Engaging 2YC Students and Faculty in the AAG

Joy Adams, Association of American Geographers

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

The AAG has been involved with several recent grant-funded projects that I personally benefited from in my previous job as a faculty members and that I am confident have benefited many other educators during the two years I have been on the AAG staff. I discuss two examples below.

The **Geography Faculty Development Alliance** annual summer workshop [**www.aag.org/gfda**] provides early-career faculty with professional development that focuses on all aspects of an academic career (teaching, research/publication, service, work-life balance, networking, etc). It is effective because it allows new faculty to focus intensively on these topics, which are rarely explicitly addressed during one's graduate training. It also provides opportunities to collaborate with, learn from, and network with both peers and accomplished senior faculty who are committed to mentoring and supporting junior scholars. GFDA sponsors sessions at the AAG's Annual Meeting to help disseminate information and ideas to non-participants as well as to continue to engage participants beyond the duration of the workshop.

Enhancing Departments and Graduate Education (EDGE) [**www.aag.org/edge**] is an NSF-funded research and action project that seeks to improve geographers' preparation for careers in the academic, business, government, and nonprofit sectors. Our research suggests that students and employers alike feel that graduate students do not receive sufficient training to prepare them for the workplace. Our materials and outreach activities are helping to fill this gap, particularly for BGN employment, which receives scant attention, if any, in most graduate programs in geography. A great example is our new book *Practicing Geography: Careers for Enhancing Society and the Environment* [**http://www.pearsonhighered.com/educator/product/Practicing-Geography/9780321811158.page**]. EDGE helps educators, many of whom do not have extensive experience in non-academic employment, bring ideas and information about careers and professional development into their classes. The grant has also supported expansion and enhancement of our careers outreach, including our website (**www.aag.org/careers**), and has enabled us to collaborate with projects and programs beyond geography (such as this SERC workshop!) to gain new insights and develop/adopt best practices.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

Currently, the AAG has great programs in place for K-12 education and graduate education. However, we have identified a gap when it comes to undergraduate programming, especially at two-year institutions. While we do have a Community College Affinity group within our association, participation by 2YC students and faculty in the AAG (as measured by memberships and participation in the AAG Annual Meeting) is very low overall. This situation is somewhat self-perpetuating because without 2YC involvement, issues and activities relevant to 2YC constituencies are not emphasized at our Annual Meeting nor in other association activities and programs to a large extent. Furthermore, existing resources and programs that are relevant to 2YCs might not be reaching these audiences.

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Joy Adams, Association of American Geographers

Based on my experiences as a college professor, I feel that a major barrier to participation by 2YCs in the AAG is the cost and size of our Annual Meeting. Many people become members and maintain their memberships because of their conference participation. While not as large as some professional meetings, our conference typically draws 8000 attendees each year and features 6000 presentations. The size and scope of the meeting can be very intimidating to undergraduate students and even to many faculty, particularly those from smaller campuses. In addition, the meeting registration and membership dues can themselves be cost-prohibitive, not to mention travel and lodging expenses.

To engage 2YC students and faculty in the AAG and its Annual Meeting, I would propose a that 2YC "pre-conference" be held the day before the start of the "regular" AAG meeting. The pre-conference would feature a combination of in-person and virtual presentations and sessions that are geared specifically toward 2YC audiences. For example, participants could deliver poster and oral presentations using technology such as Skype or other video conferencing technology. Because they would be presenting alongside and to other 2YC students and faculty, the sessions would provide an especially welcoming and supportive venue. While a participation fee would probably be necessary (particularly after any grant support has been expended), registration costs could be much lower and travel costs would be eliminated for participants who cannot afford to travel. For those attending the regular meeting, attendance at the pre-conference would be included in the registration fee. For them, the pre-conference would also provide opportunities to meet and network with others in advance of the larger conference to provide peer support and an opportunity to "acclimate" to the meeting. This model could also be extended to annual meetings of the AAG's regional subdivisions, which are held each fall and typically include more 2YC students and faculty. Participation in the regional 2YC pre-conference could be a precursor to participation in the Annual Meeting and its 2YC pre-conference the following spring.

In addition to sessions featuring student presentations, other sessions such as panels, paper sessions, plenary talks, and workshops held during the pre-conference would focus specifically on issues relevant to 2YCs. The AAG's very successful career mentoring and outreach activities could also be extended into the pre-conference. Some of the pre-conference activities could be delivered in a virtual format and/or broadcast as streaming video to allow participation for a nominal fee without necessitating travel to the conference venue. Arrangements could be made to offer education credits for meeting participation to encourage faculty involvement [see **http://www.ncge.org/graduate-credit** for a model]. The pre-conference proceedings could be published in a printed or electronic format to help disseminate the information and ideas presented and to provide publication opportunities for participating students and faculty.

