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CENTER FOR RESEARCH ON LEARNING AND TEACHING
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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 midterm 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)

	Group 1a No consult, no ratings N=7	*Group 1b* No consult, ratings only N=11	*Group 2* Consult on ratings N=9	*Group 3a* MSF, no ratings N=7	*Group 3b* MSF, with ratings N=5	*Group 4a* Videotape, no ratings N=7	*Group 4b* Videotape, with ratings N=9
Student ratings		✓	✓		✓		✓
MSF data				✓	✓		
Videotaped class						✓	✓
Consultation			✓	✓	✓	✓	✓

Middle of term

These 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 midterm (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

Figure 1: Gains in student ratings

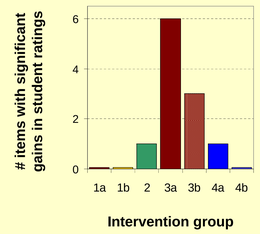


Figure 2: Changes in teaching

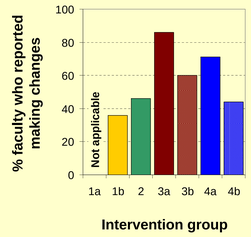
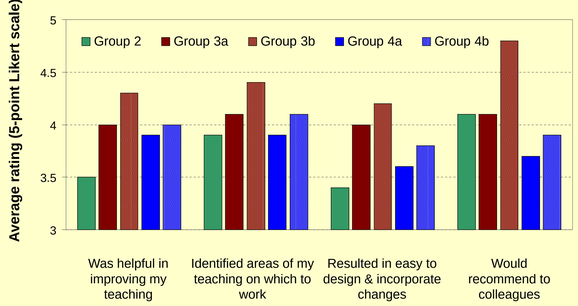


Figure 3: Faculty perceptions of consultation and consultant



- MSF groups (3a and 3b) had the **most** items with significant ($p<.05$) 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-classes 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

*Based on the following manuscript: Finelli, C. J., Ott, M., Gottfried, A. C., Hershock, C., O'Neal, C., & Kaplan, M. (2008). Utilizing instructional consultations to enhance the teaching performance of engineering faculty. *Journal of Engineering Education, 97*(4). In press.