

Sustaining Student and Faculty Success: A Model for Student Learning and Faculty Development

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Abstract

We begin this essay with a brief description of the four-year multidisciplinary faculty development project in which we participated. After describing some of the successes of the project, we argue that three elements of our approach were integral to the increases in student learning that were facilitated by project participants: (1) The Learning Question, Disciplinary Expertise, and Foundational Learning Theory, (2) Collaboration and Evaluation, and (3) Public Support and Professional Acknowledgement.

Keywords: Faculty Development, Sustaining Student Learning, Core Curriculum, Early Major Courses

Introduction

"Truly, this project has been a welcomed source of light."

Beginning in 2002 teams of faculty at Ball State University began probing deeper into how to enhance student learning. Each of the faculty participants in "Sustaining Learning in Core Curriculum and Early Major Courses" created and implemented unique discipline-specific applications of learning theory to address participant-identified student learning problems. Over the next few years these faculty read widely in 'the scholarship of teaching and learning' [SoTL], analyzed data concerning their courses, submitted their pedagogies to peer review, dismantled and reassembled course designs, implemented revised pedagogies, assessed their work, reread, engaged in further peer review, redesigned again, and implemented re-revised pedagogy. Data suggest that the innovations implemented by these faculty increased student learning and to some degree retention.

Based on our successes we argue that faculty development efforts can improve student learning by moving faculty toward scholarly teaching and by assisting them to become scholars of teaching and learning. To accomplish this, faculty development should embody three key elements: (1) The Learning Question, Disciplinary Expertise, and Foundational Learning Theory, (2) Collaboration and Evaluation, and (3) Public Support and Professional

Acknowledgement. Before discussing these elements, however, we provide a brief description of the project and its successes.

Project Description

"Sustaining Learning" was designed to invest in teams of four faculty members for each of three summers as they sought answers to their teaching and learning questions in specific core or early major courses.¹ Participants were selected as a result of a competitive process based upon evidence of potential or achievement as scholarly teachers and based upon the clarity and the nature of the learning problem they intended to pursue (see Glassick, Huber, & Maeroff, 1997). In each of three summers these teams of faculty gathered for approximately forty hours of face-to-face discussions informed by preparatory reading and pedagogical design. Readings such as Bransford, Brown, and Cocking's *How People Learn* (2000) initiated those discussions of current learning theory (see also Bruer, 1993; Zull, 2002).

Gradually each participant focused on SoTL, targeting the specific learning problem s/he was addressing, including discipline-specific SoTL. In light of and through these group discussions each participant began developing course modifications for the following semester, with these modifications eventually becoming the topic of conversation and evaluation. During the academic year and subsequent summer workshops, these modified strategies were discussed, revised as needed, and re-implemented in later semesters.

Finally, most participants moved beyond scholarly teaching to present their work at peer-reviewed conferences, and some even published articles on their work. Grant funds paid faculty for their time in the summer and travel expenses to teaching and learning conferences.

Project Successes

To quantitatively assess the project as a whole we used mean course grades, student grade point averages, and retention rates to compare courses taught after pedagogical modifications both with the same course taught by the same faculty member before course changes, and with the same course taught by other faculty during the same semester course changes were implemented. These assessments were repeated for each fall semester during the grant period. Faculty members were also encouraged to develop individual assessments tailored to each of their projects.

Though this essay does not allow us to offer an in depth discussion of the impact of this project on student learning and retention (see Ranieri et al., 2008 for further information), the following points, and our interpretation of them, provide a flavor of that success:

- *Fewer Students At Risk Of Academic Probation Or Dismissal*
In a writing intensive, small Introduction to Philosophy core course the number of students receiving "D's" or "F's" dropped from 18% (pre-innovation, 2002) to 5.3% (post-innovation, 2003). In a large lecture core class, Mythologies of the World, the percentage of "F's" for first-year students dropped from 63% (pre-innovation average 1999-2002) to 11% (post-innovation average 2003-2005). Also relevant, given the predominance of large classes for first-year students, are the statistically higher exam grades in a large Introduction to Sociology core course (identical exams

used pre-innovation[2004] and post-innovation[2005]). Each of these course modifications is critical for strengthening the early college experiences of first-year students.

