Challenging the Status Quo:

Part II: Defining, Recognizing and Rewarding “Effective” Teaching

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Outline

1. Initial Thoughts on the Teaching and Learning Process

2. Traits and Attributes of Effective Instructors (K-12)

3. Excellence versus Scholarship of Teaching and Learning

4. Departmental Teaching “Culture”

5. Animal Sciences Faculty Perceptions of Excellence in Teaching

A college classroom is more than the sum of its parts!

What Have I learned?

Learn to Teach

Teach to Learn

Learn to Learn

...so, to become self-aware (life-long) learner as a guide to mastery.
Reflective Practices: The Beginning of Change

Teachers Teach

"Nothing ventured, nothing gained." (Chaucer)

Students Learn

"You can lead a horse to water, but you can't make him drink." (Dorothy Parker)

Measuring Learning

\[ Learning = \text{Mean} + Tch + St + Su + TxSt + TchxSu + StxSu + TchxStxSu + e \]

<table>
<thead>
<tr>
<th>Professors Teach</th>
<th>Students Learn</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>True (good) +</td>
<td>Learning did not occur in spite of good teaching Type I error ((\alpha)) (Convict the innocent)</td>
<td>True + TEACHING SO LEARNING OCCURS</td>
</tr>
<tr>
<td>False -</td>
<td>Expected Undesirable Outcomes</td>
<td>False -</td>
</tr>
</tbody>
</table>

Type I error (\(\alpha\)) (Convict the innocent)

Type II error (\(\beta\)) (Let the guilty go free)
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Effective Teaching (K12 Research)

What do effective teachers do? (summary of the literature)

- Are adept at using a variety of instructional strategies.
- Use appropriate tools (technologies) to engage students in higher order thinking skills.
- Recognize the complexity of the subject matter for novices.
- Focus students on learning.
- Emphasize clarity.
- Able to communicate high expectations to students.
- Establish positive learning space based on respect, fairness and trust.
- Have personal qualities that convey that they care about students.

Citation


Thesis / Objective

“Our intent was to shed light on the elusive connection between teacher effects [on student learning] and teaching practices.”
Effective Teaching (K12 Research)

Study Design

- In phase I, linear model was used to adjust student scores on standardized test for 6 student-level variables and 15 classroom-level variables in order to determine effectiveness of 307 fifth-grade teachers (math and reading).

- In phase II, 17 top-quartile and 15 bottom-quartile teachers participated in an in-depth analysis of instructional and classroom management practices.

- To determine the impact of selected teacher behaviors on teachers’ overall effectiveness (i.e., adjusted students scores on standardized tests).

- a) One year of data from one (southern) state.

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Effective Teaching: K12 Research

Results

*The unlucky kids with the poor teachers ended-up 33 and 32 percentile units lower on standardized test for reading and math respectively, compared with the lucky kids with good teachers.*

Pre and posttest data for students’ reading and math scores (percentile on standard tests) for students in top and bottom quartile teachers’ classes.

<table>
<thead>
<tr>
<th></th>
<th>Reading Pct.</th>
<th>Math Pctl.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Students in top-quartile teacher’s classes$^1$</td>
<td>43</td>
<td>54$^a$</td>
</tr>
<tr>
<td>Students in bottom-quartile teacher’s classes$^2$</td>
<td>43</td>
<td>21$^b$</td>
</tr>
</tbody>
</table>

$^1$ 931 students in bottom-quartile, 1053 in top-quartile.

