

Hidden Signals:

Mining Student Evaluations for Genuine Insight

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Welcome! Please take a seat.

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- Eisenhart Outstanding Teaching Award, RIT – 2016
- Cengage Innovative Teaching Award – 2018
- Saunders Outstanding Student Impact Award – 2018, 2023, 2024
- Saunders Outstanding Teaching Excellence Award – 2017, 2019
- ILI Finalist Best Online Lecture - 2017
- SMA Teaching Competition Finalist - 2017

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PRIOR RESEARCH ON STUDENT EVALUATIONS

- A meta-analysis of the literature on student evaluations of teaching (SET) (244 studies, across 41 disciplines, 8 English speaking countries, and 30 years) shows that a small almost insignificant relationship ($r=0.11$, $p<0.05$) exists between learning and the evaluations.
- However, the association is situational and not applicable to all teachers, academic disciplines, or levels of instruction.
- The more objectively learning is measured (e.g., scores), the less likely it is to be related to the evaluations (log odds ratio 1.013).
- When outcomes are measured (e.g., starting salaries, salaries after 3 years), there seems to be no relationship or sometimes an inverse relationship between evaluations and learning.

3 WHAT EXTANT RESEARCH REVEALS ABOUT SET

- SET are **biased against female instructors**, although some recent research seems to show that this is not always true.
- SETs are **biased against minority groups and identities differing from the norm**. These include international faculty from certain regions of the world.
- Students rate even putatively objective aspects of teaching, such as how promptly assignments are graded and confound them with effectiveness.
- The bias varies by discipline and by student gender, among other things.
- SET are **more sensitive and strongly related to students grade expectations** than they are to teaching effectiveness.

4 GRADE EXPECTATIONS AND SET



Randomized experiments show that students confuse grades and grade expectations with the long-term value of a course.



SET are not associated with student performance in follow-on courses, a proxy for teaching effectiveness.



SET **seem** to be a reward students give instructors who make them anticipate getting a good grade.



Verifiable and consistent across 100+ studies and in meta analyses.

5 WHAT CAN WE TELL FROM THE NUMBERS



Teaching effectiveness is highly correlated with two items

Grades and Organization




Teaching effectiveness is either **uncorrelated** with rigor in the larger context. Inversely related to rigor within the ends of the distribution.




GPA is not considered in admin evaluations as there are no set policies specific to GPA.

6 WHAT WE CAN TELL FROM THE CURRENT RESEARCH


Cohesion of scores appears to be based on 'liking' the instructor, and adequate interest in the subject. In other words – the Christmas tree effect of responding to surveys.



Current system is perceived as inferior to the paper and scantron approach for faculty who genuinely desire input.



Participation prompts may be seen as pandering to students at best, annoying at worst.



Favors charisma rather than quality, popularity over knowledge and interest.

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WHAT CAN WE DO?

- Encourage faculty to conduct **mid term evaluations** before the first assessment of learning activity.
- **Provide a chance for faculty to change and adapt to the course and the class.**
- Measure changes with peer evaluations of teaching rather than single metric evaluations.
- Consider **unbiased evaluations by Faculty Fellows**
- Set up a system of **formative feedback over evaluative feedback** for faculty.
- **Publish scores to everyone and benchmark for comparisons through the CTL.**

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SOME ADJUSTMENTS FOR HIGHER SET

- Review sessions increase SET scores
- A total debrief before the evaluation start appears to have a strong positive impact on SET scores.
- Adjust MyCourses postings for better organization of the course
 - Short descriptions of what is due that week, what is graded, and when to complete.
- Post all material from day 1 to mid term period by the first week class.
- Decrease perceptions of rigor by encouraging ask-me-anything hours.

9 READING INTO THE STUDENT EVALUATIONS

- Moving from effectiveness and toward engagement
- Emphasis on student engagement due to impact on research, policy, and practice (Fredricks et al., 2016). This is perhaps due to its reported associations with desired scholastic and non-scholastic outcomes, such as academic achievement (Reyes et al., 2012), completion rates (Archambault et al., 2009), and physical and psychological well-being (Steele and Fullagar, 2009).
- Engagement
 - Cognitive - understanding, self-regulation and deep learning strategies
 - Affective - interest and sense of belonging
 - Behavioral - persistence, participation and positive conduct



THE GRAND OVERVIEW IN ENGAGEMENT

- Inconsistency in understandings of student engagement.
- Misalignment between ideologies of effective engagement and actual engagement practices.
- **Emerging issues**
 - Anxiety
 - Apathy
 - Control in language
 - A demand of explicitness on grade outcomes, learning outcomes

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- A demand of explicitness
 - Grade outcomes,
 - Learning goals
 - Relevance
 - A need for
 - Being safe in the classroom
 - Wanting to belong
 - Supportive instructors
 - To experience success
 - To build student confidence