- *Students Develop Generalizable Skills (Higher Grade Point Averages)*
Students in the six core curriculum courses analyzed posted higher grade point averages than students in the same class taught by the same faculty member before modifications were made. With very few exceptions these higher grade point averages continued across three or four semesters for the courses assessed. This result suggests that students taught how to begin to master one discipline's epistemology and content find it easier to begin to master other disciplinary epistemologies and content. We believe making changes that help students "think with" and "think like" discipline experts improves learning in both core and major courses (see Fink, 2003). Consistent generic pedagogy is good; discipline-specific solutions to learning problems are much better (see Williams & Stockdale, 2003).
- *Student Learning Improves Overall (Higher Mean Course Grades)*
Six of nine core curriculum and early major courses assessed immediately after course modifications posted higher mean course grades when compared with similar sections taught by other faculty during the same semester. Six of nine core curriculum and early major courses assessed immediately after course modifications posted higher mean course grades when compared with the same sections taught by project faculty before modifications were made. Improvement is sustained in both cases in later semesters for all early major courses assessed. With faculty consciously implementing teaching strategies based upon valid scholarship of teaching and learning, student learning more consistently improves than in courses with pedagogy less informed by SoTL.
- *Consistent Results Within Disciplines*
Two instructors from both Fundamentals of Human Health and Introduction to Philosophy participated in "Sustaining Learning." The higher student grade point averages in revised courses were consistent across both project participants' sections, even when different aspects of the course were modified. We believe this result further supports the conclusion that scholarly teaching enhances learning more consistently than does non-scholarly teaching.
- *Early Majors Exhibit More Flexible Thinking*
After course modifications where the instructor changed how he interacts with students in an Orientation to a Major in Psychology course, those students became statistically more likely to consider an increasing number of career options. We believe shifting away from an information giver/receiver to an expert/novice mentoring relationship increases student awareness of more flexible disciplinary thinking. Other anecdotal evidence exists for similar improvements in flexible thinking by students in courses in Parks & Open Design, in Computer Science 1, and in Introduction to Social and Cultural Issues in Design.
- *Short-Term Increased Retention, Primarily For First-Year Students*
In fifty percent of project participants' post-innovation courses students were retained into the subsequent semester at rates higher than they were pre-innovation. In subsequent semesters retention rates returned to the same rates exhibited by other course sections. We believe this result indicates that pedagogy

developed by project faculty produces retention-related benefits primarily for first-year students. After those students are helped, they seem to exhibit levels of success equal to other students.

- *Reflective Faculty Assessment*

Finally, in reflective faculty assessment, participants highlighted five benefits of this project relevant to their and their students' success: the power of collaborative discussion with colleagues even from disciplines that do not share one's own expertise and disciplinary assumptions, the power of extended discussion of teaching principles for improving pedagogy, the power of nurturing a novice-expert relationship, the power of being creative, of taking risks even for experienced instructors, and the power to increase the value of the Scholarship of Teaching and Learning with the university.

Three Characteristics of a Successful Faculty Development Program

In light of the quantitative and qualitative results described, we have identified at least three essential characteristics of faculty development projects concerning teaching and learning.

The Learning Question, Disciplinary Expertise and Foundational Learning Theory

On the one hand, approaches to faculty development that offer one-time sessions addressing "teaching tips" lack the power to affect long-term change because they often do not enrich how faculty think about student learning. On the other hand, one-size-fits-all seminars that merely address discipline-neutral principles are insufficient because they do not solve concrete problems. While foundational principles in learning theory are key components to the solutions faculty eventually develop, general theory is not enough to help them reach their goals; the success of their curricular changes rests on their ability to adapt general educational theory to the contexts of or "ways of knowing" within their specific disciplines. Thus, our approach begins with a learning question that is unique to an individual faculty member, enhancing that faculty member's motivation for sustained study, even if any answers are ultimately provisional and subject to further refinement.

