

A Model of Public Scholarship that Integrates Professional Skills into Graduate Education

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Graduate student education is falling short of what the twenty-first century demands from its next generation of leaders; indeed, many educational leaders and scholars have called for graduate education to include richer, more relevant experiences (Stanton & Wagner, 2006; Stewart, 2010; Walker, Jones, Bueschel, & Hutchings, 2008). At the University of California, Davis, we provide a rich set of professional development skills through a new program for graduate students who have an interest in environmentally based public scholarship – researching and collaborating with communities in order to solve real-world challenges. The purpose of this article is to illustrate and analyze the model, identifying ways the program is effectively delivering professional development to graduate students.

At the University of California, Davis, graduate students can participate in a variety of departmentally housed programs and general campus workshops for professional development; most of these resources focus on discrete skills such as job searching, grant writing, teaching, and constructing a professional portfolio. We have been successfully providing a rich set of professional development skills through a newly created program for graduate students from any discipline who have an interest in environmentally based public scholarship – researching and collaborating with communities in order to solve environmental problems. An analysis of student-generated evaluations and reports during three complete years of this Environmental Leaders Program (ELP) indicates that the model is delivering professional development skills and is worth replicating and researching further; this article outlines those results in hopes of informing similar initiatives at other universities.

Environmental Leaders Program (ELP) Analysis: Theoretical Framework

The following analysis is informed by the higher education discourse of graduate education and professional development as well as scholarly engagement or public scholarship prominently discussed by scholars including Chris M. Golde (2008), Ernest Boyer (1990, 1996), Nancy Cantor and Steven Lavine (2006), and Kerry Ann O'Meara (2008). Organizations such as Campus Compact and Imagining America promote Boyer's call for higher education institutions to embrace engaged scholarship. These organizations also shape dialogue across higher education about how to best reward faculty and student public scholarship. Yet another thread of discourse about graduate education,

leveraged by influential organizations such as the Council of Graduate Schools and the Carnegie Foundation for the Advancement of Teaching, examines both the high attrition rates and the professional development of doctoral students. At the core of these efforts is the assertion that graduate students are in need of a broader and richer range of professional development training and higher quality mentoring from faculty, staff, and peers.

In *The Formation of Scholars* – one of the publications resulting from the Carnegie Initiative on the Doctorate (CID) that analyzed doctoral education over a five-year period – Walker, Golde, Jones, Bueschel, and Hutchings (2008) explained that many doctoral students are “ill-prepared for the full range of roles they must play, be they in academe or beyond, and often the experience is marred by a mismatch between the opportunities available to students as they complete their work and their expectations and training along the way” (p. 2). Council of Graduate Schools President Debra Stewart echoed this sentiment in “‘Important if True’: Graduate Education Will Drive America’s Future Prosperity” (2010), arguing:

It is hard to deny that graduate education must prepare students for the jobs they will get and the careers they will have, not the slots their professors currently occupy. . . . To meet 21st-century challenges, programs must do four things: 1) acknowledge the key role of the master’s degree as the nascent entry degree for employment; 2) extend the interdisciplinary work that has become the heart of the research enterprise to the educational work plan of graduate students; 3) develop in students the transferable skills that are becoming increasingly essential to career success; and 4) legitimize and illuminate the variety of careers that students can follow with their graduate degrees, including careers outside of academe. (p. 39)

Although requiring community-based or public research experiences in graduate education provides rich professional development opportunities for students, it is discouraged in traditional academic culture (Cantor & Lavine, 2006; Stewart, 2010). In 2006, Nancy Cantor, Chancellor and President of Syracuse University, and Steven Lavine, President of the California Institute of the Arts, asserted that the academic reward system must reward rather than discourage engaged scholarship. O’Meara argued in 2008 that it is an “ideal time” to “envision graduate education for engagement” because of the significant amount of faculty retirees and trainable replacements; “intense national attention on doctoral education” and retention; graduate student insistence that they are “underprepared” for “work that connects their intellectual passions with the needs of society”; and new expectations arising from the increasingly systematic inclusion of engagement or service opportunities at the undergraduate level (p. 29).

Building on this work, we assert that there is a great need to provide

the next generation of environmental professionals with skills to collaborate effectively with multiple and diverse audiences to solve complex and critical environmental problems of the twenty-first century, particularly climate change and related challenges. FitzRoy & Papyrakis (2010) contended very recently that there is a “lack of a determined effort at public education. . . [and] widespread ignorance among voters about the science of climate change” (p. 91), despite the fact that “unlike so many other global social and environmental problems, in one sense climate change is simple – because its primary dimensions are measurable” (Senge et al., 2008, p. 28). Environmental challenges of this century are imminent, global, and serious, and graduate education for environmental professionals must evolve quickly to meet those challenges.

