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

Conference or Workshop Item

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

Jekaterina Rogaten (Open University UK & University of the Arts, London)
jekaterina.rogaten@open.ac.uk
j.rogaten@fashion.arts.ac.uk
j.rogaten@gmail.com

Giovanni Moneta (London Metropolitan University)
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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></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Prior Coursework</td>
<td>60.8</td>
<td>11.3</td>
<td>.558*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Deep</td>
<td>3.0</td>
<td>.5</td>
<td>.047</td>
<td>.049</td>
<td>(.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Strategic</td>
<td>3.0</td>
<td>.7</td>
<td>.174*</td>
<td>.167*</td>
<td>.514**</td>
<td>(.82)</td>
<td></td>
</tr>
<tr>
<td>5. Surface</td>
<td>2.3</td>
<td>.6</td>
<td>-.160*</td>
<td>-.142**</td>
<td>-.151*</td>
<td>-.364**</td>
<td>(.69)</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 2: Standardized regression coefficients and coefficients of determination of the three-step hierarchical regressions of academic performance on predictors

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Dependent variable</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Examination grades</td>
<td></td>
<td></td>
<td>Coursework grades</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</td>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</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>
<td></td>
</tr>
<tr>
<td>Evaluation anxiety</td>
<td>-.073**</td>
<td>-.008</td>
<td>-.008</td>
<td>-.037</td>
<td>-.011</td>
<td>-.007</td>
<td></td>
</tr>
<tr>
<td>Semester phase (1st = 0, 2nd = 1)</td>
<td>-.093</td>
<td>-.098</td>
<td></td>
<td>.002</td>
<td>.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deep approach to studying</td>
<td>-.115</td>
<td>-.071</td>
<td></td>
<td>-.082</td>
<td>-.072</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic approach to studying</td>
<td>.123</td>
<td>.092</td>
<td></td>
<td>.083</td>
<td>.078</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface approach to studying</td>
<td>.067</td>
<td>.065</td>
<td></td>
<td>-.021</td>
<td>-.026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive affect</td>
<td>-.134</td>
<td>-.212**</td>
<td></td>
<td>.020</td>
<td>-.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative affect</td>
<td>-.091</td>
<td></td>
<td></td>
<td></td>
<td>-.014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive affect × semester phase</td>
<td>-.187**</td>
<td></td>
<td></td>
<td></td>
<td>-.075</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative affect × semester phase</td>
<td>.343**</td>
<td></td>
<td></td>
<td>.351**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$ (step 1)</td>
<td>.343**</td>
<td>-.091</td>
<td></td>
<td></td>
<td>-.075</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$ Change (step 2)</td>
<td>-.071**</td>
<td></td>
<td></td>
<td>.041*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$ Change (step 3)</td>
<td>-.030**</td>
<td></td>
<td></td>
<td></td>
<td>.005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

** $p < .01$ (1-tailed)
Creative Cognition

Surface Approach to Studying

Trait Intrinsic Motivation

Adaptive Metacognition

Trait Extrinsic Motivation

Maladaptive Metacognition

Evaluation Anxiety

Positive Affect

Strategic Approach to Studying

Deep Approach to Studying

Academic Performance

Past Academic Performance

Examination Coursework

Surface Approach to Studying

Negative Affect

Strategic Approach to Studying

Item 1  Item 2  Item 3  Item 4  Item 5

Parcel 1  Parcel 2  Parcel 3

PMCEQ 1  PMCEQ 2  PMCEQ 3

MCQ 1  MCQ 2  MCQ 3  MCQ 4
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 tree-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.
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