The Optimal Composition of BeWell Mentoring Groups: Preliminary Results of a 2014 Investigation

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Outline

1. Hypotheses / Research Questions
2. Logging vs performance of mentors
3. Composition of group into grade 12 vs semester 1 credits passed
4. Faculty mentors & mentees belong to vs semester 1 credits passed
5. Gender composition of group vs semester 1 credits passed
6. Home language composition of group vs semester 1 credits passed
7. Race composition of group vs semester 1 credits passed
8. Res/private ward mix of group vs semester 1 credits passed
9. Size of group vs semester 1 credits passed
10. Observations and recommendations
Hypotheses / Research Questions

"Without data, you are just another person with an opinion" - Andreas Schleicher

Smaller groups will perform better. What is the optimal size?

RES groups outperform PSO groups. RES-PSO mix somewhere in between. Reason?

White students perform better => white dominant groups will perform better? NO! What's going on?

No difference in the academic performance of English and Afrikaans groups. Or is there some hidden patterns?

High loggers will perform better academically - linked to conscientiousness.

Groups with similar composition in terms of grade 12 averages perform better academically - "Top Dog" case study

Mentoring groups with members and mentors that study within the same faculty perform better academically - these mentors therefore also play a tutoring role?

Single sex mentoring groups perform better academically, and female only groups outperform male-only groups.

“It’s the little details that are vital. Little things make big things happen.” - John Wooden
High Logging Mentors Outperform Low Loggers Academically

Percentage of Mentors with Semester 1 Weighted Averages above 65% per Logging Category (number of sessions logged)

- NONE: 27.78%
- N1TO3: 29.51%
- N4TO6: 26.66%
- N7TO9: 33.33%
- N10TO12: 31.58%
- N13TO15: 58.06%
- PLUS15: 50.46%
Conscientiousness & Academic Performance

Chamorro-Premuzic and Furnham [30] investigated the extent to which personality traits predict academic performance and found that the Big Five personality factors, particularly neuroticism and conscientiousness, predict overall final exam marks over and above several academic predictors, accounting for more than 10% of unique variance in overall exam marks. Results indicated that neuroticism may impair academic performance and conscientiousness may lead to better academic results. Conrad and Patry’s research [31] also found a strong positive relationship between conscientiousness and academic performance as measured by final grades. Their research indicates that of the Big Five personality traits, only conscientiousness has consistently been associated with academic achievement. According to Conrad and Patry [25] a vast amount of research illustrates that conscientious students achieve higher levels of academic success, both in high school and university. A meta-analysis performed by O’Connor and Paunonen [32] on the relationship between personality traits and academic achievement confirmed this and showed conscientiousness to be the trait most strongly and consistently associated with academic success.

High loggers outperform low loggers academically. Most probably linked to their conscientiousness. Probably tells us something about makeup of a good mentor.
Composition of Groups in terms of Grade 12 Averages of Mentees

**Hypothesis:** Mentoring groups with similar compositions in terms of grade 12 results will perform better academically. Army case study from Po Bronson & Ashley Merryman’s Top Dog: The Science of Winning and Losing the inspiration for this hypothesis.

**Key to Understanding Upcoming Graphic**

**Same:** Strongest gr 12 minus weakest gr 12 in group <= 15%

**Different:** Strongest gr 12 minus weakest gr 12 in group > 15%

**90% Plus:** Pass 90% or more of Semester 1 credits

**Less than 90%:** Pass less than 90% of Semester 1 credits
Percentage of Mentoring Groups with Similar and Different Compositions, in terms of Grade 12 Averages of Mentees, Passing 90% and More, and Less than 90%, of Semester 1 Credits
Composition of Groups in terms of Faculties Mentors and Mentees Belong To

Hypothesis: Mentoring groups with members and mentors that study within the same faculty perform better academically - these mentors therefore also play a tutoring role?

Key to Understanding Upcoming Graphic
FacSame: Mentors and mentees study in the same faculty
FacDiff: Mentors and mentees study in more than one faculty
90% Plus: Pass 90% or more of Semester 1 credits
Less than 90%: Pass less than 90% of Semester 1 credits
Percentage of Mentoring Groups with Mentor and Mentees in the same Faculty (FacSame) and in Different Faculties (FacDiff) Passing 90% and More, and Less than 90%, of First Semester Credits
Gender Composition of Groups

**Hypothesis:** Single sex mentoring groups perform better academically, and female-only groups outperform male-only groups (women generally do better than men at undergraduate level).

**Key to Understanding Upcoming Graphic**

- **90% Plus:** Pass 90% or more of Semester 1 credits
- **Less than 90%:** Pass less than 90% of Semester 1 credits
- **M100:** 100% men, 0% women
- **M80100:** 80% or more, but less than 100% men
- **M6080:** 60% or more, but less than 80% men
- **M5060:** 50% or more, but less than 60% men
- **M4050:** 40% or more, but less than 50% men
- **M2040:** 20% or more, but less than 40% men
- **M020:** Some, but less than 20% men
- **M0:** 100% women, 0% men
Percentage of Mentoring Groups with Different Percentages of Men Passing 90% and More, and Less than 90%, of First Semester Credits
Hypothesis: No difference in the academic performance of English and Afrikaans groups. Or is there some hidden patterns?