BEHAVIORAL ENGAGEMENT

- **Increased interaction between peers**
 - “I liked that the professor encouraged speaking up on issues that matter to me with others in the class...”
 - “...it took us a while to get used to having to tell each other how to make the code smaller and cleaner but it was the best part of the class”
- **Equitable interactions between students**
 - “...he always asked us to speak up in class, it wasn’t just a lot of lecturing and text reading”
 - “.. I have online discussions, mostly idiotic posts that are just counted for points. Class discussions at least get us talking about something relevant”
 - “...but here it was like a group text chat, we had to put it in the notes but we discussed it in class sometimes some people got emotional and took it personally”
- **Collaboration occurring outside of school**
 - “... we spent a lot of time on working with one Google doc that captured everything so any of us could keep adding to it and use it as notes”
 - “...I was encouraged to work with others to draft the outlines so we used the notes app...”
 - “The professor basically told us we were free to use all the CHATGPT tools so I did. I found out a whole lot more than the readings from the book”
 - “I ended up using copilot and we got into arguments about which tool was actually right about how AI would change our jobs...”

BEHAVIORAL ENGAGEMENT

- **Equitable interaction with instructor**
 - “...I came from straight lecture class at 10 but at least I had a chance to speak in this class”
 - “One thing I enjoyed was the instructor telling us to go find ways to estimate things even when we had no idea about healthcare, she would just give us prompts to think about and we would go find out online”
- **Being the focus of the class**
 - “Every class he picked someone to lead the topic, even boring case work was more interesting because we could talk to the student presenting instead of the instructor”
 - “class time is so more vibrant in the evening class when the instructor would refer to stuff I said a week ago or sometimes several weeks ago.”
 - “... in the first two weeks it seemed hard but I enjoyed being asked to play devils advocate or take the other side which I did not agree with at all”
- **Knowing Academic Standing**
 - “...At every class I knew where I was in the course, I knew the grade, I knew my participation so I had a great feedback to keep me engaged”
 - “...every three weeks she would tells us our grade check up and explain what we had to do and if we could move up in the grades, I was engaged the whole time trying to get the best grade possible.

AFFECTIVE ENGAGEMENT

- **Enjoyment**
 - “I enjoyed the class because the instructor would allow us to go over time and not penalize us for not completing the coding in class. I don’t need that kind of stress in my life now”
- **Using online collaborative tools**
 - “...this was the only class that used a Google doc, I hate taking notes but having one person take notes for the day and share it with everyone allowed me to focus on the material”
- **Work at their own pace**
 - “ I don’t know why all these professors are obsessed with completing it in some minutes of time. I need more time to think things through. She had no time limit, so I got better grades and I learned more even if it was not my major course”
- **Reduced anxiety and stress in the classroom**
 - “...the classroom space was so chill, if you didn’t know the answer some eager beaver was allowed to answer and help you out. I could help others out and we all could learn instead of the professor and two students talking among themselves”

AFFECTIVE ENGAGEMENT

- **Excitement on what class would do that day**
 - “...before I went to class I was always excited to see what we would learn...”
 - “...Every class the first few minutes were so unexpected but nothing that raised my anxiety...”
- **Expanded brain power’ that emerges from collaboration**
 - “I zone out a lot when the instructor drones on, I learn more when I am working in a group with my classmates”
 - “I hate group projects, but this was not a group project because we worked with different people every class. It was a very different numbers class because we solved things together every class but with different people”
- **Enthusiastic support from instructor**
 - “...he was always so supportive, especially when we were wrong, he would go back to stuff from weeks ago for just one person”
 - “...I engaged much more because she was so positive, no matter what the mood of the class was, she was so positive with everyone”

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AFFECTIVE AND COGNITIVE DISENGAGEMENT

- **Task incompleteness**
 - Affective – frustration (“Nothing makes sense, every week is different, why am I doing this to myself”)
 - Cognitive – unwilling (uninterested), confused (“I don’t know what the professor wants from me”)
- **Inattentive**
 - Affective – dislike (“I hate this subject, I don’t need this in my life”)
 - Cognitive - apathy (“There is nothing anyone can do to make me like chemistry, I have to be here so I am”)
- **Distracted**
 - Affective – anxiety (overwhelmed) (“...there is so much due every week but none of this is on the exam”)
 - Cognitive – worry (“I always have to figure out what we have to do to get the B, I don’t want to guess, just tell me...”)

AFFECTIVE OUTCOMES OF ENGAGEMENT

- *Not disappointed by being called out → excited to be called upon*
- *Becoming more confident in asking for help and asking questions*
- *A feeling of comfort to pose questions to the instructor and friends*
- Increased content understanding through understanding the relationships between the topics
- Positive self-perceptions & self-efficacy

COGNITIVE OUTCOMES OF ENGAGEMENT

- Putting in more effort in one course compared to less engaging courses
- Dedication to work on course material outside the classroom
- Increased interest in participation within the classroom and with peers
- Willingness to learn more complex ideas and theories
- Increased interest in interacting with the instructor and the subject

QUESTIONS

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