Comparison of Student Perception of Achievement and Learning

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Comparison of Student Grades & Learning Activities

Research conducted and presented by:
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Goal Theory
(Dweck, Pintrich, Shunck)

Those with learning/mastery goals use deeper approaches, expect difficulty, and persist longer when experience difficulty; to reach their goals.

Those with achievement/ego-protection* goals (to earn A) use surface approaches, quit when they experience difficulty.

* Sometimes called wellbeing or coping goals.
Comparison of responses:

bullet What do you do to earn an “A”?

bullet What do you do to learn course objectives?
Sample

representative of student population for age and sex and credit hours:

Majority of students age 18 - 20;

majority of credit hours > 1 semester;

slight majority of female students.
Students asked:

What do you do to earn an “A”?

588 students, fall· 2011
(7 dropped from sample)

What do you do to learn?

992 students, fall· 2012
(225 initially dropped from sample, reduced to 31 dropped from sample)
On average, those who answer:

“What do you do to earn an A?” list 3 activities;

“What do you do to learn?” list slightly more than 2 activities.
Sample \((N = 1590)\)

\[ n = 588 \text{ to Earn A}; \quad n = 988 \text{ to Learn} \]

6 students coded the data. (3 males, 3 females)
<table>
<thead>
<tr>
<th>Activity Categories</th>
<th>Fall, 2011; “to earn A”, (n = 598); (Responses collapsed from 30)</th>
<th>Fall, 2012; “to learn”, (n = 992); (Responses collapsed from 18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. no/confused answer</td>
<td>15 (0.0)</td>
<td>194 (0.1)</td>
</tr>
<tr>
<td>2. homework</td>
<td>353 (0.2)</td>
<td>135 (0.1)</td>
</tr>
<tr>
<td>3. tests &amp; quizzes</td>
<td>239 (0.1)</td>
<td>83 (0)</td>
</tr>
<tr>
<td>4. note-taking</td>
<td>156 (0.1)</td>
<td>291 (0.1)</td>
</tr>
<tr>
<td>5. study outside of class</td>
<td>155 (0.1)</td>
<td>454 (0.2)</td>
</tr>
<tr>
<td>6. participate in class</td>
<td>254 (0.1)</td>
<td>205 (0.1)</td>
</tr>
<tr>
<td>7. attendance</td>
<td>177 (0.1)</td>
<td>240 (0.1)</td>
</tr>
<tr>
<td>8. assigned reading</td>
<td>121 (0.1)</td>
<td>103 (0.1)</td>
</tr>
<tr>
<td>9. assigned writing</td>
<td>101 (0.1)</td>
<td>88 (0)</td>
</tr>
<tr>
<td>10. other activities*</td>
<td>143 (0.1)</td>
<td>22 (0)</td>
</tr>
</tbody>
</table>

* Other activities: positive attitude, apply to life experience, prior knowledge/ability, check online communications/expectations, use/understand visual aids, organization. The numbers in these cells were too small for analyses; and thus combined.
Sample (N = 1590)

$n = 588$ to Earn A; $n = 988$ to Learn.

![Graph showing activities and their impact on earning grades]

- Earn A
- Learn

Activities listed:
- No activities
- Homework
- Tests & quizzes
- Study outside of class
- Other activities

Graph indicates that study outside of class and other activities significantly impact earning grades compared to no activities or listed activities.
Logistic Regression for differences between groups (N = 1590).

<table>
<thead>
<tr>
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<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Homework</strong></td>
<td>-2.2</td>
<td>.14</td>
<td>232</td>
<td>.12</td>
</tr>
<tr>
<td><strong>Tests &amp; Quizzes</strong></td>
<td>-1.8</td>
<td>.17</td>
<td>123</td>
<td>.16</td>
</tr>
<tr>
<td><strong>Study Outside of Class</strong></td>
<td>.79</td>
<td>.14</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Other Activities</strong></td>
<td>-3.0</td>
<td>.26</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>4.6</td>
<td>.33</td>
<td>102</td>
<td>102</td>
</tr>
</tbody>
</table>

(All significant at p < .001)

\[ \Delta R^2 \text{ Homework} = .228; \quad \Delta R^2 \text{ Tests & Quizzes} = .071; \]

\[ \Delta R^2 \text{ Study Outside of Class} = .015; \quad \Delta R^2 \text{ Other Activities} = .089 \]
Logistic regression classification table, \(N = 1590\).

<table>
<thead>
<tr>
<th>Observed</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Predicted</td>
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<td>group</td>
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<tr>
<td>Learn</td>
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<tr>
<td>Learn</td>
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<tr>
<td>Earn A</td>
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<tr>
<td>Overall Percentage</td>
</tr>
</tbody>
</table>

Categorical variables account for an adjusted Nagelkerke \(R^2\) of \(50.1\%\) of the differences between the two groups, and a predictive value of \(79\%\). According to Cohen (1988), this is a large, practical, observable difference.
• The homework variable ($R^2$ change of .228) accounted for the largest influence for the resulting correlation coefficient with a combined coefficient of determination ($R^2$ of .403).

• According to Cohen’s (1988) guide for interpreting the practical importance of correlation coefficients found typically in the behavioral sciences, this finding represents a larger than typical effect.

• When analyzed as logistic binary regression, the Naglekerke $R^2$ .501 indicates that 50% of the variation across student goal orientation’s can be attributed to the influence of homework with tests and quizzes, study outside of class and other activities, listed by the students entered into the equation.

• This analysis indicated that the null hypothesis of no relationship between student learning and achievement goals in a community college setting could be rejected because the two groups varied significantly ($p < .001$).
Possible explanations interventions?
Selected References


