**Consultations on Teaching: Benefits for Engineering Faculty**

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What is the impact of consultations informed by different kinds of data on the teaching performance of engineering faculty?

### Experimental Design

**Data used for Consultations**

- **Student ratings data** from 17-item survey with research-based traits of effective teaching
- Qualitative student feedback collected during mid-term student feedback (MSF) session
  - Consultant observes part of the class
  - Instructor then leaves the room
  - Consultant confers with students about what is going well and what changes would improve their learning
  - Consultant prepares summary report
- **Videotape** of regular class session

**Intervention Groups** (from random assignment)

<table>
<thead>
<tr>
<th>Intervention Groups</th>
<th>Group 1a</th>
<th>Group 1b</th>
<th>Group 2</th>
<th>Group 3a</th>
<th>Group 3b</th>
<th>Group 4a</th>
<th>Group 4b</th>
</tr>
</thead>
<tbody>
<tr>
<td>No consultation</td>
<td>N=7</td>
<td>N=7</td>
<td>N=11</td>
<td>N=7</td>
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<tr>
<td>Consultation</td>
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<td>G2</td>
<td>G3</td>
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<td>G4</td>
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<tr>
<td>MSF data</td>
<td>✔</td>
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<tr>
<td>Videotaped class</td>
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<tr>
<td>Student ratings</td>
<td>✔</td>
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*Those faculty received ratings data that was NOT used during consultation.

All consultations featured collaboration between trained consultant and instructor to interpret available data and discuss strategies for improvement.

**Measures used for Assessment**

- Gains in student ratings from mid-term (before consultation) to end of term
- Changes in teaching made as a result of consultation (as reported by faculty)
- Faculty perceptions of consultation and consultant

### Description of the Sample

**Participants**

- 49 engineering faculty members
  - 12% of eligible population
  - 10 women (20% of sample)
  - All faculty ranks and varied experience

**Courses**

- 55 separate courses
  - 12% of all undergraduate, engineering courses
  - Wide class range
  - 2-4 credits, 100-level through 400-level, 5-190 students

**Research Findings**

- **MSF groups (3a and 3b)** had the most items with significant (p<0.05) gains in student ratings (Figure 1)
- Groups that received student ratings data without consultant’s assistance in interpreting it (3b and 4b) had fewer gains in student ratings than matching groups not given that data (3a and 4a)
- 27 faculty (54%) reported making changes in teaching (Figure 2)
  - Introduced more active learning in class
  - Explained concepts more clearly
  - Used more examples
  - Managed class time more effectively
  - Provided prompt feedback to students
  - Changed pace of class
- Instructors who had a consultation cited more substantial changes in teaching than those who did not
  - “used more thought-provoking in-class exercises” (Group 4a)
  - “modified my teaching to allow more comments from class” (Group 1b)
- Faculty perceptions of consultation and consultant were high for all groups and highest for MSF groups (Figure 3)

**Conclusions**

- The efficacy of instructional consultations varies depending on the kind of data used to guide them
  - Student feedback from an MSF has the largest positive impact
  - The instructional consultant plays a key role in helping faculty interpret data and identify strategies for improvement

**Implications for Practice**

- When possible, MSF-based consultations should be offered systematically and proactively for engineering faculty
- If other kinds of consultations are used, data should be tailored to individual instructors’ needs
- The availability of instructional consultants to collaborate with faculty in engineering enhances faculty teaching and builds a culture that actively supports teaching and learning