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Learning Assistants Program: Faculty Development for Conceptual Change

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The purpose of this study was to investigate the effects of a student-centered faculty development model on the conceptions of teaching of participating US Arts and Sciences faculty members. "Student-centered learning models are widely accepted as catalysts for improved learning and psychosocial outcomes, and their use is especially important in the critical early years of an undergraduate education" (Miller, Groccia, & Miller, 2001, p. xv). In 2007-2008, Widener University implemented a pilot program to investigate student-assisted teaching, an instructional process where undergraduates are given responsibility by faculty for portions of their fellow undergraduates' learning experience. This Learning Assistant Program (LAP) investigated a faculty development model that could improve educational effectiveness by increasing student involvement in course design, student learning, and pedagogy. In this study, two faculty collaborated with three student learning assistants (LAs), under the direction of two pedagogy coaches to redesign courses and monitor progress of those courses during one semester. Findings from this qualitative study indicate increased satisfaction of faculty with their course designs, accompanied by increased knowledge about course design strategies and pedagogical teaching methodologies; a broadening of both the faculty and LA conceptions about teaching and learning; and the development of an academic collaborative culture. The success of this program has initiated a LAP in the University's School of Human Service Professions and another iteration was implemented at a local community college.

Traditionally, teaching in a higher education classroom has been a private, teacher-directed process with little input from other academic colleagues or students. Changing student populations, emerging technological teaching tools, and increasing emphasis on assessment and accountability are some of the issues that have triggered an interest in reflecting on this conventional solitary approach to teaching. Shulman points to the need to shift the "status of teaching from private to community property" (1993, p. 6) and one way that institutions of higher education have responded to this call is through the use of student-assisted teaching models. The purpose of this study was to investigate the effects of a student-centered faculty development model on participating US Arts and Sciences faculty members' conceptions of teaching.

Many different models for using student voice in the design and implementation of coursework exist in the literature and each has a variety of goals and outcomes. The University of Colorado has been successful in designing a program to entice science majors into the teaching profession by having selected learning assistants "support and sustain course transformation" (Otero, Finklestein, McCray, & Pollock, 2006, p. 445) while improving their own pedagogical content knowledge. The Pennsylvania State University uses within-class student consultation teams to identify and examine issues brought forth by both faculty and students (Kinland, Lenze, Moore, & Spence, 2001).

> At Bryn Mawr and Haverford Colleges, Students as Learners and Teachers (SaLT) meet with faculty members to find out which pedagogical issues [they] want to focus on, visit faculty members' courses and/or interview students in the courses, engage in dialogue with faculty members about what they see and hear, and participate in weekly reflective meetings with other student consultants and the Teaching and Learning Initiative coordinator. (Cook-Sather, 2008, p. 1)

At Brigham Young University in the Students Consulting on Teaching (SCOT) program, faculty can opt to use student consultants in a variety of roles, from an observer who chronicles what is going on in the classroom during a given class period to a faux student who takes notes as if he/she is a student in the class and returns them to the instructor (Brigham Young University Faculty Center, n.d.). Over the past 20 years, Miami University has utilized faculty learning communities, adding student associates several years ago as they realized that "students provide feedback: as observers, as consultants on teaching projects, and as consultants about student life outside of the classroom" (Cox, 2001, p. 168).

These initiatives point to a shift in the academy where faculty focus on students as learners rather than solely on their own teaching. Barr and Tagg (1995) use the phrase "Teaching to Learning Paradigm Shift" to refer to the shift that occurs when faculty adjust to new constructs and strategies for active learning and student-centered practices. The Teaching Paradigm describes a teacher who focuses on the act of teaching. The Learning Paradigm describes instruction that

focuses on the student and what the student is learning. Barr and Tagg (1995) contend that, as faculty become more focused on active learning and students, they make a shift in their teaching practice from a teaching focus to a learning focus. This type of shift in practice requires faculty to rethink their roles, course design strategies, and teaching practices (Arreola, Aleamoni, & Theall, 2001; Weimer, 2003).

