

Center for the Practice and Scholarship of Education of science, engineering, and mathematics students

Focal Point

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Upcoming Events

The Spring Workshop features [Linda Nilson](#), author of *Creating Self-Regulated Learners*, presenting both a workshop and a keynote lunch session on [Wednesday, March 25](#). The workshop will occur 8-10:45am, and the keynote (including lunch), will begin at noon. Please RSVP to Ella with either “workshop”, “keynote”, or “both” by March 20. The two sessions will overlap a small amount—the workshop is for a deep dive, the keynote is for a broad view. Join the experience—[RSVP today!](#)

Join [Mario Simoni](#) for a workshop focused on learning [Systems Engineering thinking](#). This shorter workshop (two periods) will introduce participants to some key strategies in systems engineering with lots of applications to the classroom. It will be held [after Spring Break](#)—keep your eyes open for details to come later.

PARTICIPANTS NEEDED! The alternate assessment of teaching group wants YOU to join the effort to test high-quality, supplementary approaches to evaluate teaching. There are several strategies to choose among. If interested, please [email Matt Lovell \(Civil Engineering\)](#) at lovellmd@rose-hulman.edu to get the details.

The spring book club will be reading Jeffrey Buller’s [The Essential College Professor: A Practical Guide to an Academic Career](#). This book is a bit different than our normal fare. Email Ella if you would like to join. Don’t buy the book yet.

The [Observation Exchange](#) is ongoing. Take the opportunity to see how your colleagues in other departments do what they do. Simply find a partner, sit in on each other’s class, and have lunch on the CPSE to talk about it. Email Ella for the code word in the lunch line.

Predatory Publishing

In recent weeks, I’ve received a number of email announcements about opportunities to publish research. Something seemed a little fishy to me, so I googled something I’d seen in the Chronicle of Higher Education: [Beall’s List](#). Jeffrey Beall is an academic librarian who has researched predatory practices in publishing for years. His list compiles journals or publishers that fail a series of basic premises (i.e. in the categories of editorial staffing, business management, integrity, and other practices—criteria are described [here](#)). Beall’s commentary on publishing practices reveals pitfalls that even senior scholars don’t avoid. Recommended reading for a lunchtime break. Oh, and yes, those announcements came from a predatory journal.

[Scholarly Open Access](#) (blog and list of predatory publishers)

● Students are People, Too

In early January, I attended a session titled “Beware of the Dark Side in the Classroom” [1] at the [Lilly Conference on College and University Teaching and Learning](#) in Austin. The presenter, Dr. Kelly Flores of City University of Seattle, described basic needs of all humans, that when not met lead to challenging behaviors. Many of these **negative behaviors are obvious in the classroom**—chronic lateness, entitlement, helplessness, anxiety, obsessiveness, and procrastination, to name a few. Dr. Flores described eight areas of needs, positive messages that indicate needs are met, and behaviors we can use to support those needs. The key premise was that **we can’t change what happened to students in their past to cause them to have negative behaviors now**, but we can work to support their needs when we do interact with them. The summary below is taken directly from Flores’s handout (available in its entirety from Ella).

1. **Belonging**: means having a place to call one’s own, is demonstrated by calling people by name, listening to personal stories, acting hospitably, recognizing special needs regarding family/health issue/allergies/etc. “**You have a special role to play here**” would be a key phrase.
2. **Nurturance**: means having comfort, care, and nourishment, is demonstrated by giving second chances, identifying how people feel nurturance (e.g. through words or acts of service), giving public positive feedback, drawing out people’s strengths. “**We’ll make sure you have everything you need to be successful**” would be a key phrase.
3. **Support**: means assist in problem-solving and risk-taking, is demonstrated by providing clarity in expectations, acting consistently, do what you say you will do, check-in one on one, ask what is needed to accomplish a goal, practice empathy rather than judgment. “**We’ll help you figure it out**” would be a key phrase.
4. **Protection**: means providing a safe environment, is demonstrated by responding without judgment, refraining from gossiping, question without interrogation, being vulnerable about struggles (e.g. “Vulnerability sounds like truth and feels like courage” - Brené Brown). “**It’s okay to feel afraid**” would be a key phrase.
5. **Structure**: means clear boundaries and limits in time and behavior, is demonstrated by helping to establish good habits, modeling desired behaviors, set balanced personal boundaries, limiting unannounced expectations, complete commitments. “**I’ll set the rules and limits, so you’ll be free to focus on doing your best work**” would be a key phrase.
6. **Emotional Containment**: means safety in emotional expression, is demonstrated by remaining calm when another is distressed, showing compassion, identifying emotions, validating emotions, listening rather than problem-solving. “**You can express emotions around me**” would be a key phrase.
7. **Respect**: means individuals are valued as separate entities, is demonstrated by seeking to understand someone’s perspective, exhibiting curiosity, embracing differences, allowing for differences. “**You are a unique individual with your own strengths**” would be a key phrase.
8. **Bonding**: means creating health, appropriate, and positive relationships, is demonstrated by maintaining relationships over time, creating memories together, verbal expressions of recognition and encouragement, acting respectfully. “**We’ll show you how a good working relationship works**” would be a key phrase.

