Validity of a Contextualized Conscientiousness Scale for Ph.D. Candidate Performance

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Practical Issue

• Ph.D. output of Dutch universities leaves room for improvement
• Selection and coaching of Ph.D. candidates leaves room for improvement
• Relation between performance of Ph.D. candidates and personality is relatively unexplored
Bottom-up approach

• “Real practical question in The Utrecht School of Governance”
• Qualitative research among various stakeholders
• Derive test items (Big 5 type structure)
• Construct a 0-version of the instrument (PPQ: Ph.D. Personality Questionnaire)
• Get feedback from the users
• Validation study
Testimonials by Ph.D. advisors with respect to the 0-version

• “Leads to better thinking about the specific competencies needed”
• “Helps to make coaching plans”
• “Fine tunes personalized coaching”
• “Makes vague notions concrete”
Increased interest in Ph.D. candidate performance

- Newspaper articles
- Mastering your Ph.D. + Science column by Noordam & Gosling
- Studies among Ph.D. candidates
Theoretical issue: “validity challenge”

• Narrow traits: more specific than the Big Five
• Frame-of-reference (“context specific items”): general “situational clue” added

Artificial solutions in terms of face validity or ecological validity
Design of the validation study

• Web-based survey among Ph.D. candidates:
• 62 PPQ items (random order per testee) N=242 and 50 Big Five items from the IPIP-pool (N=103)
• Email-survey among Ph.D. advisors (N=107)
• English language
• Extensive phone and email protocols
• Difficult data collection (assisted by Jojanneke Struis, Miriam Heemskerk and Thomas Faith)
Respondents

- Wide range of disciplines: Psychology, Medicine, Science, Philosophy, Art studies
- Dutch and non-Dutch (5%)
Performance ratings (10-point scales)

- General functioning
- Academic quality
- Work progress
- Performance with respect to publications
- Teaching
- Meeting deadlines
- Performance during conferences
- Interpersonal functioning at the university
- Estimated probability to obtain the Ph.D. within the prescribed period (usually 4 years)
What about the Big Five???

No relation with performance criteria…
Contextualized Conscientiousness

- 7 items reflecting accurate time management, working in a structured and self-propelled way, setting one’s own research priorities and keeping appointments
- Alpha = .73
Correlations of the customized conscientiousness scale with the Big Five dimensions (N= 103)

<table>
<thead>
<tr>
<th>Big Five Dimension</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>-.09</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.11</td>
</tr>
<tr>
<td>Openness</td>
<td>-.20*</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.52**</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>.14</td>
</tr>
</tbody>
</table>

* p < .05 (two-tailed)
** p < .01 (two-tailed)
Regression of the performance criteria on customized conscientiousness (N=103).

<table>
<thead>
<tr>
<th>Performance criteria</th>
<th>Beta contextualized conscientiousness</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work progress</td>
<td>.27**</td>
<td>.29**</td>
</tr>
<tr>
<td>Meeting deadlines</td>
<td>.34**</td>
<td>.38**</td>
</tr>
<tr>
<td>Estimated probability to obtain the Ph.D. within the prescribed period</td>
<td>.41**</td>
<td>.42**</td>
</tr>
</tbody>
</table>

Note. There are no other significant predictors. The regression results for the other six performance criteria were not significant. ** $p < .001$ (two-tailed)
Hierarchical Regression Results (N=60)
1st Big Five, 2nd contextualized items

<table>
<thead>
<tr>
<th>Performance criteria</th>
<th>Beta</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work progress</td>
<td>.38*</td>
<td>.20</td>
<td>.10*</td>
</tr>
<tr>
<td>Meeting deadlines</td>
<td>.35*</td>
<td>.17</td>
<td>.08*</td>
</tr>
<tr>
<td>Estimated probability to obtain the Ph.D. within the prescribed period</td>
<td>.40**</td>
<td>.20</td>
<td>.12**</td>
</tr>
</tbody>
</table>

* p < .05 (two-tailed)
** p < .001 (two-tailed)
Conclusions: customized conscientiousness:

- shows adequate construct validity
- shows incremental validity above the Big Five
- relatively high measurement efficiency, that is, 7 items vs. 10 for the Big Five
- despite a lower reliability than that of the Big Five scale ($\alpha = .73$ vs. .80).
Discussion

• Standard personality items are “disrespectful of context” and “lack meaning”, that is why their criterion validity is low??
• Contextualized personality items are aristotelic and Big Five items platonic??
• Can contextualized personality items contribute??
This is the end…

- Questions?