$^a,b$ P < 0.05

Stronge et al., 2011.
Effective Teaching: K12 Research

Results
Analysis of (selected) Teacher Effectiveness Dimensions by top- and bottom quartile teachers.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Items</th>
<th>Mean Rank</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Top Quartile</td>
<td>Bottom Quartile</td>
</tr>
<tr>
<td>Personal qualities</td>
<td>Encourage responsibility</td>
<td>19.6</td>
<td>11.6</td>
</tr>
<tr>
<td>Personal qualities</td>
<td>Positive relationship</td>
<td>19.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Learning Envirn.</td>
<td>Classroom Management</td>
<td>19.8</td>
<td>11.4</td>
</tr>
<tr>
<td>Learning Envirn.</td>
<td>Classroom Organization</td>
<td>19.4</td>
<td>11.9</td>
</tr>
<tr>
<td>Delivery of instruction</td>
<td>“Differentiation”</td>
<td>16.9</td>
<td>14.9</td>
</tr>
<tr>
<td>Delivery of instruction</td>
<td>“Focused on Learning”</td>
<td>18.7</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Stronge et al., 2011.

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Pedagogical Content Knowledge

Traditional Disciplinary Research

Faculty Development Prgms
Course Evaluations
Classroom Assessment Techn., (CATs)
Peer-Review
Trials and Errors
Reflective Practices

Traditional Educational Research

Content Knowledge

Classroom Research
(Structured Design)

Pedagogical Knowledge

Pedagogical Content Knowledge

Student learning

“Publications”

Modified from Paulsen, M. B. 2001. New Directions for Teaching and Learning 86:19-29

Excellence Versus Scholarship

Criteria (Defining Characteristics)

1) What are the sources of instructor’ s Pedagogical Knowledge (PK)?

Own trial and error

Own trial and error

2) What is the focus of the instructor’s reflections?

“Holistic” approach:

“Reductionist” approach:

Keep what works and reject what does not work

Identify “parts” that need improvement

3) Extent and mode of communication of insights on T&L?

Local and limited in scope

Extensive and far-reaching

(Teaching award nomination materials)

Produced and disseminated information for use by others

4) Who are the targeted beneficiaries of the instructor’s T&L efforts?

One’s own interest

One’s own interest

One’s own students

Community of Peers

Excellence in Teaching

Scholarship of Teaching & Learning

1 Modified from Wattiaux et al., 2010 after Kreber, 2002.
## Excellence Versus Scholarship

<table>
<thead>
<tr>
<th>Teaching &amp; Learning Environment</th>
<th>Excellence in Teaching</th>
<th>Scholarship of Teaching &amp; Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor</td>
<td>Holder / Delivery of knowledge</td>
<td>Facilitator / Organizer / Coach</td>
</tr>
<tr>
<td>Student</td>
<td>Receiver / Consumer</td>
<td>Thinker / Problem solver</td>
</tr>
<tr>
<td>Learning goals</td>
<td>Knowledge / Understanding</td>
<td>Analysis / Synthesis / Evaluation</td>
</tr>
<tr>
<td>Instructional emphasis</td>
<td>Teaching (scientific) facts</td>
<td>Learning (scientific) principles</td>
</tr>
<tr>
<td>Instructional methods</td>
<td>High quality lecture / Didactic labs</td>
<td>PBL / Case study / Project / Res.</td>
</tr>
<tr>
<td>Instructional scope</td>
<td>Limited / Local (class) / Discrete</td>
<td>Global (out-of-class) / On-going</td>
</tr>
<tr>
<td>Test / Grades</td>
<td>Remember / Apply</td>
<td>Solve / Write / Present</td>
</tr>
<tr>
<td>Classroom assessment</td>
<td>&quot;Informal&quot; and &quot;intuitive&quot;</td>
<td>Non-graded formative assessments</td>
</tr>
<tr>
<td></td>
<td>None (graded tests only)</td>
<td></td>
</tr>
</tbody>
</table>

## Performance Evaluation

<table>
<thead>
<tr>
<th>Who are the target beneficiaries of the activities being evaluated?</th>
<th>Students</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the sources of instructor’s &quot;know-how&quot; (PCK)?</td>
<td>Personal experience</td>
<td>Literature (hypothesis driven)</td>
</tr>
<tr>
<td>What is being evaluated?</td>
<td>Teaching skills</td>
<td>Learning Outcomes</td>
</tr>
<tr>
<td>Who provides the evidence?</td>
<td>Students / Administrators</td>
<td>Self / Anonymous Reviewers</td>
</tr>
<tr>
<td>What are examples of tools or criteria used by evaluators?</td>
<td>Load / Course eval.</td>
<td>Load / Course eval.</td>
</tr>
</tbody>
</table>

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Departmental Teaching Cultures at Research Universities

Citation

Thesis / Objective
This research uses social networking data to describe teaching cultures in research universities.