Graduate students are often channeled so deeply into their coursework and prescribed research that they do not have the opportunity to develop the kinds of professionalism and reflective practice that environmental professionals need in order to successfully apply their practical skills in real-world settings. Further, although career development can be delivered through instruction in specialized classes with professionals providing didactic instruction, more effective experiential approaches include guided practice in reflection, communication, collaboration, resourcefulness, ethics, cultural sensitivity, and long-term guidance (Poock, 2001). In other words, effective approaches involve mentoring and hands-on experience with real-world problems.

A recent symposium at UC Davis on the graduate education of conservation professionals (John Muir Institute, 2010) convened leaders of international conservation organizations and national government agencies in an effort to improve graduate education for environmental conservation professionals. Leaders and graduate students at that symposium concurred that graduate training should provide the professional skills gained by engaging in real-world project management and problem-solving (Muir & Schwartz, 2009).

No shortage of scholars and leaders have argued that graduate student education is falling short of what the twenty-first century demands from its next generation of leaders (Brownell, 2006; Cantor & Lavine, 2006; Gardner & Barnes, 2007; Golde, 2008; Walker et al., 2008). Because most research on graduate education is disaggregated by discipline – even on the national scale (e.g., Nettles & Millett, 2006) – or aimed narrowly at students who will pursue faculty positions (e.g., Gardner & Barnes, 2007), improvements to graduate education will continue to be piecemeal and directed to specific groups of graduate students. Instead, research should examine graduate education across disciplines and career trajectories. The development of core competencies, as Poock (2001) has initiated, and Stewart’s (2010) recommended program improvements are steps toward moving graduate education forward holistically, as is our own research, which examines our interdisciplinary program that delivers professional development skills using a public scholarship model.

ELP: A Public Scholarship Model

The Environmental Leaders Program (ELP) is an interdisciplinary program for graduate students and is housed in the John Muir Institute of the Environment (JMIE) at UC Davis. The program provides graduate students with opportunities to link their academic learning to real-world practice. The program's goals are to facilitate university involvement in society's environmental problems, train graduate students in public or engaged scholarship, build university-community partnerships, and promote social and environmental justice. Graduate students function as liaisons between the university and outside entities, sharing university resources and knowledge with communities, agencies, and public entities in order to contribute to environmental decision-making. In short, the ELP facilitates graduate student professional development via community-engaged research and successful partnership building with communities.

Envisioning Graduate Students as Community Partners

The ELP is based on a highly successful, long-term, state-funded project to enhance local and regional decision-making in the Sierra Nevada related to watershed assessment (Thomas & Gutstein, 2004). The project provided community-based watershed groups much-needed access to and translation of university and state agency scientific and technical knowledge. A professional university staff member adopted a "dedicated liaison" role and helped to build the watershed groups' social, educational, organizational and technical capacity as it addressed local environmental challenges. Results of that project suggested that adapting the model to graduate students who were eager to engage with communities but not sure how to access or assist community partners would simultaneously address university outreach, community partnerships, and graduate educational goals, including Boyer's (1990, 1996) call for a scholarship of application. UC Davis, despite being a land grant institution with a public service/outreach mission, lacked opportunities for graduate students to engage beyond the campus, particularly with communities, in ways that made use of the academic knowledge that graduate students were acquiring in their degree programs (Stanton & Wagner, 2006). Thus, the ELP was envisioned as a community partnership program with graduate students as liaisons who would apply their academic knowledge for community benefit and, in turn, develop personally and professionally as engaged scholars.

ELP and Community Partnership Development

In the subsequent years, the ELP co-directors solicited interested community partners through a variety of avenues. Examples of partners include restoration managers, nonprofit organization staff, community members, educa-

tors, and agency personnel. Some resulting projects have been directly related to faculty research, others related to projects led by author Gutstein, others created in response to community requests, and some initiated by the graduate student ELP participants. Projects were advertised to graduate students as internships, and students were recruited and interviewed. Matches between community partners and graduate students have been based on student interests, academic knowledge, partner availability, and student funding.

Evolving throughout the last five years, the ELP has trained more than 80 graduate students who were paired with regional communities that were dealing with environmental challenges ranging from land use change, environmental resource protection, watershed stewardship, ecological restoration, community garden design, environmental health risks, environmental justice, regional climate change, and sustainability practices. Projects have lasted from a quarter to a year or more, and several projects have led to or have been part of masters or doctoral theses.

A primary characteristic of the ELP from the beginning has been its interdisciplinarity, as environmental problems by nature cross disciplinary boundaries. The makeup of the ELP student population reflects the multidisciplinary focus, as about half of the graduate students have come from the sciences and the remainder from a range of disciplines within the social sciences and humanities. The ELP has served graduate students from disciplines as diverse as geography, physics, chemistry, design, soil science, community development, anthropology, ecology, environmental resources, engineering, and education. About half the students have been in masters' programs while the others have pursued Ph.D.s, all in various stages of their studies.