Two Year College English Association (TYCA)

Carolyn Calhoon-Dillahunt, Yakima Valley Community College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

My disciplinary professional organization is centered on pedagogy (the parent organization is the National Council of TEACHERS of English), and it supports teachers at all levels in many ways, including professional development (through conferences, a professional online network for sharing ideas, publications, webinars, mentorships/early career educator programs, workshops, etc.), policy advocacy (NCTE has a DC office and actively advocates on behalf of literacy education at all levels and develops partnerships with other related organizations; it also regularly briefs members on local, state, and national policies that impact English educators at all levels, and it develops "policy statements" as needed that members can use to address administrators, legislators, and other stakeholders, ranging from "Students' Right to Their Own Language" to class size statements to writing assessment statements), and shared research (NCTE encourages and even funds literacy-education-related research; NCTE is also leading the effort to create the National Center for Literacy Education, a collaboration among various disciplinary organizations, community organizations, and business/professional organizations, to research and promote quality literacy education). Overall, I think professional development is NCTE's forte; however, its attention and commitment to educational policy makes it somewhat unique among disciplinary organizations, and I appreciate NCTE's efforts on this front, as it supports teachers and students in broader (and often more significant) ways.

The college-level branches of NCTE include CCCC and TYCA. Like NCTE, CCCC sponsors research and publication, and it also encourage member activism in areas of interest or need, ranging from computers and composition to diversity and from current issues, like dual credit/concurrent enrollment, to long-standing concerns, such as working conditions for adjunct and concurrent faculty. All groups have a space/community within the conference, the Connected Community (professional social network), and the various publications. I find CCCC's strength to be in the varied voices and varied ways members can be involved; members seem more invested when they can research and interact with others with similar research, teaching, or political interests, and CCCC is good at facilitating these interactions.

TYCA, the organization I lead, is one of the most recent additions to the NCTE family, and it does not have its own separate budget, and thus cannot sponsor research and publication to the same degree as its "parent" organizations. However, TYCA has a long-standing (45 years+) regional network consisting of seven regions, joined by a common purpose and common

governance, each of which hosts an annual regional conference (and in some cases, state conferences) and some sort of publication (ranging from online newsletter or biannual regional journal publication). The smaller, more local regional organizations can be much more responsive to members' needs and tend to focus primarily on teaching and learning activities. Conference sessions are generally focused on pedagogy and the settings are more informal and interactive, with plenty of time/space for "teacher talk," so valued and, unfortunately, so limited in higher education. Professional development and collegiality are hallmarks of the TYCA organization. The younger, national organization doesn't host its own national conference, but it does sponsor a journal, and it does try to address issues affecting two-year college nation-wide, such as dual credit/concurrent enrollment, adjunct/contingent faculty, developmental education. The national TYCA organization has centered on representing two-year colleges--bringing their voices and their concerns to the conversations and decision-making within NCTE/CCCC and outside the disciplinary organization.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

Developmental education (math, reading, and writing) is an essential part of the community college mission of providing students access to higher education, but these essential courses in the "basic skills" are often viewed negatively, underfunded, and ineffective. They also tend to be seen as the purview of the math or English department (or of a separate "basic skills" department) rather than essential learning--"student skills," critical thinking, reading, writing, and quantitative literacy--which are necessary for and are the responsibility of all disciplines. Some of the most successful efforts I've seen in terms of developmental education have come through learning communities, which provide a supportive, engaging, and challenging intellectual environment through which students are initiated into the academic discourse community at the same time they build their skills. These efforts in concert with better efforts at placement, assessment, and advising can help students get on a path to success--in college or in a career pathway as well as in civic life. I'd like to see disciplinary organizations begin conversations and generate ideas/support materials for how all disciplines can help students be successful vs. relegate responsibility for "college skills" elsewhere.

Also, in general, I think community college instructors would benefit from and appreciate opportunities to talk about teaching and engage in classroom-based research with others in their discipline. Given that about two-thirds of community college faculty are adjunct, many lack access to a supportive teaching community, and disciplinary organizations can be the "go to" place for this sort of professional development and professional interaction. Professional organizations can also serve as a clearinghouse for pedagogical scholarship. Teaching loads for community college faculty tend to be much larger than those of their four-year college counterparts and support for research activities is far more limited. Disciplinary organizations can be the ones to provide a space for publishing teaching tips, effective programs, sample assignments/syllabi, and classroom-based research and, in doing so, show their valuing of and commitment to the pedagogy of their discipline.

APSA Teaching and Learning Conference

Michelle D. Deardorff, Interim Chair and Professor of Political Science, Jackson State University

Besides our peer-reviewed journal (Journal of Political Science Education) which publishes political science work on the Scholarship of Teaching and Learning, I believe our best work in education is found in our annual Teaching and Learning Conference sponsored by the American Political Science Association. This conference was established in 2004 and has met annually. Following a working group model, about 250-300 professors and graduate students gather in group of 15-25 focused on a particular approach to the discipline (e.g., internationalizing the curriculum), a pedagogical technique (simulations), a significant movement in higher education (e.g., assessment), or a specific group of political scientists (e.g., graduate or community college faculty). These groups then meet throughout a two and a half day period, where individuals present papers and ideas and the working group discusses them—not presentation by presentation as in a traditional research conference—but conceptually. Each group is led by a skilled moderator who helps the group move toward larger conceptions, goals and action items which are later published in one of the three major APSA journals.

