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

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Abstract
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Keywords
Teaching innovations, recognizing teaching excellence

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

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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.

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 & Freishtat, 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 and provide a record of work. The first ask is whether 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, etc.) to support this. On the other hand, aside from the SOTL that works for a few faculty, all we commonly have are student ratings and the occasional classroom visit. However, quantitative studies have “what it means to be a scholar” as an outcome. Critics argue that the terms are not clear (Pan, 2009) and even today most faculty are still trying to define the concept. Yet, some examples show that the institutionalization of SoTL is possible. Marketti and colleagues (Marketti, VanDerZanden, Jardeleza, 2011) interviewed 18 faculty from all ranks whom she called SoTL champions. The interviews revealed that, even though initially many of the faculty became interested in SoTL because they were looking for ideas to improve student learning, over time they found additional personal and professional benefits beyond the ones related to promotion and tenure. The PRET program tries to strike a middle ground by making exploration and peer-reviewed contributions more accessible to faculty.

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 across the disciplines;
• features multiple forms of rigorous intramural peer-review;
• is grounded in the literature on pedagogy, and the scholarship of teaching and learning;
• and, of course, stimulates exploration beyond the usual established techniques in active learning.

Our program was instigated in Spring 2012 and is informed by innovative trends in education (Beichner et al., 2007; DeHaan, 2005; Holden & Lander, 2012) and encourages both curiosity-driven and problem-driven approaches. We wanted a program that:

• is grounded in the literature on pedagogy, and the scholarship of teaching and learning;
• 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, the scholarship of teaching and learning;
• and, of course, stimulates exploration beyond the usual established techniques in active learning.

Having described the program, we now ask: does the PRET program meet these criteria? We argue that the combination of the proposal, the reviewers’ report, and the reflection roughly parallel a research article (an experiment, the results of the experiment, the anonymous review of the proposal and the final package) and partly in person (the review team sent to the classroom). The program evaluates impact on students through a focus-group interview. Finally, because proposed ideas are shared widely within
a cohort, the program encourages a multi-disciplinary viewpoint. Participants have often remarked about how instructive it is to observe the PRET interventions at other universities.

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 has 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 integrated according to Ambrecht’s approach. Then, we reviewed the more complex interventions to analyze their Bloom level (Anderson et al., 2001). The raw survey data was analyzed after the completion of the program. The written materials, such as proposals and reviews, were examined by the two authors independently and integrated according to Ambrecht’s approach. Then, we reviewed the more complex interventions to analyze their Bloom level (Anderson et al., 2001). The raw survey data was analyzed after the completion of the program.

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

• Does PRET work for all disciplines? The faculty who undertook the model were spread across a variety of disciplines including: physics, biology, chemistry, nursing, writing, and political science and they all seemed comfortable innovating according to the PRET protocol. Additionally, we found no evidence of any situation in which a faculty member wanted to participate in PRET and found it inappropriate for his or her discipline. Thus, we have reasons to believe that PRET works for any discipline. Is PRET suitable for all courses? The courses included freshman courses (9 cases), courses required for the major (13 instances) as well as graduate courses (2 courses). The instructors of PRET courses were assigned to different categories. All of these courses were in-classroom courses. Therefore, we think that PRET seems to be suitable for any type of in-class courses, while its suitability for online courses would have to be further explored.

• Does PRET time consuming? Faculty spend between 30-50 hours over a semester to go through all the PRET steps. Does PRET provide an active role in advertising PRET? In question, we examined the proposed interventions, classifying the learning activities using the active learning inventory described in (Van Ambrugh, Devlin, Kirwin, 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 Ambrugh’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 Ambrugh’s list, or combinations of entirely new activities), with multiple activities spread across various levels of thinking complexity. Figure 1 below illustrates the distribution, which shows that most activities were of medium complexity or higher.

• What do participating faculty think about teaching innovation? Faculty feel strongly that innovation is important (84%) and listed the following as the top three barriers to innovation: (1) Lack of administrative recognition (69%); (2) significant effort needed (62%); (3) lack of recognition from colleagues (54%). Does faculty innovation have an impact that outlasts the teaching program? Faculty continue to use their PRET ideas in their classes. The remaining ones realized through the PRET program that their innovation was either not appropriate for their classes, or too time consuming, or required further modifications that they are working on. What is the impact of the program on faculty tenure and promotion? 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.

• Does the Administration recognize PRET? Besides the reasons mentioned at the previous point, it is worth mentioning that the program was adopted in some related fields and in sponsoring PRET related events and in sponsoring PRET faculty to disseminate their PRET experiences at GW’s Teaching Day, an annual event celebrating teaching. Additionally, PRET has its own website administered and supported by the administration.

• Once the program is complete, does the sustained change in the classroom endure? To justify the return on the resources invested in the program, the faculty continue to use the PRET innovation in the classes after they complete the PRET. Some of them even start to present their findings at national conferences, besides their presentation at the GW Teaching Day. This is one reason why the program explicitly espouses the standard end-of-semester ratings in favor of peer reviews and student focus groups run by faculty.

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 Intrepid, 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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