Instructional congruence in a department = “degree with which individuals perceive that their beliefs about teaching align with their institution (colleagues) because of shared understanding of effective teaching and the value placed on instruction.”

The underlying assumption is that increasing congruence contribute to departmental culture that is conducive to instructional enhancement, faculty satisfaction and efficacious work environments.
Departmental Teaching Cultures at Research Universities

Study Design

• Junior faculty in two departments selected as congruent and two departments selected as incongruent were interviewed. Teaching “Ties” (connections) and “Nodes” (individual) were determined in part in analyzing the answers to the following two questions:
  • “When you want to talk to someone about teaching, with whom do you speak?”
  • “Are there other people I should speak with, who would have an interest or valuable perspective on these issues?”
• Data were analyzed using grounded theory (inductive methodology).

Wright, M. 2005.

Departmental Teaching Cultures at Research Universities

Results

Instructional Data Node = Faculty who multiple respondents referenced as source of teaching information…

<table>
<thead>
<tr>
<th>Number of faculty referenced</th>
<th>Congruent Depts.</th>
<th>Incongruent Depts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>two times</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>three times</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>four times</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Extensive network distributed sources of information
“Point” person as a centralized source of information

Wright, M. 2005.
Departmental Teaching Cultures at Research Universities

Results

Congruent Departments

Incongruent Departments

Nx = Instructional data node Faculty
= Faculty

Wright, M. 2005.

Modes of interactions in congruent and incongruent departments

<table>
<thead>
<tr>
<th>Congruent Departments</th>
<th>Incongruent Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Authentic” team teaching emerged as an extraordinarily significant theme</td>
<td>One or two faculty held extraordinarily prominent teaching roles</td>
</tr>
<tr>
<td>“Multi-layered” peer review with frequent class visits (mentor-mentee relation; team interaction; taken-for-granted departmental practices)</td>
<td>Colleagues may have less of an opportunity (or need) to look to each other to construct their own understanding of effective teaching</td>
</tr>
<tr>
<td>For most professors the every day, unstructured conversations were the most valuable venue to discuss instructional issues</td>
<td>The network structure was limited as instructional issues were discussed almost uniquely in “administrative” spaces and venues</td>
</tr>
</tbody>
</table>

Wright, M. 2005.
Impacts of Collaboration
(Faculty Learning Community)

Collaboration may contribute to excellence in teaching because it:

• **Legitimates** teaching-related projects, that is, contributes to perceived (?) validity;

• **Increases the self-confidence** needed to initiate changes in teaching practice;

• **Provides a “framework”** conducive to designing and implementing scholarly teaching-related projects leading to “generalizable” knowledge (i.e., “publication” in teaching).

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Animal Scientists’ Views on Excellence in Teaching

Citation

Objective
To determine the perception of faculty in animal or dairy sciences departments from D/R institutions in regard to criteria that are currently used, or should be used, in assessing teaching for the purpose of P&T.

Study Design
Data analyzed were from 47 assistant, associate or full professors from 27 animal or dairy science-related departments in research institutions from 25 states who responded to an on-line survey linked to the 2005 ADSA/ASAS national meetings.

