TECHNOLOGY AND IN-CLASS PARTICIPATION IN A HIGH EQUITY-GAP PUBLIC AFFAIRS CONTEXT

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Midwest Public Affairs Conference

Reflects the author’s opinions only. Author has no financial stake in—or affiliation with—Peardeck or any similar entity.
BENEFITS OF PARTICIPATION

• Participation as a mechanism for being heard (Dallimore, 2004)
• Participation as a mechanism for accountability (Gresalfi et al., 2009)
• Mirrors political discussion (Crone, 1997; Crone & Packard, 2010)
• Encourages civic engagement (Algan, 2013)
• Build weak ties among classmates (Mitchell & Moore, 2012)
• Strengthens bonds between teacher and student (Mitchell & Moore, 2012)
• Fun – encourages the joy of learning (for some)
• Allow for emergent learning opportunities
• Student “silence” in the classroom has complex dynamics (Boniecki & Moore, 2003; Fassinger, 1995; Henson & Denker, 2009; Tatar, 2005).

• Despite a nominal desire to avail themselves of the attention of their professor and peers in class, students will often decline to participate for a number of reasons including:
  • Personality characteristics
  • Gender dynamics and expectations
  • Lack of comfort with the dominant in-class language
  • Fear of embarrassment/social sanction
  • The prevailing social environment in which the class operates
• Include the entire class in discussions
• Allow students to be heard
• Set ground rules
• Allow students time to collect thoughts
• Never embarrass or make the subject of social opprobrium
MOTIVATION

The Big Wake-up Call
Ohio State University vs. San Jose State University
<table>
<thead>
<tr>
<th>Metric</th>
<th>SJSU GR 2025 Goal</th>
<th>CSU System Average</th>
<th>SJSU’s Actual 2017 Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman 4-Year Graduation</td>
<td>35%</td>
<td>19%</td>
<td>15%</td>
</tr>
<tr>
<td>Freshman 6-Year Graduation</td>
<td>71%</td>
<td>57%</td>
<td>57%</td>
</tr>
<tr>
<td>Transfer 2-Year Graduation</td>
<td>36%</td>
<td>31%</td>
<td>27%</td>
</tr>
<tr>
<td>Transfer 4-Year Graduation</td>
<td>80%</td>
<td>73%</td>
<td>73%</td>
</tr>
<tr>
<td>Gap - Underrepresented Minority</td>
<td>0%</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>Gap – Pell</td>
<td>0%</td>
<td>8%</td>
<td>1%</td>
</tr>
</tbody>
</table>
How college enrollment rates changed, according to family income quartile

- 80% Richest quarter of students
- 58% Second richest
- 29% Second poorest
- 19% Poorest quarter of students

How college completion rates changed, according to family income quartile

- 54% Richest quarter of students
- 36% Second richest
- 9% Second poorest
- 5% Poorest quarter of students

Data from Martha Bailey and Susan Dynarski's analysis of the National Longitudinal Survey of Youth in their paper "Gains and Gaps: Changing Inequality in US College Entry and Completion"
LOGIC OF ENTITLEMENT

• By-Any-Means Problem-Solving
• Intervene to generate benefits
• See teachers as equals with whom negotiation is appropriate
• “Insider Status”
• Coached to negotiate

LOGIC OF CONSTRAINT

• No-Excuses Problem-Solving
• Trust school and do not intervene
• See teachers as experts and avoid questioning
• “Outsider Status”
• Coached to rely on own resources and avoid inconveniencing others

Slide design: Cami Johnson, SJSU School of Management
I view the professor as the authority and my role is to absorb the knowledge he/she provides.
TECHNOLOGY TO ENCOURAGE PARTICIPATION

Discussion of Peardeck
gdess
Green Drums Evaluate Stoic Submarines
Continue

No students connected

Invite Class  Give Students a Link  Open Teacher Dashboard

Students browse:  www.youtube.com/embed/Bpoq7bLB4bY

Pear Deck Interactive Slide
Do not remove this bar
Why is this Graph Bad?
When displaying differences in data to show a visual representation of distant.

Answer: when showing

when you want to show dispersion...

when dispersion matters

when comparing two things? when demonstrating the dispersion.
PEARDECK VS. OTHER PARTICIPATION PLATFORMS

Pros
• Small initial monetary outlay (uses student’s/teacher’s existing devices)
• Has a variety of input styles
• Excellent integration with Google Slides
• Teacher pays for it—free to the student (unlike TurningPoint)

Cons
• Art style may be a little cutesy for higher education environment
• Teacher dashboard is not always responsive, especially for large classes
• Seeing student responses in real time is a mixed bag
• Only integrates with Google slides
• Cost to teacher ($150) is non-trivial for full functionality
• Poor notetaking integration—students must switch between interfaces
STUDY
SURVEY INSTRUMENT

• Given to students in two sections of POLS 15: Intro to American government, one section of PADM 212 – Administrative Research Methods & PADM 213 – Policy Analysis
• N of 88 against ~95 student enrollment in courses.
• Students were given a 76 question survey via e-mail at the end of class
  • Demographic characteristics
  • Psychological questions
  • Questions about teacher contact and participation behavior
  • Opinions regarding the use of Peardeck
• Rewarded with a nominal extra credit upon completion—alternative presented. All participation anonymous
• **O1** - I found using Peardeck in this class more stressful than participating in other classes.

• **O2** - I found using Peardeck less stressful than the possibility of being called on randomly.

• **O3** - When I was called on after submitting an answer on Peardeck, I felt confident I had something meaningful to contribute.

• **O4** - I participated more in this class than I would have in a similar class without Peardeck.

