Peer-Reviewed Exploration in Teaching: A Program for Stimulating and Recognizing Innovations in Teaching

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Abstract
In an academic world driven by student ratings and publication counts, faculty members are discouraged from exploring new pedagogical ideas because exploration takes time and often goes unrecognized. The contrast with research is striking: everyone is expected to explore and innovate in research, whereas very few make exploration in teaching their norm. This paper presents a case study illustrating a program, the Peer-Reviewed Exploration in Teaching (PRET) program, designed to encourage and recognize faculty when they implement teaching innovations. The program provides feedback during all stages of a teaching innovation, including outside-classroom activities, and incorporates a rigorous peer review process so that successive such PRETs can accumulate into a record for tenure and promotion. The paper describes the program's rationale, initial implementation, and lessons learned. Perhaps one of the most interesting lessons is that faculty explorations often go beyond a standard inventory of active learning techniques when they are encouraged and supported to explore.

Keywords
Teaching innovations, recognizing teaching excellence
Peer-Reviewed Exploration in Teaching: A Program for Stimulating and Recognizing Innovations in Teaching

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INTRODUCTION

This paper presents the Peer-Reviewed Exploration in Teaching (PRET) Program, a model for a university-wide program appropriate for all disciplines that is designed to: 1) stimulate teaching innovations, 2) support faculty during the innovation process, 3) recognize faculty efforts, and 4) create an environment for teaching explorations that last beyond the program completion.

Why Innovate?

Let us first address a more basic question: why bother to innovate in teaching? Isn’t it be enough to let a few innovate, prove that their techniques work, and offer teaching workshops to the rest of us? We argue that there are at least a few reasons why innovation, or at least curiosity-driven exploration, should be more common. The first relates to the complexity of learning and fostering a collective effort in academia that is equal to the task: if more faculty are engaged in systematically exploring what works and what doesn’t, we are likely to improve student learning outcomes.

Consider, for example, that there are 9,400 physics faculty (White, Ivie, Ephraim, 2012) in the nation, most of whom are engaged in some scholarly activity in physics to understand the complexities of the physical world. Why aren’t as many faculty focused on addressing the complexities of learning? If student learning is as complex as is commonly believed, it invites the participation of more faculty in exploring and understanding how to make it work well. A second reason arises from the need to adapt techniques locally: each one of us has students from different backgrounds, who are in turn taking local flavors of courses. Thus, for example, one does not effectively use clickers in exactly the same way for a mid-morning class of residential undergraduates in chemistry as for an evening class on health policy for working professionals. Such local adaptation takes time to refine, and constitutes a protracted exploration over several course offerings that needs nurturing and administrative support. Others have written about this need as well. For instance, Wood (2009) explains (using biology as an example) why innovation in biology teaching is needed: 1) for the U.S. to remain competitive in the global economy; 2) to exploit new discoveries in educational psychology, cognitive science, and neurobiology that have the potential to improve student learning; 3) to build on and adapt research from Discipline-Based Education Research (DBER) groups; and 4) to produce better biology majors. Finally, a culture of constant experimentation strengthens our collective agility in academia to respond to a rapidly changing landscape in higher education.

Relationship to Tenure and Promotion

What is also clear, in addition to the need to stimulate pedagogical exploration, is that standard approaches to evaluating teaching for tenure and promotion are limited in what they evaluate, often relying just on student ratings or isolated classroom visits. Student evaluations of teaching can provide valuable feedback about the instructor’s teaching effectiveness (Svinicki & McKeachie, 2010), but researchers have mixed findings about them (Boring, Ottoboni, Stark 2016; MacNell, Driscoll, Hunt, 2015). This problem has been recently recognized as challenging (Stark & Freishstat, 2014) despite the increasing emphasis on helping faculty develop instructional competence since the 1980s (Eble & McKeachie 1985; Seldin, 1990). Elton (1998) aimed to define the concept of “teaching excellence” and discovered that it is a complex concept and requires defining excellence at individual, departmental, and institutional levels. At the same time, a full-fledged statistically rigorous learning outcome study may not be practical for everyone, since not everyone has multiple sections for a careful control-and-experiment procedure, nor are there statistically reliable tests of learning in every subtopic of every field. Furthermore, some types of pedagogical experimentation will involve only a part of course, or another goal such as student engagement. Also, it is important to encourage adaptation of technique rather than have the pressure to solely create something new out of whole cloth; for example, a biology professor in our program experimented with case studies in her introductory biology class, a relatively new idea in biology but quite well-established in business schools.