Preparing Graduate Students to be Effective Community Liaisons and Leaders: ELP Professional Development Competencies

Professional development is fundamental to the ELP and key to its success. From the start, the ELP developed a professional development program aimed at improving the workplace, community development, and project management skills of graduate student participants while facilitating their identity as public scholars; the case study presented later in this article illustrates this professional development model in action.

The ELP works by providing participating graduate students with a seminar-based, professional development mentoring program. This program revolves around a weekly seminar meeting or "collaborative lab" in which graduate students actively participate in peer support and co-learning.

The seminar blends traditional academic seminar-style activities such as student-led discussions about assigned readings or presentations about their

areas of expertise with innovative, practice-based components such as cognitive mapping training and meeting facilitation training. These weekly meetings include structured and unstructured mini-lectures or presentations from guest speakers, professional skills training sessions, guided reflection, and project planning and management exercises and discussions. Guest presenters, including university faculty, community development alumni, and outside educators, are invited to lead interactive skill- or topic-based sessions. These are interspersed with more hands-on student-centered activities. The wide range of seminar discussion topics include project updates and planning, career alternatives, cultural awareness, sensitivity to audience diversity, ethics, professional identity, and the role of academic representatives beyond the university. Interdisciplinary discussions and perspectives are especially encouraged; for example, small group activities and team project work are arranged in order to unite students from different disciplines (see Appendix A, “Sample ELP Syllabus,” for illustrative team assignments).

The seminar meets for one and one-half to two hours, and students receive two units of academic credit in geography per quarter for participation. Geography is an appropriate discipline for such credit because of its inherent interdisciplinary nature and environmental focus. Providing academic credit for ELP participation helps to validate the academic legitimacy of community partnership work for students, their major professors, and for the academic culture as a whole, emphasizing that such professional activity is an important aspect of graduate education (O’Meara, 2008).

Although not originally designed to deliver Poock’s (2001) five competencies – communication, leadership, teaching and instruction, professional adaptability, and self-awareness – the ELP provides those as a means of preparing students for careers within and beyond academia. Professional development skills taught, modeled, and practiced in the ELP align with Poock’s competencies (italicized):

Communication (written, oral, and interpersonal) and cultural sensitivity: giving a presentation, working with diverse audiences, facilitating meetings or leading focus groups, listening to other perspectives; for example, students orally present a progress report along with a written report at the end of each quarter (see Appendix B, “Sample End-of-Quarter Mini-Presentations”).

Leadership, project management, and ethics: planning and managing a participatory action research project, choosing seminar books or articles and leading the discussion, and having a sense of ethics and responsibility towards others.

Teaching and Instruction and education outreach: planning interac-

tive activities with youth, mentoring undergraduate assistants; assessing audience learning at an interpretive event; for instance, one quarter students designed an interpretive activity for a community group for the purpose of getting to know each other and their issues.

Professional Adaptability and collaboration: dealing with frustration with project planning that goes awry, identifying and promoting realistic outcomes of community projects, and collaborating with peers and partners from different disciplines and perspectives.

Self-Awareness and reflection: constructing mind maps of their projects and careers, assessing the success of an intervention, exploring career options and developing a career pathway. For example, at the end of each quarter, students fill out online or paper evaluations about their experience with the ELP and submit progress reports outlining their project accomplishments and goals.

The ELP also includes individual meetings and resource provisioning. For example, project directors meet occasionally with students individually to discuss challenges encountered in projects or meet with students and community partners to facilitate university-community partner relationships. Students have a dedicated studio space within JMIE with computers, outreach supplies, and miscellaneous resources. Funding, however, has been and continues to be a challenge. Science students tend to be funded through their graduate programs and therefore have not needed ELP funding, but social science and humanities students seeking support are more difficult to fund because of the ELP's limited financial resources. Some students have received partial funding through faculty grants or contracts and others through work study. The ELP, which has an informal advisory committee of various faculty and administrators, is not affiliated with any specific program or department but rather is housed in a nationally known interdisciplinary research unit (JMIE) that serves many units, faculty, and affiliates across campus. As program co-directors, we are affiliated with JMIE and not with academic departments.

A Study of ELP Graduate Student Perceptions

With the intention of describing the ELP's student-reported impact on its graduate student participants, seminar-related, student-generated evaluations and reports were analyzed from three complete academic school years: 2007-2008, 2008-2009, and 2009-2010. Students anonymously completed quarterly seminar evaluations and submitted individual quarter-end project reports. Seminar evaluations were tailored to assess elements of each quarter's seminar activities or materials, but all included three similarly phrased open-ended questions that asked students to explain what went well during the seminar,

what did not go well during the seminar, and what changes or improvements students would like to see in the following quarter's seminar. Quarter-end individual student reports asked students to document their projects' progress and anticipated or planned trajectory as well as their professional reflections about the engaged research, project-management process and their involvement in the ELP.