Please note—I’m clearly not a psychologist, and I’m not recommending that faculty act as psychologists. My recommendation is simply to remember that students are people, too. Just like our colleagues have challenging past and current experiences, and **we all want to be valued and respected**, so too do students. We can have a positive impact through our thoughtful approaches. [1] Flores, K. 2015. Beware of the Dark Side in the Classroom. Lilly Conference on College and University Teaching and Learning, Austin, TX. Program [here](#), search for “Dark Side” to see the abstract.

● Creating Accountability in Group Work

A recent issue of Faculty Focus (higher education newsletter; subscribe [here](#)) included the article “**Students Riding on Coattails During Group Work? Five Simple Ideas to Try**” by Li-Shih Huang (applied linguistics, University of Victoria). The basic problem is obvious as per the title; groupwork is clearly different than teamwork. Dr. Huang’s five tips: 1. **Develop a phased approach** to the project with periodic check-ins; 2. **Increase ownership** through allowing choice in certain areas; 3. Incorporate reflection essays to **demonstrate individual growth or experience**; 4. Provide time in class to allow group members to meet each other and **establish group norms**; and 5. Promote group-based **problem solving strategies**. The [original article](#) includes detailed descriptions of what each element might look like. I think these ideas are intriguing enough to try.

● CPREE Update: Summer Activities & Field Guide

The Consortium to Promote Reflection in Engineering Education is hosting a focused [summer cohort experience](#), involving both faculty and staff, to work on developing or improving reflection experiences in the academic setting. A calendar of major events is below. All are welcome to attend—please email Ella if you would like to participate in any of the activities. Homework is a given, but we won't work you too hard.

	June 2 AM	Intro/mixer	½ day
The CPREE national coordinators are assembling our field guide—think <i>Classroom Assessment Techniques</i> for reflection activities. That compendium will be available in time for planning for fall classes . A big “Thank you” to the many faculty who participated in our interviews and contributed to the field guide.	June 22 PM	Foundational concept discussion	½ day
	July 1 AM	Activity presentation & critique	½ day
	July 21 AM & PM	Assessment (Rachel McCord)	1 day
	Aug 5 PM	Activity presentation & critique	½ day
	Aug 17 AM	Closing analysis	½ day

● How do RHIT Freshmen Perceive the Academic Environment?

Submitted by guest author Sarah Forbes

In a word, challenging. Freshmen are challenged by the academic environment because their collegiate experiences are not consistent with their high school experiences. This information surfaced in a qualitative study I conducted earlier this year. Within the theme of “understanding the academic environment,” the students provided insight into courses and faculty, quizzes and exams, and the workload and pace.

Courses and faculty. The students repeatedly described how difficult the courses were, namely because they were more rigorous than the students had previously experienced. However, students recognized that the faculty are a valuable resource, describing them as “*patient*” and “*understanding*.”

Quizzes and exams. Many students felt they were prepared for the quizzes and exams, until they received their grades. As one student described, “*I also received a bit of a shock when I found out some of my quiz grades were far lower than expected. It was a surprise especially since I was very confident on the material. This has caused me to doubt whether or not I am really understanding what is being taught in class.*”

Workload and pace. Students noted an increase in workload both in comparison to high school and across the quarter, often expressing difficulty in keeping up. With the quarter system, material is presented at a faster pace. As explained by one student, “*My high school prepared me for the work load of the classes, but I was unprepared for the speed. I'm use to less intelligent kids holding back the class making it easy to learn without studying. Here, everyone is so smart so classes cover material quickly.*”

While the very nature of higher education is to challenge students, as educators we need to be aware that many of our students have had insufficient prior experience to guide their initial behavior. Providing clear expectations for achieving success in our courses and highlighting resources available to students can help this transitional process.

Editor's note: Multiple resources address the experience of freshmen upon matriculation. One quite interesting study is “The American Freshmen” (summary [here](#); full report [here](#)) from the Higher Education Research Institute at UCLA. Another is the National Survey of Student Engagement (website [here](#)). The freshmen experience is fraught with personal and academic challenges. Faculty can be a large part of assisting these students in finding success.

● Quote

“The function of education is to teach one to think intensively and to think critically. Intelligence plus character—that is the goal of true education.” Martin Luther King, Jr.

Check out the [IRPA/CPSE Collaborative site](#) on Sharepoint [here](#). Sarah Forbes, Shannon Sipes, and Ella collected various data on people in higher education—new data and questions each month.