A comparison between teaching and research raises yet another issue. In research, faculty members are accustomed to publishing incremental work that accumulates over time into a strong record of scholarly work. In alignment with this tradition, the
research realm offers a range of publication outlets from posters at a conference to a top archival journal. All of these are well-understood processes of respectability. Of respectability to the list of individually modest contributions that comprise most research CVs. Furthermore, faculty are “trained” in writing up research articles, and there exists a substantial infrastructure (conferences, journals) to support them in this endeavor. Aside from the SOTL that works for a few faculty, all we commonly have are student ratings and the occasional classroom visit. Bier (1990) famously analyzed what it means to be a scholar and concluded that authentic scholarship involves discovery, integration, application, and teaching. He explains that “teaching, at its best, shapes both research and practice” and it means “not only transmitting knowledge but extending it as well.” Inherent conflicts in the messages that come down to faculty are well-known, whether it is between research and teaching, or arises from extramural agency (see the writings of Giroux (2015, 2006), for example).

What is missing is a structured process for faculty to explore pedagogical ideas in their classroom, receive rigorous peer feedback within their institution, and be able to record the results so that these successful outcomes can accumulate into a record for tenure and promotion. This will both help faculty document their efforts and set the stage for administrators to clearly acknowledge faculty teaching efforts in the same way and with the same respectability in which the research publications acknowledge their research efforts.

Faculty Development and Institutional Transformation

A fundamental change in the way faculty, departments and institutions approach, practice, and evaluate teaching takes time and triggers and a faculty ready to meet students where they are. And, are faculty willing to recognize shortcomings in their teaching? These and other issues and questions have been highlighted by Caster & Hatalis (2008) to describe in detail the challenges they faced when deciding to embark in a department-level teaching reform.

Once innovations are created, implementation details become important both at smaller and larger scales. Feyn and colleagues (Feyn, Naoim, Blass, Friedman, Wallace, 2005) performed a synthesis of the literature on implementations in the medical field and made the following recommendations for purveyors of well-defined practices and programs: 1) develop research collaborations; 2) create a community of practice; 3) and share the lessons learned with these communities. Gawande (2013) went further and discussed the conditions under which innovations spread fast, according to the research team, “people are still talking to people is still the way that norms and standards change.”

As interest in faculty development grows, there is an increasing need for programs that go beyond the usual teaching workshops. This is brought about by institutional pressures, by the increasing number of educators who want to learn about the innovation process (Henderson, Dancy, Niewiadomska-Bugaj, 2012), and after carrying on an innovation to the end, a significant number of instructors do not realize that their implementation has not worked out for students (Ebert-May, Derting, Hodder, Monsen, Long, Jardeleza, 2011). And the way innovations are disseminated is rapidly changing (Rogers, 2003).

In the author’s words, they are: “Do I know What SoTL is? Is SoTL for me? What am I trying to improve? Should I go for it? And, I’m an educator, what about me?” According to this question, the answers are: 1) do I know What SoTL is? In the author’s words, they are: “Do I know What SoTL is? Is SoTL for me? What am I trying to improve? Should I go for it? And, I’m an educator, what about me?”

The PEER-REVIEWED EXPLORATION IN TEACHING (PRET) PROGRAM

Our Peer-Reviewed Exploration in Teaching (PRET) program is a mechanism that, roughly equivalent in effort to producing a research article, allows faculty to demonstrate a peer-reviewed contribution to teaching with real impact in their classroom. In designing the PRET program, we sought to respect several constraints. Ideally, we wanted a program that:

• lasts no longer than a semester but includes innovations that can be continued;
• encourages collaboration and works for a cohort of faculty from across the disciplines;
• encourages novel and out-of-the-box ideas and curiosity-driven exploration, while resulting in concrete assessable outcomes;
• has a direct impact on student learning in the program;
• and, of course, stimulates exploration beyond the usual established techniques in active learning.