Methodology and Data

A total of 61 seminar evaluations and 79 student reports submitted across 9 quarters were analyzed. Responses to both the individual reports and the open-ended seminar evaluation questions were open-coded (Strauss, 1987) by their content or subject in order to first identify what elements of the seminar were or were not effective, according to the students. Appearing most often in the seminar evaluations were the following categories: Discussions or Peer Interactions, Professional Career Identity or Role, and Project Management and Community Partners. Categories that appeared most often in individual student reports included Project Management and Community Partners, and Professional Career Identity or Role. After the initial coding, these categories were analyzed for patterns or themes, the most significant of which are discussed below.

Peer Interactions: Interdisciplinarity

Overwhelmingly, seminar evaluation comments about discussions or peer interactions were positive; students most valued the seminar discussions with their peers.

A majority of those positive comments mentioned the immense value of interacting with and learning from their peers from academic disciplines different from their own, reflecting Poock's (2001) communication competency and illustrating the ELP's successful cross-, multi-, or interdisciplinary structure. For instance, one student commented that he or she "loved working with students from different departments – an open *interdisciplinary* environment to talk about engaged scholarship" (emphasis in original). Another said, "I [most] valued the collaboration with other students in the seminar. . . . I think cross-disciplinary dialogue is especially important at the graduate level. It's easy to get 'stuck' in your discipline and not get a wider perspective." Another commenter felt similarly: "I most liked the interdisciplinary aspect – students from many fields of study all adding their two cents and bringing insight from their experience/field." Similar comments referred to students' peer-initiated "understanding" or "appreciation" for other disciplines. One student explained:

I think the most beneficial part of the peer interaction for me was hearing different perspectives on issues from peers in different

disciplines. I try to deny this, but there are large differences in how things have to be considered, packaged, and presented in the sciences versus the social sciences, and being in discussion with a diversity of peers was educational.

A science student echoed this assessment, expressing an appreciation for “hearing about the wildly different approaches that different academic disciplines take in addressing the same questions – interacting with students from outside the science research sphere.”

Individual student reports highlighted the value of learning from other disciplinary perspectives. One science student expressed this sentiment in a particularly cogent way:

The seminar has been a very big thing for me in terms of expanding my perception of the world. Each week has been on a topic that I’ve either never heard of before or else misunderstood, and getting to understand other people’s/fields’ perspectives of the world, issues of importance, and methods has definitely broadened the way I consider my life, research, and the community around me. I would say that I am not thinking differently so much as thinking more, considering things from more different angles than I used to.

Another science student was more specific about the types of knowledge she gained from ELP:

My involvement with the ELP is helping me to understand the community development, environmental justice, and social science aspects of working with communities of people. I can’t even begin to describe how immensely useful our seminar discussions are to me – just learning the verbiage of other disciplines has been a great experience.

Student comments indicate that the ELP’s interdisciplinary structure provides the context for the type of interdisciplinary problem solving that Stewart (2010) mentioned as critical to the future of graduate student training, as students who engage in interdisciplinary work must first be able to step beyond their narrow disciplines.

Stepping beyond their disciplines as students do in the ELP also sets the foundation for public scholarship and working in a community of others who bring different strengths, knowledge, cultures, and priorities to the table. Hence, one of the primary goals of the ELP has been to create and foster a community of reflective, engaged scholars. Seminar evaluation comments suggest that the program has succeeded, exemplified by students who said, “I en-

joy coming together for discussion. The sense of community is very welcome” and provides “a sense of solidarity and support for each other.” Other students more specifically appreciated that their peers provided effective advice and assistance with student projects. For instance, one student explained that “the fact that students were engaged in outside projects and could come together and talk about the challenges and opportunities was the most helpful.” Another said, “peers give me lots of ideas about how to deal with probable problems of associating and communicating, and their experience provides good examples that I can follow.” Similarly, this student explained that he or she “enjoyed networking with fellow ELPers throughout the quarter. It was helpful to hear their projects, struggles, and successes and share best practices.” Providing a space for students to reflect openly and communicate across disciplinary and cultural divides, the ELP – according to student comments – effectively creates a community of public scholars and develops the collaborative professional skills that students will employ and refine in their careers.