Project faculty examined a variety of discipline-specific questions. For example, a Physiology and Health Science professor teaching a large (90-225 students) class wondered: "How do I engage students in understanding and appreciating information concerning 'racial and ethnic disparities in health status?'" A history professor teaching a large class asked: "How can I best prepare freshman students to confront social problems by means of integrating material from across disciplines?" An Interior Design Professor posed the following question: "How do students come to learn that 'good design' evolves?" That is, how can they be convinced that they cannot just "jump" into design without taking time to think about strategy, philosophy, and audience – the "why"? A professor of Classics wondered: "How do I address the needs of high performance students, low performance students, and those in the middle in a large, lecture-format world mythology course?" A Sociology professor evaluated the "best way to improve students' understanding of and ability to answer application-based, multiple choice questions on exams" (see, for instance, Holtzman, 2008).

In our project faculty reaped the long-term benefits of problem-based learning, especially improvement in their ability to develop pedagogical innovations, by becoming students of SoTL (see Barell, 2006; Duch, Groh, & Allen, 2001). What is crucial here is that individual

faculty applied discipline-neutral learning theory to the discipline-specific difficulties their individual students experienced. Solutions, therefore, emerged as faculty considered scholarship specific to their fields while simultaneously consulting the literature on discipline-neutral teaching principles. In the end, students reaped the benefits of the resulting integrated pedagogy (see McKinney, 2007).

The key is that discipline experts themselves must fuse the discipline-neutral theory to discipline-specific learning problems (see Pace, 2004). Discipline experts have the most robust understanding of the specialized ways in which academic tasks are used to achieve unique goals. So, while every faculty member will be more effective when offering students authentic learning experiences and timely formative assessment, effective teachers will contextualize their pedagogy even further. Broadly speaking, successful teachers construct learning activities when they are informed by the biology of learning and knowledge of the cultural variations within their student populations. Desired competencies emerge when students participate in learning activities that are scaffolded and metacognitively engaging, and which expose and make use of students' pre-existing knowledge structures (Bransford et al., 2000; Bruer, 1993). In addition, the ability to transfer new skills to novel situations is facilitated by learning experiences that involve repetitive, increasingly complex and authentic student practice guided by prompt formative feedback.

For instance, one participant's "how to read primary philosophy texts" project is interesting not only because of the instructor's belief that students in core curriculum courses should read primary texts whenever possible, but also because the problem inherent in the question itself involved reading—"How do students in fact attempt to read primary philosophy texts?" After associating this question with the development of advanced reading and cognition skills, the course instructor coupled general theoretical knowledge about scaffolding and metacognition with his own discipline-specific philosophy skills in order to design a series of classroom assignments that help students master the task of reading primary philosophical texts. As an expert in philosophy, he was able to determine which assignments students should complete to improve their ability to read philosophy as philosophers read philosophy (Concepción, 2004).

In sum, each faculty participant developed pedagogical innovations that were both informed by the best current educational theory and contextualized by disciplinary knowledge matched to the learning problem initially identified.

Collaboration and Evaluation

As noted above, each faculty member participated in forty hours of face-to-face discussions of common readings and individual projects. While not every faculty development project concerning teaching can or should require this depth of commitment, our experience suggests that such intensive study is well worth the time and money required for it to happen. Becoming a part of a community of scholars of teaching and learning who make a culture of courageous innovation is crucial to long-term impact on student learning (see Huber & Hutchings, 2005).

Jean Piaget (1972) once noted that "formal operations," or for instance, the ability of one person (faculty or student) to engage in advanced metacognitive thinking, could best develop through "co-operating" or "operations carried out in common." This principle lies at the heart of all successful collaboration. Engaging in open, idea-driven speaking and listening allows members of a group not only to borrow ideas they hear, but to internalize the way others think through ideas, consider assumptions, imagine possibilities, consider

options, evaluate details, and select directions. In effect, open self-reflection in a collegial, supportive environment leads to further, more fruitful self-reflection, evaluation, and planning. Every "Sustaining Learning" participant at some point in the project did, in fact, comment on the value of our extended discussions.