> This shift involves thinking a great deal, first, about the specific learnings sought, and the evidence of such learnings, before thinking about what we, as the teachers, will do or provide in teaching and learning activities...the challenge is to focus on the desired learnings from which appropriate teaching will logically follow...In short, the best designs derive backwards from the learnings sought. (Wiggins & McTighe, 2005, p. 14)

However, a shift in paradigm is a very difficult thing to achieve, requiring both a change in teaching conception as well as practice. According to Boyer (1990), Ph.D. preparation in the US requires highly specialized subject-matter mastery with little emphasis on developing one's conceptions about or ability to teach. Though teaching is embraced by the intellectual community of some professional fields, Neumann (2001) notes that in hard pure, hard applied, soft pure, and soft applied disciplines, teaching has come to be viewed as something "that you lay on top of your real work, unconnected with the disciplinary community at the heart of being an academic" (p. 144). "It is not surprising, then, that many professors consider themselves subject experts and scholars rather than teachers or even teacher-scholars within their discipline" (Saroyan et al., 2004, p. 16).

Ho, Watkins, and Kelly (2001) describe how faculty develop personal teaching conceptions from long years of classroom experience as students and subsequently teachers. These conceptions can be seen as the specific meaning that is ascribed to one's experience of teaching (Light and Calkins, 2008). Our conceptions then mediate our response to all situations/phenomena that involve teaching (Kember and Kwan, 2000). These entrenched conceptions impact the selection of teaching approaches and as such, have become the focus of a body of work that categorizes teaching conceptions along a continuum, in a hierarchy, or according to their potential for variation (Akerlind, 2003). No matter the categorization scheme, the literature points to a teacher-centered/content-oriented conception where the focus is on imparting information and transmitting structured knowledge or a student-centered/learning-oriented conception where the focus is on facilitating understanding and the conceptual change and intellectual development of students (Akerlind, 2003; Kemper & Kwan, 2000; Light & Calkins, 2008; McKenzie, 2002, Prosser & Trigwell, 1999).

Though there is literature that describes what course design *should* look like, there is no equivalent body of literature that documents how faculty actually design their coursework. Most often, they design courses based on the structure of the discipline where the course is framed according to a logical division of topics; the structure is typically not related to student interest, learning style, or everyday life (Toohey, 1999). In the list of topics approach, "the teacher looks at the subject, creates a list of eight to twelve topics on it, and then proceeds to work up lectures on each topic" (Fink, 2003, p. 61). In a recent qualitative, phenomenographic study examining exactly how faculty approach course design and implementation, Ziegenfuss (2007) found that the most common method of course design is trial and error. This traditional academic training in content without accompanying pedagogical/course design preparation, and faculty dissatisfaction with the classroom results of such practices, became the basis for the Learning Assistants Program (LAP) at Widener University. The results of the pilot program suggest that a sustained consultation model using both student voice and pedagogical expertise could lead to the conceptual change necessary for a paradigm shift in higher education.

Evolution of the Learning Assistant Program

The LAP was conceived to redress the lack of faculty members' pedagogical preparation in course design and implementation within this tradition of student-assisted teaching models. Over the past few years, Widener University has been investigating ways to incorporate faculty development into its institutional structure. A new office of faculty development was set up in 2005 and a series of informal teaching and learning conversations began in an effort to design this office as one that draws from the needs and ideas of faculty. This venue provided an interdisciplinary opportunity for faculty to talk publicly about issues related to their teaching practice. Four faculty members (English, Chemistry, Education, and the Director of the newly formed office of faculty development) began a dialog about looking at student perspectives as related to teaching and learning and the classroom experience. Further networking with members of an inter-institutional Teaching and Learning Center Consortium supported by the NSF- funded Math and Science Partnership of Greater Philadelphia (MSPGP) transposed this casual conversation about alternative perspectives regarding student learning into a multidisciplinary research project.

Methodology

Since the purpose of this research was to build a deeper comprehension of a student-centered faculty development approach where faculty worked together with students to design and implement instruction, a qualitative research approach was deemed to be the most appropriate methodology for providing the most detailed picture of this process. This research study used a grounded theory qualitative methodology (Strauss & Corbin, 1996) where data in the form of interviews, focus groups and journals from the LAP participants were analyzed line by line, identifying emerging codes and categories. Conceptions about teaching and learning and course design were collected from both faculty and undergraduate student learning assistants. This research provides faculty developers with a research-based case on which to design and develop professional development opportunities for faculty/student collaboration and informs the literature that already exists on course design strategies and the importance of student-centered methods (Fink, 2003; Saroyan, et al., 2004; Toohey, 1999; Weimer, 2002).

