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Staying the Course: Grit, Academic Success, and Non-Traditional Doctoral Student

Ted M. Cross

Grand Canyon University, ted.cross@gcu.edu

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Staying the Course: Grit, Academic Success, and Non-Traditional Doctoral Students

Dr. Ted Cross
Program Chair, Dissertation Research
Grand Canyon University
Introduction

• Story 1- Templeton, Seligman, UPenn
• Story 2- GCU CDS
• Frame work- what makes some non-traditional doctoral students more successful in their programs of study than others?
  – Through the lens of personality, persistence, and academic success
  – Grit- character level trait; persistence and passion for long-term goals (Duckworth, et al., 2009)
• Context- Growth of Higher Ed, Online Ed, & Non-Traditional Doctoral Programs
  – Higher education at the undergraduate and graduate levels continues to grow (CGS, 2008; Walton, 2011)
  – To reach new students more and more institutions are utilizing online education (Allen & Seaman, 2011).
  – At the doctoral level new online programs that serve non-traditional students are growing (Pappas & Jerman, 2011)
Statement of the Purpose

• Purpose
  – The purpose of this study was to understand (a) the differences between mean grit scores of first, second, and third year doctoral students; (b) if there is a relationship between student grit scores and current programmatic GPA; and (c) to examine any differences, if at all, between mean third year student grit scores of those who have or have not successfully defended their dissertation proposal.
### Conceptualized Variables of the Experiment

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Controlling Variables</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean student grit scores (1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt; Year Student Groups)</td>
<td>Student Characteristics (Demographics)</td>
<td>Number of Courses Successfully Completed (1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt; Year Student Group)</td>
</tr>
<tr>
<td>Student grit scores</td>
<td>Student Characteristics (Demographics)</td>
<td>Current GPA</td>
</tr>
<tr>
<td>Mean student grit scores (3&lt;sup&gt;rd&lt;/sup&gt; Year Student Group Only)</td>
<td>Student Characteristics (Demographics)</td>
<td>Successful Completion or Non-completion of Proposal Defense</td>
</tr>
</tbody>
</table>
Grit

Common traits of 300 geniuses
- Tenacity to abandon skills from more changeability: Not liking something fresh because of novelty. Not looking for a change.
- Tendency not to abandon tasks in the face of obstacles. Perseverance: tenacity, doggedness.
Grit

• Grit (Persistence and Passion for long-term goals) “Predictive”
  • Not IQ; Terman et al. (1947) suggested, that non-cognitive or particular personality traits may be more important than IQ (Tough, 2012)
  • “The gritty individual approaches achievement as a marathon; his or her advantage is stamina” (Duckworth et al., 2007, p. 1088). Thus, grit is a non-cognitive measure of one’s ability to persevere in pursuit of a long-term goal without desisting or changing interests along the way.
  • “grit entails the capacity to sustain both effort and interest in projects that take months or even longer to complete” (Duckworth & Quinn, 2009, p. 166).
  • Story 3- The Friend We all Have....
Methodology

• Design
  – Quantitative (Creswell, 2009; Devlin, 2006).
  • Between groups design & correlation (Bechhofer & Paterson, 2000; Cone & Foster, 1993; Denscombe, 2009; Devlin, 2006).
Between Groups Design

\[ [\text{Mean Grit}, \text{Mean Grit}, \text{Mean Grit}] \]

1st Yr. \( \rightarrow \) 2nd Yr. \( \leftarrow \) 3rd Yr.

ANOVA, ANCOVA, 3 Tukey
Correlational Aspect

Grit Score → GPA

Pearson & Multiple Reg.
Between Groups

3rd yr.
- Anova
- Ancova

mean Grit
Defended

mean Grit
Ø Defended

D
Ø
Sample & Data Collection

- Population was 3,200 non-traditional doctoral students (online with limited residency) at private university in Southwest
- Online survey sent to email and posted on intranet site
- 730 students completed the survey (only analyzed completed surveys)
- After cleaning, 669 completed responses were analyzed
Results & Analysis

Results of ANOVA of 1st, 2nd, and 3rd Year Student Groups

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.325</td>
<td>2</td>
<td>.163</td>
<td>.708</td>
<td>.493</td>
</tr>
<tr>
<td>Within Groups</td>
<td>152.820</td>
<td>666</td>
<td>.229</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>153.145</td>
<td>668</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results & Analysis