Professional Roles

The second-most prevalent category that emerged from both seminar evaluations and individual reports reflected students’ exploration and development of professional identities – or Poock’s (2001) professional role adaptability and self-knowledge competencies – through their participation in the ELP. For example, many student comments were similar to this one in assessing ELP participation as a catalyst for reflection: The ELP “definitely keeps me thinking about a broader view of my research and responsibilities as a good scientist [and] also challenges me to reconsider assumptions about what should be my goal/role in life and whether or not the prevailing model of science is really the best one.” Another said: “I certainly did a lot of personal reflection for how I want to ‘be’ a professional in the world. It was interesting to hear the various perspectives from other students in the class.” Repeatedly, comments such as this one indicated students’ exploration of career opportunities through their community projects and ELP participation: “From this project and from the ELP, I have learned a tremendous amount about the directions and interests I want to pursue. This project has been extremely challenging for me, and I have been grateful for the support, help, and advice throughout the entire process.” Many similarly complimentary student comments provide evidence that the ELP participation is a beneficial tool for students to use to explore their thoughts about their careers. This comment is lengthy but worth citing in its entirety:

Learning how to navigate how different people envision what constitutes a participatory community media project has been a challenge. However, the blessing in this challenge has been the means for me to reflect and refine what my ideas are. . . . Without having a clear understanding of goals and expectations from the outset, projects can

often face some bumpy times. I think this is particularly true when two distinct organizations or communities come together to work on a project. However, the strength that comes from working with diverse perspectives outweighs many of the challenges that come with it. Working on this project has been helpful in understanding how and what sort of work I would like to do.

Many student comments emphasize, as this one does, the complexities of engaged scholarship and working with others as well as the contribution that such work has on the development of one's professional role or identity, or – as Pooch (2001) called it – professional adaptability and self knowledge.

Project Management

Students also mentioned the value of developing project management skills through their ELP projects, which falls under Pooch's (2001) leadership competency. One student wrote: "In terms of learning, the ELP seminars have opened my eyes to the process involved in any type of project work." Another student's comment about her project reflected the leadership skills she would need to employ: "It seems like one of those situations where they aren't going to give me a list of ways I can help, but rather I need to see what needs to be done and take initiative to make it happen." Seminar evaluations also indicated that students learned project management skills from each other: "Other ELPers and I have helped each other on aspects of our projects." One student comment even summarized the overall value of ELP participation:

I think graduate students who have career fields that require any kind of 'real world' application ought to join ELP and get themselves a graduate project, even if it's short term or not for pay, because the payoff (in terms of your ability to transition from grad school to working in your field and in terms of your ability to finish your program with a lot of support) is really big.

Asking students to co-create projects with communities, as student comments reveal, provides them with opportunities for developing confidence and the kind of leadership skills that will serve them well in the professional world.

Public Scholarship

Students' appreciation for and understanding of public scholarship emerged as a prevalent theme embedded within the other categories. For instance, this science student commented about her commitment to community outreach, education, and the development of her professional role and career trajectory:

I feel that this project is actively working within the community to reach out to an underrepresented group in science, making both knowledge and career opportunities more accessible. Both community education and diversifying the scientific community are very important to me and something I plan to continue throughout my career. Education, in particular, will be a major part of my career, and it is important for me to develop the skills to do this effectively.

This student demonstrated her newfound understanding of the difficulties of community engagement, navigating them carefully:

There seems to be this push-pull between letting things happen completely organically and purely from the community members and an outside pressure wanting to ‘accomplish’ something within a timeline with quantifiable, reportable results. . . . I hope. . . to be able to find a balance within myself of how not to push and embrace the pace while still being a motivating factor.

Perhaps the most telling comment about public scholarship was written by a geography student who very recently completed her dissertation. She explained that she learned,

how deeply disengaged so many scientists are from the actual applications of and needs for their research. Furthermore, those who are engaged are not rewarded and often are actively discouraged by their institutions or colleagues and find themselves on the outskirts of acceptability and believability among their peers. It is a good reminder of the obstacles engagement faces and something I will keep in mind in my future work. I have a feeling that demonstrating the legitimacy of engaged social sciences will be one of my aims as I move forward in my career.

These student comments parallel the rich discussions that happened every week in the ELP seminar space where students felt safe enough to reflect upon the promise, challenges, and ethics of their work both within and outside of the scope of their traditional academic programs. In an academic culture that rewards traditional research and achievement above all else, the collaborative, interdisciplinary environment of the ELP nurtures engaged, responsive, reflective professionals.

Case Study: The ELP Student as Public Scholar

While not every student gained the same set of skills from the ELP, their seminar evaluations and reports clarify that they benefitted from the peer-interactive structure and opportunities for professional growth; they applied

what they learned in the seminar to their projects; and they will apply what they learned from their projects in their careers. The following case study exemplifies the project management and community engagement experiences of ELP students, fostered by the peer-interactive seminar structure.