• **O5** - Overall, using Peardeck made this class more enjoyable for me.

• **O6** - Overall, I feel Peardeck helped to enhance my learning in this class.
FINDINGS
<table>
<thead>
<tr>
<th><strong>I see my professors when I need help</strong></th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.1157</td>
<td>-0.0121</td>
<td>-0.0453</td>
<td>0.0962</td>
<td>0.2487</td>
<td>0.259</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>I exchange e-mails with my professors</strong></th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.219</td>
<td>0.1545</td>
<td>0.1499</td>
<td>0.1097</td>
<td>0.1952</td>
<td>0.1756</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>I discuss non-class issues with my professors</strong></th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.0049</td>
<td>-0.0839</td>
<td>-0.0325</td>
<td>-0.0498</td>
<td>0.0727</td>
<td>0.0577</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>I meet with professors in social settings</strong></th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.1335</td>
<td>0.0528</td>
<td>0.1171</td>
<td>-0.0845</td>
<td>0.0858</td>
<td>0.1957</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>I sit in the front of class</strong></th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0645</td>
<td>0.0235</td>
<td>-0.1286</td>
<td>-0.0307</td>
<td>-0.0452</td>
<td>0.0221</td>
<td></td>
</tr>
</tbody>
</table>
## Demographic Correlations

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Language</th>
<th>Gender</th>
<th>Parent College</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome1</td>
<td>0.04</td>
<td>0.27</td>
<td>-0.15</td>
<td>0.14</td>
</tr>
<tr>
<td>Outcome2</td>
<td>-0.02</td>
<td>0.08</td>
<td>0.03</td>
<td>-0.09</td>
</tr>
<tr>
<td>Outcome3</td>
<td>0.01</td>
<td>-0.17</td>
<td>0.09</td>
<td>0.03</td>
</tr>
<tr>
<td>Outcome4</td>
<td>-0.12</td>
<td>-0.03</td>
<td>0.11</td>
<td>0.01</td>
</tr>
<tr>
<td>Outcome5</td>
<td>-0.17</td>
<td>-0.10</td>
<td>0.14</td>
<td>-0.04</td>
</tr>
<tr>
<td>Outcome6</td>
<td>-0.11</td>
<td>-0.18</td>
<td>0.19</td>
<td>0.15</td>
</tr>
</tbody>
</table>
## Psychological Correlations

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Conscientiousness</th>
<th>Extraversion</th>
<th>Openness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome1</td>
<td>0.11</td>
<td>0.12</td>
<td>-0.04</td>
</tr>
<tr>
<td>Outcome2</td>
<td>-0.12</td>
<td>-0.21</td>
<td>-0.18</td>
</tr>
<tr>
<td>Outcome3</td>
<td>-0.18</td>
<td>-0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td>Outcome4</td>
<td>-0.26</td>
<td>-0.18</td>
<td>-0.06</td>
</tr>
<tr>
<td>Outcome5</td>
<td>-0.17</td>
<td>-0.13</td>
<td>0.00</td>
</tr>
<tr>
<td>Outcome6</td>
<td>-0.18</td>
<td>-0.11</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Outcome1</td>
<td>Outcome2</td>
<td>Outcome3</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>I was interested in the subject of this class prior to taking it.</td>
<td>-0.2973</td>
<td>0.1745</td>
<td>0.3947</td>
</tr>
<tr>
<td></td>
<td>-0.3351</td>
<td>0.1209</td>
<td>0.3039</td>
</tr>
<tr>
<td>It turned out I was more interested in the subject of this class than I thought I might be.</td>
<td>-0.2396</td>
<td>0.1554</td>
<td>0.2649</td>
</tr>
<tr>
<td>Overall, I found this class useful.</td>
<td>-0.4562</td>
<td>0.2438</td>
<td>0.3693</td>
</tr>
<tr>
<td>Overall, I enjoyed attending class.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
More stressful than participating in other classes
Less stressful than the possibility of being called on randomly
I had something meaningful to contribute.

Disagree Neither Agree
I participated more in this class than I would have.

Peardeck made this class more enjoyable for me.

Peardeck enhanced my learning in this class.

Disagree  Neither  Agree
POSITIVE FEEDBACK FROM STUDENTS

Increased comfort/acceptance

• “Writing answers so the professor could see helped so he knew we were learning, but we didn’t have to speak up in class always if we weren’t comfortable”

• “Answering without being criticized”

Increased/focused engagement

• “It allowed me to pay attention to the instructor and not worry about taking notes. It helped me engage in the material by allowing to respond to thoughtful questions”

• “It made it so you had to be involved and focus your attention on the material. I found it very useful.”

• “Connected my responses to class material and allowed my professor and I to communicate easily and efficiently.”
NEGATIVE FEEDBACK FROM STUDENTS

Increased Stress/Forced Participation

- “I honestly did not enjoy it, I hated being called on when I didn't volunteer because I wasn't knowledgable in the subject I was taking.”
- “I felt as if I was FORCED to answer no matter what, even on subject I knew nothing about”

Technology/Interfacing Issues

- “the wifi was bad and would kick me off all the time.”
- “not allowing to hand write notes. Not good.”
- “Not personally, but I feel like a lot of other students would just use their phones/computers to do other things not related to course material while acting like they were on Peardeck.”
TAKEAWAYS

• Very small, non-significant effects between genders, first language speakers, first generation
• Somewhat stronger effects found among students with higher expressed interest in the material
• Strong approval across-the-board
  • Greater consistency with which students feel heard
  • More engagement
• Some common complaints
  • Clunky interface
  • Wish for better integration with notetaking