**Results of ANCOVA of 1st, 2nd, and 3rd Year Student Groups with Covariates Age and Sex**

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>2.237</td>
<td>1</td>
<td>2.274</td>
<td>10.083</td>
<td>.002*</td>
</tr>
<tr>
<td>Sex</td>
<td>.922</td>
<td>1</td>
<td>1.423</td>
<td>5.697</td>
<td>.107</td>
</tr>
<tr>
<td>1st, 2nd, 3rd Year</td>
<td>.545</td>
<td>2</td>
<td>.273</td>
<td>1.074</td>
<td>.481</td>
</tr>
</tbody>
</table>

*Note. * = differences were significant at the $p < .05$ level.*
### Pearson Correlation of Grit and GPA

<table>
<thead>
<tr>
<th></th>
<th>Grit Score</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit Score</td>
<td>1</td>
<td>.093</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.016*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.016*</td>
</tr>
<tr>
<td>N</td>
<td>669</td>
<td>669</td>
</tr>
</tbody>
</table>

*Note. * = correlation is significant at the $p < .05$ level (2-tailed); N = total number of participants.*
## Results & Analysis

**Pearson Correlations of Grit and GPA by Gender**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Grit Score</th>
<th>Pearson Correlation</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
<td>1</td>
<td>.103</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>247</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>1</td>
<td>.100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.041*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>422</td>
</tr>
</tbody>
</table>

*Note.* * = correlation is significant at the $p < .05$ level (2-tailed); N = number of participants.
## Results & Analysis

**Predictor Variables of Regression Model of Age, Grit, and GPA**

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Beta</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.018</td>
<td>.650</td>
</tr>
<tr>
<td>Grit Score</td>
<td>.023</td>
<td>.019*</td>
</tr>
</tbody>
</table>

*Note. * correlation is significant at the $p < .05$ level.*
Results & Analysis

Results of ANOVA for Mean Grit Scores 3\textsuperscript{rd} Year Students Who Have or Have Not Successfully Defended their Dissertation Proposals

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.38</td>
<td>1</td>
<td>.38</td>
<td>1.95</td>
<td>.167</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15.63</td>
<td>80</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.01</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. df = degrees of freedom.*
Post Hoc Analysis

• ANOVAS NOT Significant for:
  – Mean grit male & female
  – Mean grit 1\textsuperscript{st}, 2\textsuperscript{nd}, & 3\textsuperscript{rd} year group by gender
  – Mean GPAs for male & female

• Pearson Correlations NOT Significant for:
  – Grit & average hours worked per week
  – Grit & total number of classes taken
Post Hoc Analysis

• Pearson Correlations that were Significant:
  – Grit & age, $r(669)= .11, p < .003$
  – Grit & average number of hours spent on program of study per week, $r(669)= .11, p < .006$
  – Age & average number of hours worked per week, $r(669)= -.16, p < .000$
  – Age & Average Number of Hours Spent on Program of Study per Week, $r(669)= .25, p < .000$
  – Average hours worked per week & average number of hours spent on program of study per week, $r(669)= -.17, p < .000$
Implications

- Non-traditional doctoral students in this sample score high on the grit scale, may need more sensitive instrument
- Older students score higher in grit
- Grit is related to GPA
- Grit especially related to GPA for females
  - Consider recruiting older students and more female students
  - Finding ways to have grittier students help less gritty counterparts, by modeling the way
- Conduct further longitudinal research
Key Assumptions & Limitations of the Study

• Assumptions & Bias
  – That personality characteristics are related to or impact measures of non-traditional doctoral student success
  – Raffle may have influenced participation
  – Provost recruitment email may have encouraged or discouraged certain participants

• Limitations
  – Sample not representative of all non-traditional doctoral programs
  – Data all self reported
  – Sample highly gritty, grit scale not detect slight differences
  – Design- would be better to look at grit and success measures over time
  – 3rd year sample small
  – Time and resources
Summary

• Study examined grit in relation to academic success factors of non-traditional doctoral students
• Data was collected from pool of 3,200 students with 669 completed responses analyzed
• The results revealed no significant differences in mean grit scores for 1\textsuperscript{st}, 2\textsuperscript{nd}, or 3\textsuperscript{rd} year students, nor for students that had successfully defended or not successfully defended their dissertation proposal
• The results revealed a significant relationship between grit and current GPA
• Post hoc analysis revealed significant relationships between grit and average hours spent on program of study; and grit and age
• Findings suggested further research is warranted and that stakeholders associated with non-traditional doctoral programs may want to consider grit in programmatic decisions
References

• Ask Me and I will Send them to You 😊