Course Design Workshops

The research began in August 2007, when an intake survey was distributed to all LAP participants and the results were compiled as a starting point for two summer workshops. The intake survey included items that asked participants to list the five most important keys to effective teaching/ learning, and describe the characteristics of a teacher who facilitates student learning. Faculty were asked to list two questions that they would like to ask students about learning. Students were asked to list two questions that they would like to ask faculty about teaching. The learning objectives for these two sessions included analysis of various conceptions on teaching and learning drawn from the intake survey; understanding the individual roles of each of the participants and how these roles intersect; and understanding the characteristics of viable learning objectives and associated assessment tasks as related to the concept of backward design (Fink, 2003; Wiggins & McTighe, 2005). With this data from the intake survey, the pedagogy coaches designed two workshops for the disciplinary faculty and the LAs to begin the process of redesigning their courses using the L. Dee Fink model of creating significant learning environments (2003) and the ideas inherent in backward design (Wiggins & McTighe, 2005).

Course Implementation Plans

In the two sections of composition, each with its own learning assistant, the focus was on engaging students in their own learning and facilitating critical thinking. The learning assistants were asked to observe classes biweekly, each time noting different things: for example, range of student participation, group work activities, oral report presentations, understanding essay assignments. After each classroom observation the LAs would write a report and meet with the instructor to discuss the results. The chemistry learning assistant attended weekly recitation sections which were facilitated by the instructor using Process Oriented Guided Inquiry Learning (POGIL). In the class, the LA observed process and content mastery by sitting near a group to watch and listen using a set of prompts developed jointly by the instructor and the LA. Outside of the classroom, she reviewed test questions for their congruence with the stated course objectives and the assessment map. The objectives and map had been created jointly by the instructor and the learning assistant during development of the syllabus, using the Ideas, Connections, and Extensions (ICE) taxonomy (Fostaty Young, & Wilson, 2000).

This project was intended to provide data that would answer the following research questions:

- What are the benefits and challenges of implementing a learning assistant program where faculty and students engage in collaborative work related to teaching and learning and course design?
- What are the conceptions of faculty and students about teaching and learning while participating in a learning assistants program?
- What is the value of interdisciplinary faculty working together to design courses and be involved in a learning assistants program?
- How could this program be adapted for other faculty in other disciplines?

Study Participants

This research is a case study based on the experiences of two faculty from different disciplines (Chemistry and English). These two faculty worked with three undergraduate students to redesign and then implement their courses. Two pedagogy coaches, a faculty from Education and the Director of the faculty development center, worked together to plan and facilitate the six month process and study. Both participating faculty were tenure-track faculty in their respective departments and each was interested in incorporating a student perspective into their course design process. Both participating faculty had worked previously with the faculty development center and willingly volunteered for this study.

Data Collection and Analysis

Data collection in this study focused on documenting conceptions about teaching and learning and course design from three different constituents: faculty, learning assistants, and enrolled students. Data focused on faculty reflections and discussions about their unfolding experience, student learning assistant conceptions about their role in the design and implementation of a teaching plan, and the attitudes of students enrolled in these three sections of two freshman courses. However, for the purpose of this pilot case study, only LA and faculty data are utilized to report the findings. Data collected from students enrolled in the courses of LAP faculty were for the primary purpose of future course improvement, and were used to triangulate the faculty and LA data, but were not used as a primary data source for the study.

Data were collected and analyzed during three phases of the study: a pre-semester phase where faculty and learning assistants participated in course design workshops and worked together to design two courses; a course implementation phase where data were collected to monitor the progress of the course and the learning assistant program collaboration; and a post course phase where post-experience reflective data were collected about the LAP experience. This study utilized a formative data collection and analysis strategy; that is, data were collected and analyzed across the entire study and findings informed questions used in future interviews and prompts for journal reflection.

In each phase of the study, the data were transcribed into a digital format and were analyzed line by line. Audio taped meetings and discussions were transcribed line by line and electronic meeting notes and reflections were also incorporated verbatim. Coding was conducted using open coding methods as defined in grounded theory methodology where codes are freely assigned to text and are not selected from a predetermined list of codes. Codes were then consolidated, combined and in some cases renamed to create the smallest number of unique categories. In each phase of the study, codes and categories were defined that were used to inform the next phase of the study. Codes and categories were defined separately for the faculty and learning assistant data sets, looking for similarities and differences between the two groups. Notice was also taken of continued occurrence of categories across the phases of the study.

Pre-semester Course Design Workshop Data Collection

The pre-semester formative data from both faculty and learning assistants were used for the planning of the pre-semester workshops and to provide a baseline for discussions about teaching and course design. Faculty and learning assistants completed a pre-experience intake survey about teaching and learning conceptions and participated in pre-semester course design workshops. This survey also provided data about their expectations for exploring the possibilities of faculty-student classroom collaboration and course design. Faculty and learning assistants also reflected in journals and discussions about the course design experience as they worked on redesigning the ENG 101 and CHEM 101 courses.