In one ELP community-based project on urban runoff and watershed health, the graduate student liaison (author Evans) spent the first 10 weeks of the project learning about the community. She first researched census data, government statistics, watershed maps, and other available information. She then spent time driving around the community, talking to people, exploring natural and built features relevant to the area's urban runoff issues, and walking a local creek that flows directly into the Sacramento River. This creek conveys approximately half of the City of Elk Grove's storm water runoff, and, in 2006, at the time of her initial contact, the city was one of the fastest growing cities in the nation. The transition from a largely agricultural area to a largely metropolitan area involved dramatic increases in development and concerns about impacts on water quality. Exploring and talking to people about the creek was crucial to the development of her project ideas and gave her a first-hand understanding of the environmental issues impacting the community.

After the initial research, she developed a relationship with the Laguna Creek Watershed Council that was active and working directly with multiple partners in the region. The liaison set up an informal meeting with the Council's coordinator, where the two met at a bridge overlooking the creek and walked and talked about the watershed, issues impacting the watershed, and the interests of the Council in protecting the watershed. Their conversation led to more meetings with leaders from organizations and schools that were partnering with the Council, and their conversation enabled the start of a relationship with the Council that spanned the length of the two-year project.

Specific strategies for community engagement such as exhibited here are dependent on the combined capacity of the community and graduate student as liaison. Liaisons can build social capital – the community's structure of advantageous relationships – by fostering social connections based on trust and reciprocity, and these connections can then further increase opportunity and growth in the community (Emery & Flora, 2006). Because of this need to embed in and build upon community connections, the first and most crucial step taken by ELP graduate students is learning about and gaining trust in their community.

This period of immersion, where the graduate student learned about her community partner, served as the foundation for community engagement. Kinnevy & Boddie (2001) claimed that to become a partner requires your presence in the community and willingness to “learn the language” of that community and work toward a mutual goal. In their study of students building col-

laborative partnerships to better their community, they found that students had to learn a language that they were unaccustomed to and grow an understanding of the meaning of that language in order to accomplish their goals (Kinnevy & Boddie, 2001). By immersing herself in the culture and physical space of the community, the ELP student was learning the language of that place. The value of the ELP approach had been tested in gaining entry to the community, and as later communicated by Council members, was very much appreciated.

Although the learning phase of the project is the first step in the community engaged scholarship, the learning phase is continuous throughout the project, as people and events constantly shape the community, its capacity, and needs. The learning phase is also the most difficult and trying for the graduate students. At times the graduate student expressed discontent with the amount of time spent networking and exploring opportunities, many of which never grew into productive partnerships or project actions. She wrote in one of her ELP quarterly project reports, "I would really like to see more concrete deliverables from this project. We have had a lot of discussions and good ideas but I am anxious to see results." This anxiety about "deliverables" is symptomatic of an academic culture focused on concrete products, tests, and immediately visible results. As the ELP graduate student progressed through her project, she found that mapping out dead-ends was as productive and necessary as finding thoroughfares to perceived successful outcomes.

The ELP student continued to work closely with peers and mentors to develop a learning and research plan, continuing to participate in seminar discussions with the other graduate students and consult with the sponsoring faculty. The core of the ELP ideology and strategy for engagement is that only after the groundwork of information and networking is established should the graduate student begin to work directly with the community to develop strategies of action and build new partnerships to enable those actions. As the ELP student established more partnerships, she developed in her roles with the community and found practical outlets for her own academic learning.

As the project unfolded she conceptualized a community-based approach focusing on youth participation and community partnerships with an overall goal to infuse the issue of urban runoff into learning and service activities aimed at reducing the volume and improving the quality of urban runoff in the watershed (Oki & Haver, 2005). In an effort to reach this goal, the liaison solicited the participation of local organizations as partners in outreach efforts to community members.

She presented at Council meetings, updating the organization on her work in the community, and solicited their feedback. In addition, she took every opportunity that presented itself to work with other organizations that might be able to play a supporting role in the efforts of the Council and in car-

rying out its mission. She attended and facilitated a variety of organizational meetings with neighborhood associations, parks and recreation departments, schools, scouts, and other education groups both neighborhood-specific and regional. During these meetings and network opportunities, she discussed program development for creek-based education, after-school programs, local elementary schools, family events, creek week clean-ups, service projects linking water conservation with planting of native oaks, and high school water quality monitoring. From these networking events she was able to strengthen core partnerships and leverage resources towards a common goal of education for improved watershed health. In some cases, she recruited volunteers and led some of the jointly designed education and interpretive activities.

Throughout the project, the ELP student reported to her collaborators, peers, and mentors. In these periodic reports she included a list of ideas, actions, and questions that were discussed in weekly seminar sections through peer consultation and self-reflection. Following plan revisions based on seminar feedback, she returned to the community partner and proposed next steps. This iterative cycle of preparation and planning with the community partner and peer and mentor consultation with the ELP was time consuming but at the heart of the ELP model of engagement and public scholarship.

