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Improved Grade Outcomes With An E-mailed ‘Grade Nudge.’

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IMPROVED GRADE OUTCOMES WITH AN E-MAILED ‘GRADE NUDGE.’

Ben Smith  Dustin White  Patricia Kuzyk  James Tierney
Presentation at Innovation in Pedagogy and Technology Symposium
University of Nebraska at Omaha
Washington State University
The Pennsylvania State University

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INSPIRATION

Richard H. Thaler
Cass R. Sunstein

Nudge
Improving Decisions
About Health, Wealth,
and Happiness

Cabinet Office
Behavioural Insights Team

sbst
Social and Behavioral Sciences Team
Hi [Name],

As of now, you have a(n) [Grade] in the class. This assignment is worth [Points] points. If you get more than [X] on this assignment, your class grade will increase to a(n) [Higher Grade]. If you get less than [Y] on this assignment, your grade will drop at least one grade. Not doing the assignment will result in a(n) [Lower Grade].
RANDOMIZED TRIAL
$s_{ij} = \beta_0 + \beta_N \text{Nudge}_{ij} + \mu_i + \gamma_j + \varepsilon_{ij}$

- $\mu_i$: Individual Fixed Effects
- $\gamma_j$: Assignment Fixed Effects
- $s_{ij}$: Assignment Score [0-1]
- $\text{Nudge}_{ij}$: Treatment (0 or 1)
### Regression Results

<table>
<thead>
<tr>
<th></th>
<th>Sports Fall 2014</th>
<th>Sports Fall 2015</th>
<th>All Sports</th>
<th>Micro Fall 2016</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_N$</td>
<td>0.044</td>
<td>0.052</td>
<td>0.047</td>
<td>0.034</td>
<td>0.038</td>
</tr>
<tr>
<td>Cluster-Bootstrap P-Value</td>
<td>0.072</td>
<td>0.295</td>
<td>0.045</td>
<td>0.048</td>
<td>0.005</td>
</tr>
<tr>
<td>Observations</td>
<td>204</td>
<td>110</td>
<td>314</td>
<td>462</td>
<td>776</td>
</tr>
<tr>
<td>Students</td>
<td>34</td>
<td>22</td>
<td>56</td>
<td>66</td>
<td>122</td>
</tr>
<tr>
<td>Assignments</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>7</td>
<td>18</td>
</tr>
</tbody>
</table>
# FIRST NUDGE

<table>
<thead>
<tr>
<th></th>
<th>Sports Classes</th>
<th>All Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_{NF}$</td>
<td>0.107</td>
<td>0.106</td>
</tr>
<tr>
<td>Cluster-Bootstrap P-Value</td>
<td>0.057</td>
<td>0.043</td>
</tr>
<tr>
<td>$\beta_N$</td>
<td>0.031</td>
<td>0.033</td>
</tr>
<tr>
<td>Cluster-Bootstrap P-Value</td>
<td>0.214</td>
<td>0.021</td>
</tr>
<tr>
<td>Observations</td>
<td>314</td>
<td>776</td>
</tr>
<tr>
<td>Students</td>
<td>56</td>
<td>122</td>
</tr>
<tr>
<td>Assignments</td>
<td>11</td>
<td>18</td>
</tr>
</tbody>
</table>

$s_{ij} = \beta_0 + \beta_{NF}\text{Nudge First}_{ij}$

$+ \beta_N\text{Nudge}_{ij} + \mu_i$

$+ \gamma_j + \varepsilon_{ij}$
STUDENT PERCEPTIONS
**SURVEY RESULTS (n=54)**

Text:

- **Work Harder**: 70%
- **Indifferent**: 30%

*Figure: Did the nudge make you study harder?*

Text:

- **Want in other classes**:
  - No: 2%
  - Indifferent: 22%
  - Yes: 76%

*Figure: Do want the nudge in your other classes?*
WHAT YOU NEED...

1. Google Drive Account
2. Your Gradebook
3. Your Gradescale
4. Nudge
## The Gradebook

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>email</td>
<td>points</td>
</tr>
<tr>
<td>Joe</td>
<td><a href="mailto:joe@bensresearch.com">joe@bensresearch.com</a></td>
<td>250</td>
</tr>
<tr>
<td>Ben</td>
<td><a href="mailto:ben@bensresearch.com">ben@bensresearch.com</a></td>
<td>200</td>
</tr>
<tr>
<td>Jane</td>
<td><a href="mailto:jane@bensresearch.com">jane@bensresearch.com</a></td>
<td>275</td>
</tr>
</tbody>
</table>
## The Gradescale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.93</td>
</tr>
<tr>
<td>A-</td>
<td>0.9</td>
</tr>
<tr>
<td>B+</td>
<td>0.87</td>
</tr>
<tr>
<td>B</td>
<td>0.83</td>
</tr>
<tr>
<td>B-</td>
<td>0.8</td>
</tr>
<tr>
<td>C+</td>
<td>0.77</td>
</tr>
<tr>
<td>C</td>
<td>0.73</td>
</tr>
<tr>
<td>C-</td>
<td>0.7</td>
</tr>
<tr>
<td>D+</td>
<td>0.67</td>
</tr>
<tr>
<td>D</td>
<td>0.63</td>
</tr>
<tr>
<td>D-</td>
<td>0.6</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>
**THE INTERFACE**

**GRADE NUDGE**

**Delivery**
- Send nudge via E-Mail without the assignment
- Share the Google Drive document with the student
- Send a PDF of the document in the E-Mail
- Save nudge to 'message' column of gradebook

**Files**
- Select Gradebook
- Demo Small Student Sample
- Select Gradescale
- Demo Grade Scale

**Assignment Value**
- Assignment Points: 100
- Total Points in the Class: 300

**Nudge Message Options**
- Calculate incomplete score
- Calculate next grade up
- Calculate next grade down
- Calculate percent scores

**Preview**

Hi [Name],

This is a reminder that you have homework three due in seven days.

As of now, you have a(n) [Grade] in the class. This assignment is worth [POINTS] points. If you get more than [X] ([X %]% of) on this assignment, your class grade will increase to a(n) [Higher Grade]. If you get less than [Y] ([Y %]% of) on this assignment, your grade will drop at least one grade. Not doing the assignment will result in a(n) [Lower Grade].
Hi Ben,

This is a reminder that you have homework three due in seven days.

As of now, you have a(n) D in the class. This assignment is worth 100.00 points. If you get more than 68.00 (68%) on this assignment, your class grade will increase to a(n) D+. If you get less than 52.00 (52%) on this assignment, your grade will drop at least one grade. Not doing the assignment will result in a(n) F.
1. Sending a grade nudge over email
2. Sending a grade nudge with a ‘replace’ column
3. Sending a file with a grade nudge
4. Sending a grade nudge using an outside tool
https://bensresearch.com/nudge