Course Implementation Data Collection

Throughout the course of the semester, the pedagogy coaches met with the faculty bi-weekly. Those conversations were tape-recorded and transcribed and analyzed using qualitative methodologies. Faculty and learning assistants also periodically used journals to log observations and conceptions about the course experience across the semester, and meeting notes between each faculty member and their LA(s) were collected**.** Learning assistants also documented reflections and observations from the classroom experience across the semester. These were also analyzed using qualitative methodologies. All students enrolled in the two sections of CHEM 101 (one section with a LA; one section without LA) and two sections of ENG 101 were invited to participate in the study by completing a pre-, mid-, and post-semester questionnaire. Students were presented with a consent form that explained the program, provided them an opportunity to opt out of participating and made clear that these questionnaires were not part of the course grading system. The questions asked in the questionnaire were focused on content and the course experience, not on the LAP. Although the instruments for both courses were similar, there were content specific questions that differed.

End of Semester Data Collection and Analysis

At the end of the semester, faculty were interviewed as a group and learning assistants were interviewed individually. A final wrap-up interview for the faculty/student teams was also held at the beginning of the following semester. These interviews were tape-recorded and transcribed, then analyzed using qualitative methodologies. Questions used during these final interviews were developed from the themes that emerged across the implementation phase of the research project.

Results

This study uncovered themes, challenges, and opportunities that can be utilized by other researchers interested in designing and implementing student

learning assistant programs or programs utilizing faculty and student collaborations. The faculty and learning assistants both presented rich descriptions of their LAP experience from which several themes emerged., including the following: *expanded conceptions, interdisciplinary connections, the course design and the teaching process, developing confidence as a designer and a learner, and collaborative benefits*. All of the themes were evident in all three phases of the study except for *interdisciplinary connections* which was more evident in the pre-course workshop data and reflection than during the rest of the study. The themes *interdisciplinary connections, expanded conceptions, the course design and teaching process, collaborative benefits, and developing confidence as a designer* were themes that emerged from the faculty data. *Expanded conceptions, the course design and teaching process, and developing confidence as a learner* were themes that emerged from the learning assistant data. Two specific themes emerged from the data that were particularly important to both participant groups as a result of this process: *expanded conceptions and developing confidence;* however, each group reported on and focused on different aspects of these themes. Each group was reflecting and viewing the processes through different lenses, and each came to the process and left the process with different conceptions and take-away lessons.

Expanded Conceptions

The first theme, *expanded conceptions*, resulted from a variety of codes that accompanied both faculty and learning assistants' increased knowledge about course design strategies and pedagogical teaching methodologies. Both groups reported on a broadening of conceptions about teaching and learning, and the faculty especially reported an increased awareness of new course design strategies that they felt were making a difference in their course and classroom.

The most prominent finding from the faculty perspective was *expanded conceptions*, the opportunity to view the classroom, students, and course design through a different lens via the learning assistants. Codes that fell in the category of expanded conceptions such as *developing an awareness, a revelation, new perspectives, from the student view, seeing the light, and making assumptions* emerged from the faculty data as they described how they made assumptions about student learning and did not realize how misaligned their assumptions were until they discussed issues with the LAs and saw issues from a different perspective. The learning assistants provided insights about student learning that faculty found to be helpful and productive and they used what they learned to improve their course design and teaching strategies. One faculty stated. "I am more aware of the students' views as I prepare for class or write assignments. I feel like I'm taking their side of things into consideration more frequently and this makes me a better teacher." One faculty member related a discussion she had with the learning assistant about the wording of a course objective. She adjusted the wording and meaning of the objective based on the feedback of the LA and felt it completely changed how her students reacted in the classroom. This faculty discussed how she never would have thought of making that change on her own but how she did it based on new ideas and discussions with the LA. One faculty spoke about how students in the course could relate concerns and issues to the learning assistant that they would not normally discuss with her, and how the learning assistant acted as a liaison, and provided advice and insights that the faculty member had not considered before. She stated, "there were a lot of eye openers for me about how prepared students were and what their expectations were…as sympathetic as I thought I was toward freshman, remembering my own freshman experience and how hard it was to learn...I still wasn't really in tune with what I needed to know to be effective and to help them through this really hard transition."

These *expanded conceptions* evident in the data did not just relate to the expanded conceptions of the faculty about teaching and learning topics; the faculty also reflected on how they felt redesigning their courses and working with the LAs impacted their students' conceptions about the classroom. One faculty member stated, "The students seem more engaged, more invested in the process of learning, and feel freer in expressing their opinions and desires." Both faculty and LAs discussed how the classroom climate changed and communication was more comfortable and open.