Measuring Program Effectiveness

As the student comments and case study demonstrate, the ELP successfully provides the mentoring and opportunities for professional development called for by the Carnegie scholars, the Council of Graduate Schools, and others (Colbeck, O'Meara, & Austin, 2008; Frugoli, 2001; Holaday, Weaver, & Nilson, 2007; John Muir Institute, 2010; Pooch, 2001).

The ELP's focus on scholarly engagement, cross-disciplinary peer collaboration, environmental stewardship, and individualized attention provides engaged graduate students the support they need in order to learn how to responsibly engage with communities in their effort to fulfill the land-grant mission of the university. The ELP also supports engaged scholars in ways that general professional development activities do not. Unlike short-term workshops aimed at all graduate students or programs designed for a narrowly defined graduate student population, the ELP tailors its activities nimbly to the needs of its diverse, environmentally focused engaged scholars.

The ELP provides targeted professional development that Pooch (2001) argued has been common in some professional school settings but "lacking in programs offering traditional academic degrees" (p. 345). His study assessed through five constituent groups the professional development needs of graduate students and offered five conclusive graduate student competencies "that cut across academic disciplines and degree programs" considered by the study (p.

348): communication, leadership, teaching, professional adaptability, and self-awareness. In a seminar setting, ELP students lead discussions and practice teaching by educating their peers about self-chosen environment- and engagement-related topics. Students lead individual community engagement projects that utilize their disciplinary expertise and develop skills of communication, leadership, collaboration, planning, management, and negotiation. Carefully designed reports train ELP students to become reflexive, reflective, and effective professionals. The success of the ELP is due to its evolution into a community of scholars where students learn from program mentors and peers from a multitude of disciplines and at a variety of stages in their academic training.

Observationally, we as project directors recognize that the program structure also attracts and supports “troubled” students: those in danger of “stopping out” (Nettles & Millett, 2006) or those whose frustration with their graduate school experience impedes their ability to successfully complete their coursework or research. Of the more than 80 students we have mentored throughout the last five years of the program, we estimate that between 10 and 20 percent of them – some cited above – fit this description. At least five students, for example, explicitly mentioned that they considered quitting graduate school among their immediate options. With our mentoring and the support of their peers in the program, two completed their degrees, two are continuing their studies and their participation in the ELP, and one rather contentedly left her program and the university without completing her degree despite our best efforts to counsel her otherwise. We believe that students, from those who are seeking advanced skills to those who are struggling with the competitively charged research university culture, thrive in the heavily peer-interactive structure of the seminar. The ELP offers students the opportunity to collaboratively conceive, create, and manage engaged community projects in a safe, low-risk environment where they can develop professional skills at their own pace.

Although a summative identification of the precise mechanisms of the program’s success is premature without additional research, student comments suggest that the cross-disciplinary peer interactive structure and project management experience are key components that foster the development of competencies that are critical for career success (e.g., Poock, 2001; Stewart, 2010). The ELP allows students to participate in projects that are not graded by their major professor nor likely to make or break their academic career, but very likely to assist them in applying newfound knowledge and developing new skills that will serve them effectively as they transition from graduate school into their chosen professions.

The engagement projects that ELP students organize, plan, and manage are evidence of the gaining momentum of a small-but-increasing force in graduate education that seeks to afford graduate students similar opportunities for service that they had as high school students and undergraduates; however,

now as graduate students, they have the opportunity to combine their disciplinary expertise with university resources in projects where they often control the scope and trajectory. As managers of these projects, they are not simply donating time but learning to act as professionals, trying on new roles, and preparing for their transition into academic or non-academic positions where this experience will be valued and valuable: just the kind of training called for by Stewart (2010) and others (Poock, 2001; Walker et al., 2008).

Conclusions

Our current assessment of this program in itself is not remarkable; however, it comes at a time where graduate education is at a crossroads, where there has been a call for action (John Muir, 2010; O'Meara, 2008; Stewart, 2010), and where we provide evidence of an effective course of action.

The Environmental Leaders Program has been successful in developing a sense of professional agency among graduate students interested in engaging beyond the campus with communities on environmental issues; it has attracted students from multiple disciplines eager to apply their academic learning to real-world practice; it has appealed to students with career aspirations both within and beyond academia. Our model has provided comprehensive professional development, new and better mentoring, shared responsibility, and training that develops students into professionals who are responsive, reflexive, responsible, and culturally sensitive. Through the ELP, these graduate students have explored new ways their academic training may be useful to society and have developed and practiced skills to carry with them into future careers. We believe that the kind of professional training we have developed is an essential part of a better alignment between university goals for graduate students and the new public roles needed in society. We believe it will result in more publicly engaged scholars. A number of the ELP students will become faculty, and their notions of civic engagement as an essential part of scholarship will inspire future graduate students to engage in the problems of the world.