Key to Understanding Upcoming Graphic

90% Plus: Pass 90% or more of Semester 1 credits
Less than 90%: Pass less than 90% of Semester 1 credits
A100: 100% Afrikaans, 0% English
A80100: 80% or more, but less than 100% Afrikaans
A6080: 60% or more, but less than 80% Afrikaans
A5060: 50% or more, but less than 60% Afrikaans
A4050: 40% or more, but less than 50% Afrikaans
A2040: 20% or more, but less than 40% Afrikaans
A020: Some, but less than 20% Afrikaans
A0: 100% English, 0% Afrikaans
Percentage of Mentoring Groups with Different Percentages of Afrikaans Home Language Speakers Passing 90% and More, and Less than 90%, of First Semester Credits
Race Composition of Groups

**Hypothesis:** White students perform better => white dominant groups will perform better. If not, then maybe weaker non-white students not in groups, or mentoring helps non-white students tremendously?  

**Future:** Determine BeWell participation rates of first-years per race and also their gr12 potential!

**Key to Understanding Upcoming Graphic**

90% Plus: Pass 90% or more of Semester 1 credits  
Less than 90%: Pass less than 90% of Semester 1 credits  
W100: 100% white, 0% rest  
W80100: 80% or more, but less than 100% white  
W6080: 60% or more, but less than 80% white  
W5060: 50% or more, but less than 60% white  
W4050: 40% or more, but less than 50% white  
W2040: 20% or more, but less than 40% white  
W020: Some, but less than 20% white  
W0: 100% generic black, 0% white
Percentage of Mentoring Groups with Different Percentages of White Students Passing 90% and More, and Less than 90%, of First Semester Credits
Hypothesis: Residence groups outperform private ward groups. Mixture of residence and private ward somewhere in between. Reason? Historically first-year students in residence outperform day students, even per grade 12 symbol (best single predictor of first-year university performance).

Key to Understanding Upcoming Graphic
90% Plus: Pass 90% or more of Semester 1 credits
Less than 90%: Pass less than 90% of Semester 1 credits
RES100: 100% of group in residence
PSO100: 100% of group day students
RESPSOMIX: Mixture of residence and day students.
Percentage of Mentoring Groups with Different Combinations of Residence and Private Ward Students Passing 90% and More, and Less than 90%, of First Semester Credits

![Bar chart showing percentages for different groups: RES100 (50.54% 90% Plus, 49.45% Less than 90%), PSO100 (22.73% 90% Plus, 77.28% Less than 90%), RESPSOMIX (24.63% 90% Plus, 75.38% Less than 90%).]
Group Size vs Academic Performance

Hypothesis: Smaller groups will perform better. Higher quality of social support? More one-on-one contact possible?

Key to Understanding Upcoming Graphic

90% Plus: Pass 90% or more of Semester 1 credits
Less than 90%: Pass less than 90% of Semester 1 credits
SMALL: 2-4 mentees per mentoring group
PERFECT: 5-7 mentees per mentoring group
LARGE: 8-10 mentees per mentoring group
VERY LARGE: More than 10 mentees per mentoring group
Percentage of Mentoring Groups with Different Group Sizes Passing 90% and More, and Less than 90%, of First Semester Credits

<table>
<thead>
<tr>
<th>Group Size</th>
<th>Passing 90% Plus</th>
<th>Less than 90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALL</td>
<td>65.75</td>
<td>34.25</td>
</tr>
<tr>
<td>PERFECT</td>
<td>48.48</td>
<td>51.51</td>
</tr>
<tr>
<td>LARGE</td>
<td>34.79</td>
<td>65.22</td>
</tr>
<tr>
<td>VERY LARGE</td>
<td>17.52</td>
<td>82.47</td>
</tr>
</tbody>
</table>
Observations

1. High loggers outperform low loggers academically (mentors).
2. Mentoring groups with same potential ito grade 12 perform better.
3. Groups with mentors and mentees in the same field of study outperform others.
4. Female only groups perform the best. Groups where majority are men second best.
5. 100% non-Afrikaans groups perform the best. Mostly non-whites and in residence (home language, race and residence).
6. 100% non-white groups excellent! Mostly in residence. Poor non-white students not in groups? Whites overall better => only strong non-whites in groups and mentoring really helps!
7. Groups in residence far superior.
8. Smaller groups the best!
Preliminary Recommendations

1. Appoint mentors based on high levels of conscientiousness.
2. Put first-years with more or less same ability levels together.
3. Group mentor and mentees from same field of study together – mentor can play dual role of mentor and tutor.
4. Single sex mentoring groups probably the best.
5. Pay attention to weaker non-white students who are most probably not in groups – they are vulnerable anyway!
6. Appoint more mentors in private wards – their group sizes are very large (large groups perform weaker and private ward students perform weaker). Urgent matter! Do not decrease mentors in residences.
7. Repeat total analysis with 2015 data and use more advanced statistical tools before implementing preliminary recommendations.
Thank You!
Any Questions?