For the faculty, the category of *expanded conceptions* also included codes related to "being out of their comfort zone." Faculty spoke about how it was "scary" to share their courses and open themselves up to others for tasks which were traditionally done alone. They talked about how they worried about how this would all work out. These codes were found in all three phases of the study. Codes such as *uncomfortable, outside comfort zone*, and *vulnerable* were evidence that faculty were willing to expand and try strategies they had not attempted before.

The theme of *expanded conceptions* about teaching and learning was also a prominent category for the learning assistants throughout the study. However, their conception changes focused on revelations about the work and role of the professor. As the LAs were helping faculty expand their conceptions about student-centered teaching and learning and make connections with students, the faculty were helping the LAs expand their conceptions about what a teacher is and what it is really like to plan and implement instruction. Although only

one of the three LAs was originally interested in teaching as a possible career at the beginning of the study, all three LAs reflected on the possibility of teaching as a career in their reflections at the end of the study. Codes such as *developing respect, new awareness of teacher role, teaching is difficult, hard work, rewarding, planning and prep, and value of teaching* came under the category of *expanded conceptions* for the learning assistants. Each LA spoke about how they had not realized teaching "was so much work." They related experiences of the awareness they developed as they observed the professor and student interactions and how they respected the professors they were working with because of their dedication to teaching. The learning assistants developed a more comprehensive view of teaching. One LA stated,

> I always thought that teaching was teachers giving students knowledge… there's actually a lot more to it than that. You have to decide what needs to be in the program, what works, and what doesn't. You have to figure out ways of assessing students to make sure that they know what they need to...So the thing that I really learned is that the idea of learning how to teach is learning how people learn.

The LAs also discussed how this new-found knowledge and experience about teaching helped them think about learning in their other courses. They expanded and applied what they were doing in the LA program to improve their learning in other classes. One student said, "It's really interesting that way because before you never thought about it, but now it's kind of like wow, from being on the inside it is actually helping me learn better in my other classes." Another LA said, "It's kind of interesting because [in another class] we do problem-based learning. Today I actually had a meeting with my professor because I didn't feel that my group was holding its weight. And we discussed strategies to get them to be more active in their own learning. And I think that might correlate to my perspectives from this project; I wouldn't have done that before." One student said, "Every course should have a learning assistant and share ideas." Another student said, "All students should have to be a learning assistant" so that they can gain a better understanding about how much work faculty put into preparing to teach. Learning assistants could not only see how their conceptions about teaching and learning had changed, but they also showed evidence that they were applying their new knowledge and confidence in other teaching and learning situations.

Developing Confidence as a Learner and Teacher

Beyond *expanding conceptions*, the second most prominent category of codes for both faculty and learning assistants was the theme of *developing confidence as a learner and teacher*. While the faculty related experiences and examples of how they had grown as both a learner and a teacher during the LA program, learning assistants described ways that participating in this program impacted their learning in other courses and academic situations. The common factor in each group as they talked about what they had learned and done during this program was *confidence*. They related examples of their new-found confidence, and how they could now take charge of their own learning experiences in other courses and situations. Faculty provided examples of their confidence and their new abilities and knowledge about designing courses. Codes from this *confidence* category included *empowerment, confidence, critical evaluation, comfort level, it's working, and visual differences*. Faculty reflected on their program activities and provided examples of what was working for them and why. They discussed increased confidence in the classroom and how focusing on course design helped them to focus on objectives and what was important and how that made it easier to be "transparent" with their students. One faculty member stated, "Before I only had 2 objectives and they were not very clear...previously I conceived of the ENG 101 classes as moving students from moment to moment rather than a journey...now I feel I know where the journey is headed and the roadmap is in place." Another faculty spoke about "now having the tools" to help students be successful in the classroom. In addition to feeling well equipped to help students in the classroom, professors also discussed having confidence as learners and feeling that this experience provided support for working together and sharing experiences. What was described as scary in the beginning became more comfortable and logical. One faculty discussed how she was confident enough to share her expertise with her department and one of the faculty, after the study, went on to spearhead a learning assistant program in her own college.