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Appendix A: Sample ELP Syllabus

Environmental Leaders Program
John Muir Institute of the Environment
Winter 2009 Schedule
Mondays, 4-5:30 p.m. (and 2 Wednesdays) Conference Room

Week 1 – 1/5

Mingling

Small group project meetings: discuss individual and project goals for the quarter

Round robin: individual and project goals for the quarter

Week 2 – 1/12

Discussion: engaged scholarship and “service” (readings from journal and books)

Week 3 – WEDNESDAY 1/21

Mind mapping/concept mapping as a research and engagement tool (Kandace)

Small group project meetings and large group discussion

Week 4 – 1/26

Guest Presenter: Deb Marois (Topic: Asset Based Community Development)

Week 5 – 2/2

Qualitative and Community Development tools that can help project goals (e.g. field notes, organization of docs, focus groups).

Led by GROUP #1

Small group project meetings and large group discussion

Week 6 – 2/9

GROUP #2 article re: Environmental Justice

Guest Presenter: TBA (Topic: Environmental Justice)

Week 7 – WEDNESDAY 2/18

GROUP # 3 re: Resource usage

Small group project meetings and large group discussion

Week 8 – 2/23

GROUP #4 re: Earth & soil

Small group project meetings and large group discussion

Week 9 – 3/2

GROUP #5 re: Writing is your friend

Small group project meetings and large group discussion

Week 10 – 3/9

GROUP #6 re: NGOs

Small group project meetings and large group discussion

Week 11 — 3/16

End of quarter seminar evaluation

Goals for spring

Food! Bring your favorite snack to share

FRIDAY. — 3/20

Quarterly reports due via email to KK & JG (no meeting)

SMALL GROUPS ASSIGNMENT

Self-organize into groups of 2-4.

Groups will organize themselves around one of the following topics:

- | | |
|-----------|---|
| [GROUP 1] | * Community Development and Organizing |
| [GROUP 2] | * Environmental Justice |
| [GROUP 3] | * Resource usage (recycling, environmental education, energy usage) |
| [GROUP 4] | * Earth & Soil |
| [GROUP 5] | * Writing is your friend |
| [GROUP 6] | * NGOs: definition, collaboration, assistance |

Instructions for groups:

Gather seminal or best articles/resource about your selected topic and provide in one document a summary of each of those articles. Copy this document for all students in the seminar.

Prepare a 10-20-minute discussion of the articles and the topic (how you handle this is completely up to you; be creative with the intent of helping your colleagues learn about those articles and how they fit into the context of the discipline).

Upload pdf or rtf copies of the articles onto the smartsite before the seminar discussion date.

DISCLAIMER: PLEASE UNDERSTAND THAT THESE GUIDELINES ARE FLEXIBLE. The purpose of this task is to hone your skills (and refine the way that you think about those skills) and to educate your colleagues about one of your areas of interest and or expertise. If your group decides that it would like to do something a little differently than listed above (e.g., invite a relevant guest speaker to augment the discussion), please share your ideas first with Kandace or Joyce.

Appendix B: Sample End-of-Quarter Mini-Presentations

Environmental Leaders Program End-of-Quarter Mini-presentations Spring 2009

Introduction

This presentation is designed to help you refine your presentation skills and enhance your ability to think like a reflective practitioner-scholar among a community of other reflective practitioner-scholars.

Instructions: Choose 2 of the 5 questions listed below. Produce 2 PowerPoint slides that help you to communicate to your colleagues the answers to the questions you choose to answer. You are limited to one photo or graphic. Please format your slides with NO background style. (They will all be put into one collective ppt file.). Create a 5-minute presentation during which you answer the 2 questions. You have 2 minutes for Q & A if you wish. Create a handout for your colleagues IF YOU WISH. Submit your slides via email to Kandace by May 30.

Questions: (Choose 2)

- a. Explain your project's potential for success (i.e. the great things that would happen in your project and or as a result of your project)
- b. Explain the challenges faced in your project and ways that those challenges can be overcome
- c. Explain your project's role in your overall career or graduate experience
- d. Explain the successes or accomplishments achieved in your project
- e. Explain the significance of your project in its local community and or in the larger academic community

The order of presenters will be announced at the 6/1/09 seminar.

Authors

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Joyce Gutstein, Ph.D., is Co-Director of the Environmental Leaders Program at the John Muir Institute of the Environment, University of California, Davis. Gutstein creates, manages, and leads environmental and science outreach initiatives, courses, and programs, and she conducts research on student professional development, engaged scholarship, and university outreach.

Emily Evans is a Ph.D. candidate in the School of Education at the University of California, Davis. Evans became involved in the Environmental Leaders Program from the start of her graduate career and coordinates a youth water education program for the John Muir Institute of the Environment. Her research investigates youth experiences with water education and conservation.