Our program was instated in Spring 2012 and is informed by innovative trends in education (Beichner et al., 2007; DeHaan, 2005; Holdren & Lander, 2012) and encourages both curiosity-driven pedagogical experimentation as well as the adoption of well-established pedagogical techniques that are new to the individual. Many of these elements are embedded in our program described below. During a PRET, a professor spends between 30-50 hours per week, and the program address the constraints and goals set out earlier. We also runs a focus group with the students to understand how the projects are received. Anonymous reviewers of the project would give a detailed overview of the “whether the project is feasible and will work” and the general outcome of the project. The project is submitted for a peer-review and a proposal that describes specific learning-outcomes and a substantial classroom intervention that is grounded in the literature on pedagogy, and the specific project. The proposal would be submitted for a Peer-Reviewed Exploration in Teaching (PRET) program.

1. writes and revises, based on anonymous peer-review, a proposal that describes specific learning-objectives and a substantial classroom intervention that is grounded in the literature on teaching and designed to meet those learning objectives;
2. invites peers to observe and review the intervention as it is implemented;
3. allows peers to interview students (without the instructor present) to assess and report on impact on their learning;
4. reflects on a review report written by peers;
5. submits the original proposal, review report, and reflection

as the final package for additional blind peer review.

Typically, the visiting peers are from the cohort of faculty they taught in the PRET program. The peer review process includes four steps: 1) the first set of reviews in step 5 are from reviewers selected outside the cohort but who have either been past participants in the program or have distinguished themselves in teaching at the university. For example, one reviewer who served as a local guest professor for part of the cohort was assigned a primary and secondary reviewer from among the others in the cohort. The last review (of the whole back) is conducted by the program director. The following are some examples of innovations implemented through this program:

• Game design and writing in a freshman writing course.
• A writing instructor and colleague designed and played a video game that would be a realistic simulation of teaching a video game to a game session, writing the instructions, and write about playing the game.
• Simulation in an introductory political science course.

Students in this course spent four weeks conducting simulations both online and in-class to delve deeper into the material underlying the learning objectives. In teams, students represented their countries, trading, addressing global warming, fighting terrorists, and even each other. Class time was dedicated to analysis of strategies, negotiations, and some hands-on simulation.

• Case studies in an introductory biology course.

In this course, students need to present a descriptive and memorization-intensive course, were in addition given case studies that asked them to apply principles to solve a biological problem. The professor in this course, had to read further on their own, and articulate how they applied principles from the course towards addressing the questions in the case study.

To avoid merely gimmicky ideas, the PRET program requires applicants to follow a proposal template designed to force PRET participants to connect learning outcomes with their proposed exploration, and to ground this in the literature. The proposal includes:

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a cohort, the program encourages a multi-disciplinary viewpoint. Participants have often remarked about how instructive it is to have experiences of different disciplines.

The long-term goal of the PRET program is to provide teaching-focused faculty with a way to develop a strong portfolio of teaching contributions (PRETs) that, in a manner comparable with research contributions, have each been subjected to rigorous peer review and can be reported on CVs and annual reports. We will next describe the lessons learned from three years of offering the program at other universities.

Lessons from Study

Although our program had only recently been instituted, we have sought to explore its impact on faculty. Our case study is based on data from two cohorts with a total of N=14 faculty. PRET is offered every Spring semester and it is advertised through all the GW faculty listservs. The instructors who participated in the PRET program self-selected themselves and they ranged from beginners to experienced instructors. The majority of them were teaching-focused faculty. There were no changes in the PRET protocol from one cohort to the other. For the two cohorts we mentioned, we examined two types of data: (1) the products from the PRET program including proposals, comments on proposals, reviews from the peers that visited the classroom, reflections and final reviews and (2) an anonymous survey administered to participants after the completion of the program. The written materials, such as proposals and reviews, were examined by the two authors independently and initially coded according to Ambrecht’s scheme. Then, we reviewed the more complex interventions to analyze their Bloom level (Anderson et al., 2001). The raw survey data was similarly analyzed.