Learning assistants also discussed their confidence in learning. One student stated, "it helped me figure out by sitting there, not as a student and doing it, but being there as an observer and having to watch her and see how effective certain things are." Another student said, "From my point of view it's actually helped me to be able to go to my different professors and kind of, in a nice way, say, this isn't really working for me...is there a different way that we can go about this?" Students discussed how they felt that they had learned about teaching and learning best by "being behind the scenes" and "observing." They felt confident enough about their new knowledge and experiences that they readily applied it to other learning situations.

Interdisciplinary Connections

The next theme, *interdisciplinary connections*, was a theme that only emerged in the faculty data. This theme, prominent in the first phase of the study, the pre-course workshop phase, was later merged with the theme of *collaborative benefits* as the study progressed. In the first phase of the study, as the faculty/learning assistant teams participated in a joint workshop, the obvious differences in the two disciplines of Chemistry and English were very visible and apparent to the participants. As the semester progressed, the disciplinary differences became less important. In fact faculty spent more time discussing similarities than differences. However this theme is important in the beginning stages of the program because it provided the context for establishing course design components and direction.

In the introductory exercises of the course design workshops, each faculty member thought about the overarching goals of their courses. To the surprise of the participating faculty/learning assistant teams, the goals were the same even though the courses (ENG 101 and CHEM 101) were very different. Each faculty member separately listed developing critical thinking skills as a major goal. Although Chemistry and English are very different types of courses, both faculty discussed the importance of teaching "process" (writing process vs. problem solving process). This revelation established common ground for discussion and set the tone for collaboration in later phases of the research. So even though this theme was limited to the first phase of the study and only emerged in the faculty data, it is an important study finding because it established the common ground shared between the participating faculty at the start of the project and set up for future collaboration. The realization of common goals and objectives opened up discussion on other areas such as student profiles, teaching strategies, and departmental overlap. Codes related to this theme of *interdisciplinary connections* were: *revelation, sharing, collaboration, common ground,* and *focus on process*. One faculty member stated, "to think about my students also taking your class was a real revelation to me."

Collaborative Benefits

This theme, *collaborative benefits*, emerged during study from the *interdisciplinary connection* theme that was established early in the study. As the study progressed, the discussions went beyond just interdisciplinary connections and focused on more general collaboration themes and codes. It is not surprising that this theme emerged considering that this study is a case analysis for engaging Arts and Sciences faculty in talking about course design in an interdisciplinary venue; however, the relationships established and the intricacies of collaboration discussed went beyond the expectations of the project planners. Traditionally at this US institution, designing courses is a solitary process and a secondary purpose of this study was to test an interdisciplinary and more public approach to course design that could be used for faculty development opportunities at this particular institution. This pilot study did create a venue for discussions on these topics and served as a beginning for several other campus projects. This theme of related codes was uncovered in both faculty and LA data and included codes such as *mentoring, relationships, variation, outcome differences, distinct styles, and different approaches. Interdisciplinary connections*, previously a theme, became a code under this new theme during the implementation phase of this research project.

Codes for this theme which emerged from the faculty data were split between faculty to faculty collaboration and faculty and learning assistant interaction. Faculty discussed the importance of sharing experiences and learning about teaching strategies from other disciplines. One faculty stated, "The best part for me was the Chemistry-English collaboration precisely because it opened my mind up to the fact that there were different ways of teaching things." The faculty also discussed the benefits and value in collaborating with students and how this new perspective provided new opportunities for connecting to students.

The learning assistant data codes focused mainly on mentoring and relationship type codes as the LAs described their relationships with their participating faculty. The LAs saw these relationships as a major benefit of participating in the LAP pilot. All three students discussed how participating as a learning assistant broadened and deepened the relationship they had with the faculty member. The work each learning assistant did was customized to the needs of the professor, and the LA and faculty member worked together as a team to address student learning issues. One LA described this relationship as, "a window of opportunity for me where I can go to her and I basically could talk to her about anything." However, there was little interaction among the individual LAs, a deficit observed during the study and something that will need to be investigated in future studies. Even though the LAs were also interdisciplinary, there was not a connection or collaboration as observed and reported on by the faculty participants.

The Course Design and Teaching Process

Codes related to this theme, *the course design and teaching process*, emerged from both the faculty and

the learning assistant data. Although the codes from the faculty data focused mostly on the course design process and the learning assistant codes focused mostly on the teaching process, codes were very similar across the two groups. Some of the codes identified for this theme included: *importance of objectives, planning, organization, transparency, engagement, road map, and hard work.* Data for both the teaching process and the course design process were associated with these codes. Traditionally in the US, faculty have not in the past received adequate development in the area of course design and the focus on development has been in the area of teaching strategies and techniques. In this program, the pre-semester course design workshops exposed faculty and learning assistants to new perspectives about planning instruction and the importance of designing and implementing course objectives. The faculty participating in the study were not familiar with the course design model used in the pre-course workshops, and they were very interested and receptive to the model. By far, the largest numbers of codes under this theme were related to objective writing and making those objectives transparent for students.