● Incorporating Problem-Based Learning in Your Courses

Submitted by guest author Shannon Sipes

Problem-based learning is a form of active learning characterized by the use of low-structure, authentic problems; student-centered nature; and instructors as facilitators. It's not a dichotomy, but rather a continuum that can be incorporated into almost any course. This cycle can span an entire academic year (i.e. capstone design) or run within the confines of one class period.

The authenticity for a problem in PBL is found within a case. The case may be as open as a client discussing a problem with a student or as closed as a complete scenario summarized by the instructor for the students. Content for cases can come from experience, news articles, or case repositories such as the one located at <http://sciencecases.lib.buggalo.edu/cs>.

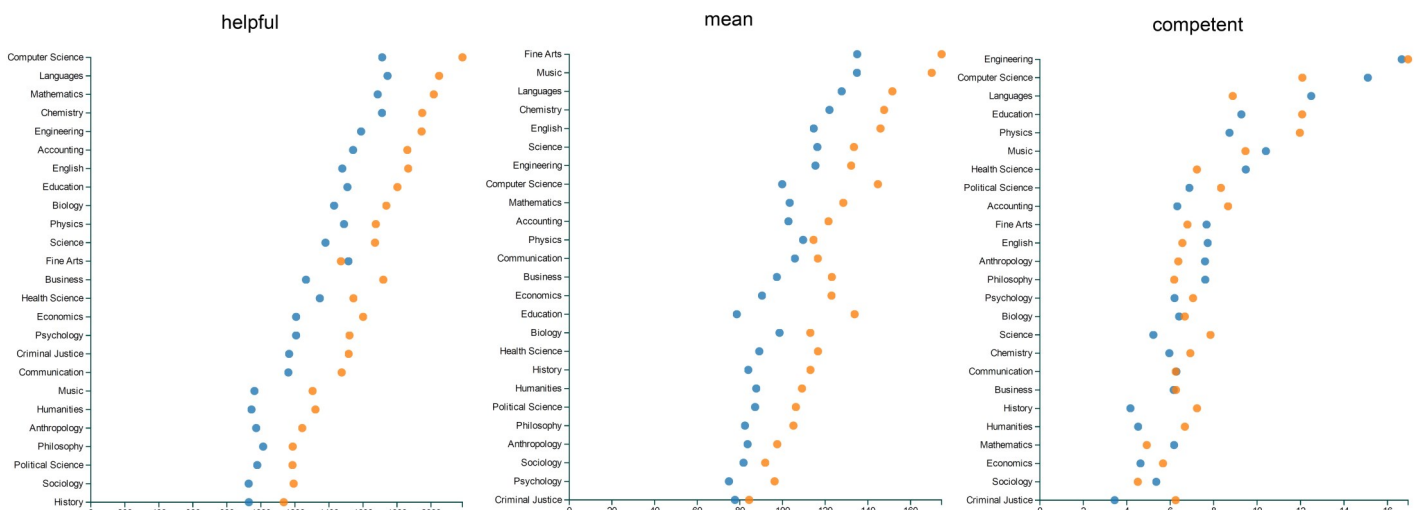
Barrows [1] provides 6 levels of PBL: lecture-based cases, case-based lectures, case method, modified case-based, problem-based, and closed-loop problem based. In *lecture-based cases*, the instructor lectures first and presents a case to demonstrate content second. *Case-based lectures* are similar, but the case is presented first followed by lecture on content. In the *case method*, a complete case (synthesized by the instructor) is used to present content. *Modified case-based* PBL offers guided inquiry or structured problems based on the complete case. *Problem-Based* is the standard example that comes to mind when someone hears PBL. It's the simulation of an authentic problem allowing for free inquiry. *Closed-loop problem-based* expands on this by having students revisit the problem and reflect on their problem solving process.

PBL is best suited to the early years of a program to assist students with improving their learning while project work is a better choice for later years of a program. Research suggests placing well-structured problems at the beginning of the curriculum and ill-structured problems toward the end when students have more knowledge.

[1] Barrows, H. S. 1986. A taxonomy of problem-based learning methods. *Medical Education* 20: 481-486.

● Gendered Language in Student Reviews of Teaching

A not-at-all-statistically-based analysis of descriptors was recently released. The source data were words used to rate college teachers on the notorious RateMyProfessor.com. Ben Schmidt (history prof at Northeastern University) pulled all words from 14 million reviews and compared the usage for male and female professors (test the visualization tool [here](#)). The resulting data show dramatic differences for word use (a couple of examples are below—orange is female profs, blue is for male profs; x-axis is uses per million words). The tool is mesmerizing and reveals amazing differences. Research is certainly forthcoming. Ben explains his approach and some of the underlying details in a blog post [here](#).



All unattributed material in this issue of *Focal Point* was written by Ella L. Ingram: ingram@rose-hulman.edu. Contributions to issues of *Focal Point* are most welcome!