Specifically, project participants learned a wider variety of ways to match disciplinary knowledge to educational principles by reviewing and evaluating their colleagues' attempts to do so. Further, participants borrowed ideas when they were transferable across disciplines. Finally, because project participants were from departments throughout the university, they had a ready, interested, and educated test audience that required them to make their innovations accessible to others unfamiliar with the discipline. Many faculty peers are no more familiar with the epistemologies and content of foreign disciplines than are the student novices in our classes. Talented, generous, fellow pedagogical innovators with relatively little expertise in each other's disciplines can anticipate valuable questions and question unclear curricular changes before they are implemented.

The multi-year aspect of this project also improved collaborative and modeling efforts. When a new team of faculty began meeting, members of the group from the previous year participated, enabling returning faculty to continue to develop their idea base while enabling new faculty to see the on-going nature of successful pedagogical innovation and curriculum change. Returning faculty especially modeled later stages in the curriculum design process: review, re-design, and assessment. These returning faculty were also becoming campus leaders in learning and teaching, rejuvenating their interest in the classroom, and even emerging as voices within their own professional organizations. Finally, experiencing such "modeling" is an effective means for all faculty to develop their own abilities to nurture "modeling" among students in their own classes.

In sum, faculty participants were able to combine collegial feedback and critique with their own individual-level assessments and refinements in order to design highly effective curricular changes for their courses, gradually enlarging a group of colleagues who could continue this process beyond the life of the grant period.

Public Support and Professional Acknowledgement

As Lee Schulman (1988) notes, SoTL must be public, peer-reviewed and accessible to other members of the scholarly community. We noted above that one reason for this is the role peer-review plays in quality assurance. Faculty know, all too well, the role public, peer-reviewed presentations and publications play in their careers.

Many good faculty development projects are derailed because faculty feel that, in the end, their time cannot be spent on activities for which they are not assessed and promoted. On campuses where faculty know that peer-reviewed presentations and publications matter, successful faculty development projects must address and provide for this demand when designing programs and recruiting participants. Participants in "Sustaining Learning" were encouraged and supported in their efforts to deliver peer-reviewed conference presentations and to publish journal articles. Over five years, this project led to fifteen peer-reviewed presentations, four peer-reviewed publications, and one national award of excellence.

As we expected, participants who presented and published were rewarded in promotion, tenure, and merit pay evaluations. What is striking about our case, however, is how the work of this project changed the ethos regarding the value of SoTL in at least one college of our university. One year the faculty from this project constituted one-fourth of the

candidates for promotion within one college. One participant in that promotion process observed that he had never witnessed such a lively discussion of good teaching as what occurred that year in the college committee. For that year, candidates from this project—all of whom exhibited peer-reviewed entries on their vita—affected the rankings for promotion, improving the results for project participants and reducing the results of those who could present no similar work on teaching and learning. When scholars of teaching and learning produce excellent results, gatekeepers take notice. Through peer-reviewed presentation and publication, faculty in the “Sustaining Learning” project have not only leavened the conversation about teaching and learning nationwide and enhanced their salary, promotion, and tenure opportunities on campus, but they have also changed a campus ethos regarding SoTL. When faculty wonder if spending time on their classroom-related study and research will lead to promotion and tenure, our experience is that it does, especially if a “critical mass” of faculty are involved.

“Promotion and tenure” seems a far stretch from that initial request for faculty to propose a “learning question” that they can explore in a faculty development project. Yet, funding faculty to answer their questions, and funding their travel to related conferences turned out to be just the right catalysts for change and success. Provide faculty members a time and space of their own, the chance to stretch their expertise in an environment of supportive yet critical peers, and the opportunity to earn the respect and rewards of their profession, and student learning will improve. A faculty development project such as the one described here seems to be a modest investment for any college or university.