Results from this qualitative study also indicate increased satisfaction of faculty with their course designs using the new course design model. One faculty who was asked to reflect on the most valuable experience from the LA pilot program said, "The biggest difference has been in the unearthing and putting up front of the learning objectives." The learning assistant perspective on the importance of course design planning discussed the relevance of this concept to her past experience as a student, "I liked the fact that we did the objectives…I think if the professor had written the objectives [in courses I had in the past] it might have been a little bit easier for me to understand why she did certain things she did." Both faculty and learning assistants felt that making the course map available and course objectives more transparent improved the classroom experience. One faculty discussed her past experience when she said,

> I know that when I crafted my syllabus, I knew what I wanted to do in class.... I was aware of what I wanted to happen or what things were required for a smooth class; but I never shared them with the students...I just thought they knew too. Now I am...trying to be more transparent about my objectives.

In addition to the focus on clear and transparent objectives in the faculty data, learning assistants focused more on the perceived difficulty of the teaching process. Learning assistants voiced concern about the amount of time good teaching preparation takes and they discussed how the LAP pilot experience changed their perspectives about the responsibilities inherent in teaching and learning. The discussions and collaborative experiences of the two groups of participants broadened the scope of discussion about the teaching and course design processes.

Recommendations

Findings from this study have served as pilot data for designing, conducting, and implementing other student learning assistant programs at the institution under study. Both faculty who participated in this research project have applied the course design and teaching strategies they learned in this experience to other courses that they teach. Along with assistance from the learning assistants they learned a new course re-design model, practiced writing course objectives, and designed weekly classroom activities. All of these activities are easily adaptable to other academic classroom situations. This project also set up a model of interdisciplinary collaboration that can be, and has been, replicated in other areas of the institution. This interdisciplinary collaboration and subsequent discussions provided a richer perspective on teaching/learning experience and provided a venue at the institution under study for conversations about the challenges of teaching and learning issues.

During the pilot program year, presentations about this program were made to other faculty and colleges about the program and a presentation was also conducted at a regional teaching and learning conference. Both faculty and learning assistants expressed a variety of lessons learned from this experience and made recommendations for improving the program. These lessons have become especially important now that this program has been picked up by one of Widener University's Schools (the School of Human Service Professions) as a program for 2009-2010 and funded in an expanded form by the College of Arts and Sciences. Some of the important recommendations include:

- That the program also include a component where students pose as students in a class (student on the inside taking notes and sitting with students) rather than as an observer, in order to uncover more detailed information about student learning. One student stated, "I think that there is still a bit of a barrier between me and the students when I am there...and I think sometimes they curb the way they act...I think it would be even more effective if it's possible...if you get a student to be able to pose as a student in the class and you could probably get even more effective notes."

- That more time be spent on workshops for developing skills in course design and teaching and learning. Faculty participants would like to see more formal instruction about redesigning/designing courses. In this case funding sources would need to be identified for holding workshops or seminars before the semester started.
- That this program be extended to include more disciplines so that collaboration and sharing of strategies and resources could be richer and more comprehensive. This extension is currently underway in two of Widener's colleges.

Summary

Although the theme categories that emerged from the faculty and learning assistant data in this study have been defined separately here, it is really not possible to isolate the themes; they overlap and they are tightly integrated with each other. Of all of the themes presented, *expanded conceptions* was the most prevalent theme that emerged from both the faculty and learning assistant data. This qualitative study has highlighted the benefits of using learning assistants and pedagogy coaches to improve faculty understanding of course design strategies and pedagogical teaching methodologies. It has also shown that an LAP can expand both the faculty and LA conceptions about teaching and learning. In addition, the LAP has facilitated the development of an academic collaborative culture at the institution under study.

Because this study was built on a collaborative model of professional development, it brought together representatives that span alternative views of curriculum and course design, pedagogical methods, and disciplinary content and their concomitant inquiry processes. The collaboration provided a clear picture of the differences between and among the participants' views of disciplinary knowledge and pedagogy. The most salient feature of the collaboration, however, was that although the disciplinary knowledge was very different between the various courses, instructors, and LAs, there were many more similarities. The ultimate goal that emerged from working with both disciplines is the common directive to help students learn how to use multiple modes of inquiry in any context or discipline. In other words, this case study provides evidence that the paramount and cross-disciplinary goal of critical thinking can be accomplished (and improved) through faculty-student collaboration across the entire span of a course.

