

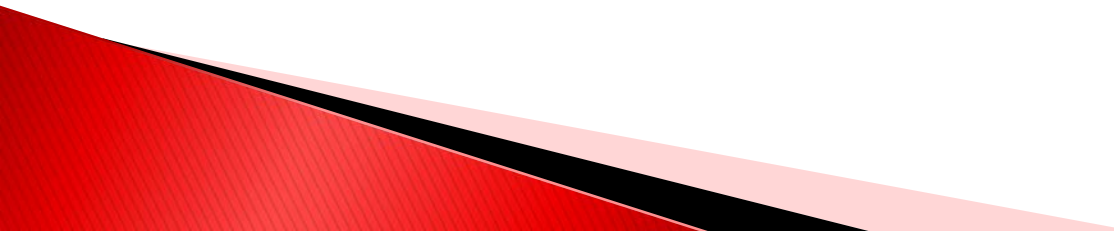
How Students “Learn ChemE”: The Impact of Department Culture on Student Success

Dr. Lisa G. Bullard

Department of Chemical and Biomolecular Engineering
North Carolina State University



Outline

- ▶ Define departmental “culture”
 - ▶ Why is culture important?
 - ▶ John Falconer’s impact on the ChemE culture
 - Faculty-student
 - Student-student
 - Faculty-faculty
 - Outside the institution
 - ▶ Final thoughts
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What is Departmental "Culture"?

*The **relationships, interactions,** and **activities** involving faculty, staff, graduate students, and undergraduate students*

Contrast in Cultures: Healthy

- ▶ Attract and retain high quality graduate students and undergraduates
- ▶ Faculty and students interact in informal settings
- ▶ Students feel both challenged and supported
- ▶ Active alumni connection

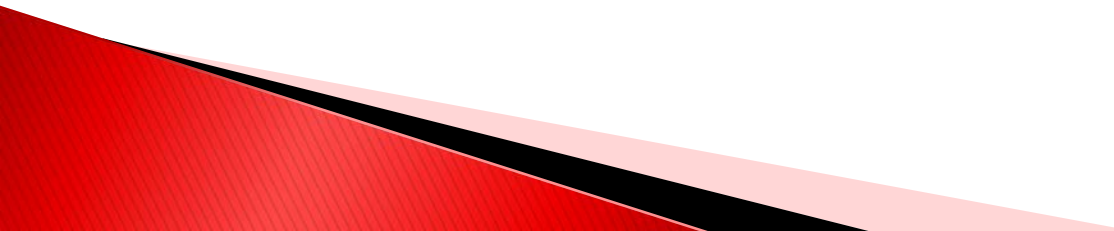


Contrast in Cultures: Toxic

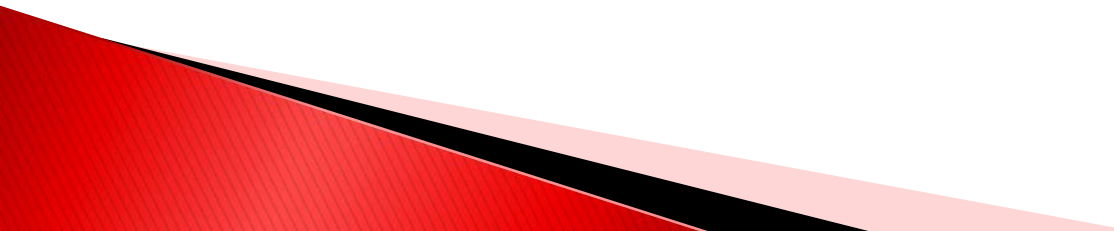
- ▶ Excessively competitive or combative
- ▶ Difficult to attract and keep students
- ▶ Alumni are bitter or indifferent
- ▶ Faculty and students dread showing up each day



Why is Culture Important?

- ▶ Individual morale of faculty and students
 - ▶ Attracting and retaining students (and faculty)
 - ▶ Undergraduate student experience
 - ▶ Student skill development = learning
 - ▶ Future alumni relationships
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Faculty – Student

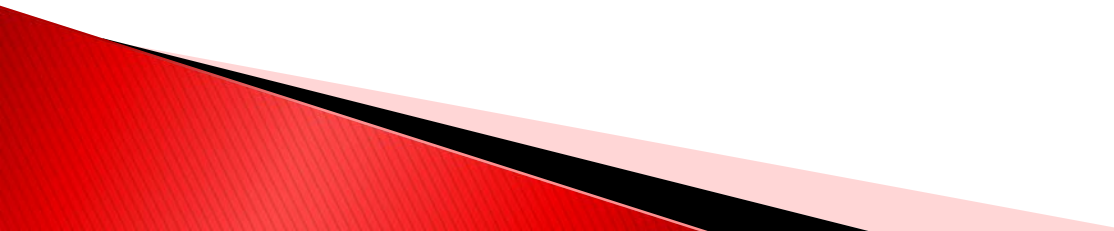
- ▶ Students are expected to read the book and take the reading quizzes before class.
 - ▶ Flipped classroom construct has become accepted (and expected).
 - ▶ Some tools result in students not needing the instructor as much *directly*. Screencasts become “the professor over the shoulder”. Office hours are now more efficient with more informed questions and references to screencasts.
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Faculty – Student

- ▶ Students identify need for new screencasts – they feel like part of the process and contributing.
- ▶ Students feel like you are pulling for them (coach) instead of out to nail them.



Student – Student

- ▶ Peer-to-peer engagement: people make friends beyond their homework group. They get to know people they would not have talked to. They have taken people on the outside and brought them in. Shy people have blossomed.
 - ▶ Lots of couples have formed.
 - ▶ It's a "bonding" class, not a "weedout" class.
 - ▶ Class structure fosters community.
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Faculty – Faculty

- ▶ Other faculty show interest in trying new things (but not everyone)
- ▶ John mentors and provides guidance, in particular to junior faculty

Outside the Institution/Discipline

- ▶ Library of 1,800 ConcepTests and more than 1,350 screencasts at LearnChemE.com
- ▶ Screencasts watched/downloaded more than 3.4 million times in the last twelve months.
- ▶ 100 interactive Mathematica simulations that are on LearnChemE.com
- ▶ Expanded to LearnMechE.com



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**CONCEPT
WAREHOUSE**

Final Thoughts

- ▶ Educational innovation changes not just the technology, but also the departmental and the disciplinary culture
 - ▶ John's impact on his own department's culture – both faculty and students – is significant
 - ▶ His impact on faculty and students at other institutions and within the discipline
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