Given our relatively small sample size, we questioned if a survey was an appropriate tool for collecting feedback, but after analyzing alternative methods like focus groups with faculty or interviews, we decided that the anonymous survey would allow faculty to express their thoughts more freely. The survey was administered online and faculty were invited to participate. No rewards of any kind were offered to the participating faculty.

The lessons we learned can be broadly described through the following questions:

• Does PRET work for all disciplines? The faculty who undertook the program were spread across a variety of disciplines including: physics, biology, chemistry, nursing, writing, and political science and they all seemed to fit PRET.
• Does PRET work for any type of in-class courses, while its suitability for online courses would have to be further explored.

• Is PRET time consuming? Faculty spend between 30-50 hours over a semester to go through all the PRET steps.

• Does the PRET intervention have an active role in advancing the research question? We examined the proposed interventions, classifying the learning activities using the active learning inventory described in Van Ambrug, Dewis, Kriner, Qualters (2007). This tool showed us at least two results: (1) instructors choose to implement innovations that are aligned to the student-centered learning techniques and (2) instructors go beyond existing popular innovations. We have been able to map all the learning activities implemented onto the items listed by Van Ambrug’s instrument except some found in 8 (out of N=14) courses which were outside the list. This suggests that many faculty were indeed spurred into trying something altogether new. The interventions proposed by most faculty were complex (combinations of elements in Ambrug’s list, or combinations of entirely new activities), with multiple activities spread across various levels of thinking complexity.

Fig. 1 below illustrates the distribution, which shows that most activities were of medium complexity or higher.

• Does the Administration recognize PRET? Besides the reasons mentioned at the previous point, it is worth mentioning that the institutional administration (or at least the part that is represented by the administration) was an appropriate tool for collecting feedback, but after analyzing similar data, we felt that the PRET program had some unique elements that could not necessarily be compared to other similar projects. Our case study is based on the two cohorts we mentioned, the program encourages a multi-disciplinary viewpoint. Participants have often remarked about how instructive it is to have experiences of different disciplines.

• The questions considered to be explored by the administration were complex (combinations of elements in Ambrug’s list, or combinations of entirely new activities), with multiple activities spread across various levels of thinking complexity.

PRET is now not only a part of the formal university event celebrating teaching. Additionally, PRET has its own website administered and supported by the administration. The feedback that we received from the participants led to its recognition by the administration. PRET is now not only a part of the formal university annual report form, but also a part of the tenure and promotion portfolio.

• How are faculty concerns about student evaluations addressed? It is well-known that faculty perceive that classroom innovation can sometimes bring about weaker student ratings (Michael, 2007). This is one reason why the program explicitly eschews the standard end-of-semester ratings in favor of peer reviews and student focus groups run by faculty.

The feedback that we received from the participating faculty, suggested that faculty tend to return to the resources invested in PRET.

• What is the impact of the program on faculty tenure and promotion?

How could such a program be adopted at other universities? What is involved and what are the costs? We propose that the university’s teaching center together with strong support from the administration launch a pilot cohort as we did. Early-adopter faculty would need to be recruited for the first cohort, after which they would serve as evangelists. Clearly strong support from the administration is necessary, both in messaging and the willingness to recognize those who complete the program. The only real cost is the time similarly needed by the program’s administrator, possibly a faculty member granted some release time.

CONCLUSION

In this paper, we made a case for spreading the wealth of innovation in teaching. Innovating and exploration is fun, stimulating and deeply satisfying, but is challenging to achieve in a teaching climate dominated by student ratings and weak recognition by colleagues and administrators. The PRET program was designed to offset these barriers to innovation by providing a structured process to encourage and support faculty in innovation, while providing rigorous peer review and administrative recognition. In addition, the program allows faculty to accumulate a number of these, each the rough analogue of a research article, into a record of sustained contributions to teaching. The program is ongoing at George Washington University, with the goal of recruiting more faculty, chairs and administrators in support.

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