References

Akerlind, G. (2003). Growing and developing as a university teacher: Variation in meaning. *Studies in Higher Education, 28*(4), 375-390.

Arreola, R. A., Aleamoni, L. M., & Theall, M. (2001). College teaching as metaprofession: Re-conceptualizing the scholarship of teaching and learning. Paper presented at the 9th annual American Association for Higher Education conference on Faculty Roles and Rewards, Tampa, FL.

Barr, R. B., & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change*, 13-25.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate.* Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.

Brigham Young University Faculty Center (n.d.) *Students consulting on teaching (SCOT):* Retrieved from http://ctl.byu.edu/home/services/options-for-faculty-using-scot

Calkins, S., & Light, G. (2008). Promoting student-centered learning through a project-based faculty development network. *To Improve the Academy 28*, 217-229.

Cook-Sather, A. (2008). Building faculty learning communities through the teaching and learning initiative at Bryn Mawr and Haverford Colleges. Paper presented at the meeting of the Math and Science Partnership of Greater Philadelphia's Teaching and Learning Center Consortium, Villanova University, PA.

Cox, M. D. (2001). Student-faculty partnerships to develop teaching and enhance learning. In J. E. Miller, J. E. Groccia, & M. S. Miller, (Eds.), *Student-assisted teaching: A guide for faculty-student teamwork* (pp. 168-71). Bolton, MA: Anker Publishing Co.

Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses.* San Francisco, CA: Jossey-Bass.

Fostaty Young, S., & Wilson, R. J. (2000). *Assessment and learning: The ICE Approach.* Winnipeg, CAN: Portage & Main Press.

Ho, A., Watkins, D., & Kelly, M. (2001). The conceptual change approach to improving teaching and learning: An evaluation of a Hong Kong staff development programme. *Higher Education, 42***,** 143–169.

Kember, D., & Kwan, K. (2000). Lecturers' approaches to teaching and their relationship to conceptions of good teaching. *Instructional Science 28*, 469-490.

Kinland, E., Lenze, L. F., Moore, L. M., & Spence, L. D. (2001). Educating the critic: Student-driven quality. In J. E. Miller, J. E. Groccia, & M. S. Miller, (Eds.), *Student-assisted teaching: A guide*

for faculty-student teamwork (pp. 172-78). Bolton, MA: Anker Publishing Co.

McKenzie, J. (2002). Variation and relevance structures for university teachers' learning: Bringing about change in ways of experiencing teaching. In *Quality Conversations, Proceedings of the 25th HERDSA Annual Conference*, 434-41.

Miller, J. E., Groccia, J. E., & Miller, M. S. (Eds.). (2001). *Student-assisted teaching: A guide for faculty-student teamwork.* Bolton, MA: Anker Publishing Co.

Neumann, R. (2001). Disciplinary differences and university teaching. *Studies in Higher Education, 26*(2), 135-146.

The POGIL Project (n.d.). *Process Oriented Guided Inquiry Learning.* Retrieved from http://new.pogil.org/.

Otero, V., Finklestein, N., McCray, R., & Pollock, S. (2006). Who is responsible for preparing science teachers? *Science, 313*, 445-446.

Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: The experience in higher education.* Philadelphia, PA: The Society for Research in to Higher Education & Open University Press.

Saroyan, A., Amundsen, C., McAlpine, L., Weston, C., Winer, L., & Gandell, T. (2004). Assumptions underlying workshop activities. In Saroyan, A. & Amundsen, C. (Eds.), *Rethinking teaching in higher education: From a course design workshop to a faculty development framework* (pp. 15-30). Sterling, VA: Stylus Publishing.,

Shulman, L. S. (1993). Teaching as community property: Putting an end to pedagogical solitude. *Change, 25*(6), 6-7.

Strauss, A., & Corbin, J. (1996). *Basics of qualitative research: Techniques and procedures for developing grounded theory*, (2nd Edition). Newbury Park, CA: Sage Publications.

Toohey, S. (1999). *Designing courses for higher education*. London, UK: Society for Research into Higher Education.

Weimer, M. (2003). Focus on learning, transform teaching. *Change, 35*(5), 48-56.

Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Ziegenfuss, D. H. (2007). *Variations in how faculty approach the process of designing courses in higher education: A phenomenographic study.* Unpublished doctoral dissertation, Widener University, Chester, PA.

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