Implications and Conclusion

One worry of those who initially reviewed the grant proposal for this project was whether, at the cost of about \$35,000/year for three years, just 12 faculty would have a big enough effect on the learning of an institution. In fact, over the initial three-year period of this grant (and largely only in the fall semester of those three years) 3742 students were taught in classes modified as a result of work from this project. A large effect follows even when just a few faculty members focus intently on answering real questions about their classes.

Working extensively with faculty who place learning at the heart of their professional efforts brings into clearer focus three other currents in post-secondary education. First, this project helps validate the importance of first-semester and first-year courses at a time when the economics of large institutions are moving toward less faculty contact (i.e., more TA’s, more adjuncts, larger classes) with first-year students. Data from our office of Academic Assessment indicated that in Fall 2004, first semester students primarily in large classes (that is, registered for 60% of their credit hours in classes of more than 70 students) posted gpa’s more than half a point lower, and retention rates 5.6% lower, than students registered primarily in small classes (i.e., 25 or fewer students). Further research on a random sample of first-year students in 2006 who did not return for classes in Spring 2007 showed that half of those non-returning students were registered in the fall for classes that were primarily large (28%) or a combination of large and medium sized classes (22%). On the one hand, large classes, a growing economic necessity for many universities, have a negative effect on student learning and retention. On the other hand, our results show that faculty addressing learning questions regarding their first-year and early major courses can mitigate these negative effects.

Second, faculty success in this project seems connected to the move away from passive learning to active learning. For example, one faculty member teaching a Fundamentals of Human Health course recognized the importance of enabling students to observe, critique, and learn from faculty reflections and decision-making, in his case the need to recognize the health needs of minority populations. As he explained in one of his reports, "I started by talking about my early years growing up in the 1950s in South Carolina and seeing essentially two standards of living and two standards of education and two standards of health care. [My] first discussion [in my revised health science course] was an attempt to get the students to see what 'my reality' was at that time, and to have them see the original basis of my interest in this topic." If faculty members are to ask students to be intentional and reflective, if we are to expect students to understand the ways a discipline "knows," then we need to show them how we as experts reflect on and make similar decisions. Further, when allowing students to see faculty reflect about our pasts, connect to the present, and speculate about the future, we model for them the "personal" and "life-long" aspects of learning.

Third, moving from a knowledge giver/receiver relationship to an expert/novice mentorship is often the key to successful innovation in both core curriculum and early major courses. However, the way that metaphor is applied to core curriculum and early major courses may be different. In the case of core classes, enabling students to experience the depth of such essential skills as reading, writing, and critical thinking within a specific discipline might be the starting point for being able to generalize careful reading, writing, and critical thinking to other discipline areas, while for early major course, the key might be to scaffold students through inquiry projects, projects that also use upper-division students as additional guides ("translators," if you will) modeling the epistemology of a discipline.

These three issues in post-secondary education—faculty's ability to develop effective pedagogies to mitigate the negative impact large classes have on learning, the need to introduce students to the epistemology of a discipline and not just have them memorize content, and the related movement away from the faculty member as "objective" deliverer of information—all can be directly addressed by placing faculty questions and discipline-specific pedagogy at the heart of faculty development programs. As Vincent Tinto (2007) reminds us about at-risk, low-income students, "What these and other [successful efforts at improving learning] have in common is the recognition of the centrality of the classroom to student success and the need to restructure our efforts and the support students receive in those places of learning which, for most low-income students, may be the only place on campus where they meet each other and the faculty and engage in learning." We suspect Tinto's advice applies to all students, as well as all faculty.

On our campus we have felt the positive effect that multi-year, multi-disciplinary faculty development regarding teaching and learning can have on all student learning and faculty advancement. We see no reason why, if the three characteristics of a successful faculty development program outlined here are followed, that other campuses cannot experience the same level of success.

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Note

¹ Core curriculum courses represented in this project included Introduction to Philosophy (two faculty), Fundamentals of Human Health (two faculty), Mythologies of the World, The West in the World, and Principles of Sociology. Early major courses represented in this project included Interior Design Studio 1, Park and Open Space Design, Orientation to a Major in Psychology, Computer Science 1, and Introduction to Social and Cultural Issues in Design.