Academic excellence: the dynamic relationship between approaches to studying and learning gain.

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Academic excellence: The dynamic relationship between approaches to studying and learning gain

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30/06/2019
Overview

• What counts for an excellent educational outcome?

• How students’ learning can be measured effectively?

• How can we enhance students’ learning?
Overview

• Academic performance - universally recognised as the most appropriate measure of learning

• Intellectual ability and previous academic performance are the strongest predictors of future academic performance.
Overview

Learning gain – is a growth or change in knowledge, skills, and abilities over time that are linked to the desired learning outcomes or learning goals of the course.
Overview

- Approaches to studying

- Deep - is characterised by the deep interpretation and analysis of new information that students find interesting and of some personal meaning

- Strategic – is characterised by the students’ target-oriented attitude toward learning and goal directed behaviour

- Surface - is characterised by rote-learning and the fear of failure
Journey through a degree

- Do approaches to studying relate to progress in a same way at different levels of a degree?
Hypotheses

There will be a relationship between approaches to studying and students’ learning progress and the relationship will be moderated by the year of studying (degree level).
Method

- 504 students from a London University
- 133 (26.4%) were males with age range 18-54 (M=27.2; SD=9.1)
- 371 (73.6%) were females with age range 18-62 (M=24.7; SD=7.2).
- 1\textsuperscript{st} year students - 182 (36.1%)
- 2\textsuperscript{nd} year students - 176 (34.9%)
- 3\textsuperscript{rd} year students - 146 (29%)
Research hypotheses were tested using PROCESS Macros Model 3 (Hayes, n.d.) for each approach to studying separately controlling for other approaches to studying.
Same relationships we observed in previous research (Rogaten, Moneta & Spada, 2013; Rogaten & Moneta 2016). However, although there was a meaningful correlation between approaches to studying and academic performance, once you control for past academic performance approaches to studying did not account for any additional significant variance.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$X$</th>
<th>SD</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Current Coursework</td>
<td>60.5</td>
<td>11.7</td>
<td></td>
<td></td>
<td>0.558**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2. Prior Coursework</td>
<td>60.8</td>
<td>11.3</td>
<td>0.558**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Deep</td>
<td>3.0</td>
<td>0.5</td>
<td></td>
<td>0.047</td>
<td>0.049</td>
<td>(0.74)</td>
<td></td>
</tr>
<tr>
<td>4. Strategic</td>
<td>3.0</td>
<td>0.7</td>
<td>0.047</td>
<td></td>
<td>0.167**</td>
<td></td>
<td>(0.82)</td>
</tr>
<tr>
<td>5. Surface</td>
<td>2.3</td>
<td>0.6</td>
<td></td>
<td>0.174**</td>
<td></td>
<td>(0.514**)</td>
<td></td>
</tr>
</tbody>
</table>

$n=504$; *, $p<0.05$ (1-tailed); **, $p<0.01$ (1-tailed); “-“ means that corresponding statistic could not be estimated.
<table>
<thead>
<tr>
<th>Predictor</th>
<th>Dependent variable</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Examination grades</td>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</td>
<td>Step 1</td>
<td>Step 2</td>
</tr>
<tr>
<td>Past academic performance</td>
<td>.569**</td>
<td>.520**</td>
<td>.523**</td>
<td>.586**</td>
<td>.544**</td>
<td>.541**</td>
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<tr>
<td>Evaluation anxiety</td>
<td>-.073**</td>
<td>-.008</td>
<td>-.008</td>
<td>-.037</td>
<td>-.011</td>
<td>-.007</td>
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<tr>
<td>Semester phase (1st = 0, 2nd = 1)</td>
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<td>-.093</td>
<td>-.098</td>
<td>-</td>
<td>.002</td>
<td>.004</td>
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<tr>
<td>Deep approach to studying</td>
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<td>-.115</td>
<td>-.071</td>
<td>-</td>
<td>-.082</td>
<td>-.072</td>
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<tr>
<td>Strategic approach to studying</td>
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<td>.092</td>
<td>-</td>
<td>.083</td>
<td>.078</td>
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<tr>
<td>Surface approach to studying</td>
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<td>.067</td>
<td>.065</td>
<td>-</td>
<td>-.021</td>
<td>-.026</td>
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<tr>
<td>Positive affect</td>
<td>-</td>
<td>.185*</td>
<td>.140</td>
<td>-</td>
<td>.165**</td>
<td>.160*</td>
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<tr>
<td>Negative affect</td>
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<td>-.212**</td>
<td>-</td>
<td>.020</td>
<td>-.005</td>
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<td>Positive affect × semester phase</td>
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<td>-</td>
<td>.091</td>
<td>-</td>
<td>-</td>
<td>-.014</td>
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<td>Negative affect × semester phase</td>
<td>-</td>
<td>-</td>
<td>-.187**</td>
<td>-</td>
<td>-</td>
<td>-.075</td>
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<tr>
<td>$R^2$ (step 1)</td>
<td>.343**</td>
<td>-</td>
<td>-</td>
<td>.351**</td>
<td>-</td>
<td>-</td>
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<tr>
<td>$R^2$ Change (step 2)</td>
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<td>.071**</td>
<td>-</td>
<td>-</td>
<td>.041*</td>
<td>-</td>
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<tr>
<td>$R^2$ Change (step 3)</td>
<td>-</td>
<td>-</td>
<td>.030**</td>
<td>-</td>
<td>-</td>
<td>.005</td>
</tr>
</tbody>
</table>

$n = 406$. “-” means that the corresponding statistic cannot be estimated

* $p < .05$ (1-tailed)

** $p < .01$ (1-tailed)
• The deep approach was a significant predictor of current semester coursework performance.
• Two-way interactions and three-way interaction were also significant.
• Conclusively, the deep approach to studying predicted academic progress of weaker students in the beginning of their degree and undermines academic progress towards the end of a degree.
• The strategic approach to studying did not predict current semester coursework grades directly.
• However two-way and three-way interactions were significant.
• Conclusively, the strategic approach to studying was a strong predictor of academic progress for strong students towards the end of their degree.
• The surface approach to studying revealed that there was no significant direct effect of the surface approach to studying on current semester coursework grades.
• No significant two-and three-way interactions.
• Conclusively, the surface approach to studying DID NOT have an undermining effect on academic progress.
Message to take home

- Deep and strategic approaches predict learning progress
- Deep approach is good in the beginning of a degree particularly for weak students
- Strategic approach is good in the end of a degree particularly for strong students.
Thank you for your attention

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