>
<td>0.17</td>
<td>0.16</td>
<td>0.17</td>
</tr>
<tr>
<td>C6_Deliberation</td>
<td>0.11</td>
<td>0.00</td>
<td>0.06</td>
<td>0.10</td>
<td>0.02</td>
</tr>
<tr>
<td>CONSCIENTIOUSNESS</td>
<td>0.22</td>
<td>0.10</td>
<td>0.13</td>
<td>0.23</td>
<td>0.11</td>
</tr>
<tr>
<td>N1_Anxiety</td>
<td>0.02</td>
<td>0.00</td>
<td>0.02</td>
<td>-0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>N2_Angry Hostility</td>
<td>0.01</td>
<td>-0.03</td>
<td>-0.11</td>
<td>0.10</td>
<td>0.01</td>
</tr>
<tr>
<td>N3_Depression</td>
<td>-0.08</td>
<td>-0.03</td>
<td>-0.08</td>
<td>-0.08</td>
<td>-0.07</td>
</tr>
<tr>
<td>N4_Self-consciousness</td>
<td>0.07</td>
<td>-0.02</td>
<td>0.03</td>
<td>0.00</td>
<td>0.05</td>
</tr>
<tr>
<td>N5_Impulsiveness</td>
<td>-0.04</td>
<td>-0.02</td>
<td>-0.08</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>N6_Vulnerability</td>
<td>-0.05</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.06</td>
<td>-0.00</td>
</tr>
<tr>
<td>NEUROTICISM</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.06</td>
<td>-0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Predicting CGA

Chi-sq (63, 555) = 556.62
RMSSR = .09
VAF = 7.8%
Sobel Test = 5.33
Predicting performance in a course

Chi-sq (101, 555) = 728.49
RMSSR = .08
VAF = 10.2%
Sobel Test = 5.12
Our answer is ... 

Is Negative Affectivity beneficiary to Academic Performance?

Oh yeah!
1. Neuroticism → Academic Performance (+ve)

2. Conscientiousness → Academic Performance (+ve)

3. Suppression effect of C on “N --> Academic Performance”

4. Predictive Validities = 6% - 10%
Discussion

• What is the **generative mechanism** behind the replicable positive relations between N and academic performance?

• What was the **shared variance** between N and C that was being partialled out in the regression equation?
  – The shared variance must be of low criterion validity, the partialling of which not only resurrected the effect of N, but also strengthened the effect of C on predicting academic performance.
  – Substance versus Statistical artifact