Results: Classroom-related and documentation of one’s teaching effort

<table>
<thead>
<tr>
<th>Survey Item &amp; Evaluation Criteria</th>
<th>R</th>
<th>RT</th>
<th>Is (%)</th>
<th>Sd (%)</th>
<th>Sd – Is</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>21/22: Student evaluation (of the instructor / of the course)</td>
<td>R</td>
<td>RT</td>
<td>96</td>
<td>100</td>
<td>52</td>
<td>-44</td>
</tr>
<tr>
<td>25: Establishing new courses for curriculum improvement</td>
<td>R</td>
<td>RT</td>
<td>88</td>
<td>32</td>
<td>48</td>
<td>-36</td>
</tr>
<tr>
<td>23: Peer-review (evaluation) of the instructor</td>
<td>R</td>
<td>RT</td>
<td>68</td>
<td>63</td>
<td>64</td>
<td>4</td>
</tr>
<tr>
<td>25: Providing students with “course packages”</td>
<td>R</td>
<td>RT</td>
<td>52</td>
<td>54</td>
<td>31</td>
<td>4</td>
</tr>
<tr>
<td>32: Documenting personal assessment of one’s own teaching with portfolio</td>
<td>R</td>
<td>RT</td>
<td>48</td>
<td>77</td>
<td>54</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Respondent’s perception of institutional priorities: R = Research more important than teaching, RT = Both research and teaching are equally important.

2 Negative differences indicate an over-emphasis of the criterion
Positive differences indicate an under-emphasis of the criterion.
Animal Scientists’ Views on Excellence in Teaching

Results: Recognition among peers with “research-like” criteria

<table>
<thead>
<tr>
<th>Survey Item &amp; Evaluation Criteria</th>
<th>R(^1)</th>
<th>RT</th>
<th>Is</th>
<th>Sd</th>
<th>Sd – Is(^2)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>30: Authoring peer-reviewed publications</td>
<td>R RT</td>
<td>88 68</td>
<td>44 59</td>
<td>-9</td>
<td>&lt;0.01</td>
<td>0.75</td>
</tr>
<tr>
<td>31: Authoring an undergraduate textbook or book chapter</td>
<td>R RT</td>
<td>84 73</td>
<td>44 69</td>
<td>-4</td>
<td>&lt;0.01</td>
<td>0.99</td>
</tr>
<tr>
<td>32: Obtaining funding for teaching-related projected</td>
<td>R RT</td>
<td>84 68</td>
<td>52 77</td>
<td>-32</td>
<td>&lt;0.03</td>
<td>0.75</td>
</tr>
<tr>
<td>35: Being on an editorial board to review manuscripts</td>
<td>R RT</td>
<td>76 46</td>
<td>48 64</td>
<td>-28</td>
<td>0.09</td>
<td>0.34</td>
</tr>
<tr>
<td>29: Invited presentations on teaching at conferences</td>
<td>R RT</td>
<td>72 45</td>
<td>56 59</td>
<td>-16</td>
<td>0.39</td>
<td>0.55</td>
</tr>
<tr>
<td>28: Presenting abstracts at teaching conferences</td>
<td>R RT</td>
<td>60 50</td>
<td>56 54</td>
<td>-4</td>
<td>0.99</td>
<td>0.99</td>
</tr>
</tbody>
</table>

1 Respondent’s perception of institutional priorities: R = Research more important than teaching, RT = Both research and teaching are equally important.

2 Negative differences indicate an over-emphasis of the criterion.

Study Conclusions

- The desire for changes in criteria indicative of excellence in teaching for the purpose of promotion and tenure was strongly influenced by respondents’ perceived institutional mission (R. vs. RT).

- Animal and dairy science faculty placed a higher value on criteria recognizing excellence in teaching based on intra-departmental or intra-institutional recognition (e.g., interactions with close-up peers and students) rather than recognition of SoTL by a broader community of arm-length peers as evidenced by authorship or success in generating funding for teaching.

- Thus, Animal Scientists aspire to be “excellent” teachers but do not recognize scholarly work as a path toward “excellence”