Throughout this conference there are scheduled networking receptions, organized lunches with discussion tables, and workshops, which participants may select from a menu to attend. The APSA has a social networking site that allows each working group to communicate not only before conferences, but also afterwards. Projects have evolved from this conference; for instance, APSA has now established a new publication series of edited books on teaching and learning topics (i.e., Assessing the Political Science Department, Civic Engagement, Internship Handbook for Undergraduates). These books came from connections made at the conference and research initiated and developed there. The quality of the work presented has increased over the years as has the broadness of the participation. It has been particularly successful at drawing faculty from more teaching-oriented institutions back into the American Political Science Association, which had been perceived as a research-focused organization. This conference has also helped change our discipline by being a visible and constant reminder of the teaching portion of our work; for instance, the Scholarship of Teaching and Learning is now listed as an official research interest that can be identified by members of the Association. You can see more information on this conference at: https://www.apsanet.org/content_31632.cfm?navID=206

One of my personal goals has been to establish a pre-conference workshop at each of the major conferences of the APSA that focuses on helping faculty who teach introductory courses update their knowledge of the relevant subfields covered in these courses. One of the constant concerns I have heard from faculty (at both two-year and four-year institutions) is in regards to the teaching of the traditional introductory courses (e.g., Comparative Politics and U.S. Government). Five to ten years after graduate school we are immersed in our substantive research fields and work to stay up-to-date in the courses in which we teach our majors or in graduate courses, but often we lose touch with the other fields we cover in the survey courses. Based on a recommendation from a community college colleague, I have proposed the APSA

Committee on Teaching and Learning sponsor two annual short courses at APSA in which experts in the field present a half-day course on the current status of the literature in the field, appropriate for faculty teaching the survey courses. Our goal would be for the participants to be exposed to the most recent theory, consensuses, resources, and models that would be appropriate for the survey classes.

The preliminary response to this idea has been very strong from faculty representing a wide variety of institutions and subfields. We had hoped to debut our first workshop (Teaching the Middle East) at the annual conference in New Orleans this summer, but it was cancelled. For the comparative course, I hope to focus on a different region of the world or a specific country each year and for the U.S. Government course a different key topic (presidency, Congress, elections, political behavior, etc.). There have been three barriers to implementation. First, it was very difficult to get section chairs to see the potential of this workshop (for example, visibility of their members, additional membership for their section, evidence of commitment to teaching). These chairs change annually, so it will be hard to institutionalize such a program, but it does mean we can repeatedly make the same request to the same sections and get different answers. For instance, I tried to get the chair of the "Elections, Public Opinion, and Voting Behavior" section to help us arrange a short course on teaching elections (the semester of the general election!!) and received minimal interest or help. Second, while there is excitement in offering this short course on the part of the decision makers, it has been hard to find people willing to help work to implement it, including the APSA. There is lot of enthusiasm for the idea, but there is no reward for people who do the work to present the material (except for textbook authors and that raises different problems). Finally, while we had 28 people sign up for the short course, "Teaching the Middle East," that was cancelled when the conference was cancelled, they were mostly graduate students. There was no representation from the community colleges and teaching faculty for whom it was designed. I communicated to the members of the "Teaching Political Science" section, but the next time I may have to send letters to all of the political science departments in these institutions that are within a two hour drive of the conference. The logistics of identifying these professors is difficult in light of how many smaller institutions present faculty on their websites. It is a great idea, but it will take many tries to implement it well.

Strengthening the Community College Engineering Pipeline

Amelito Enriquez, Professor, Cañada College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

NSF-Funded Programs:
Cañada College currently has three projects through three NSF Programs: NSF S-STEM, NSF IEECI, and PAESMEM.

The NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) at Cañada College is a five-year project that provides a total of 141 scholarships ($3000 to $4000 a year) to students intending to transfer to a four-year university as a STEM major. Currently in its fourth year, the program has helped create a core group of engineering student scholars who attend college full time with little or no need to work off campus, allowing them to take on leadership roles in students clubs and become an important role model and leaders for other students. The program has also done well in leveraging existing academic, professional and social support services for students, and creating new ones to promote success among students. The program has allowed the College to better understand the needs of students, which has led to the improvement of support services delivered not only to the program participants but to all STEM students in general.

Cañada's NSF Innovations in Engineering Education and Curriculum Infrastructure (IEECI) grant project titled "Online and Networked Education for Students in Transfer Engineering Programs (ONE-STEP)" has developed the Summer Engineering Teaching Institute, a workshop on using technology, specifically Tablet PCs and synchronous online delivery, to improve engineering education and increase the number and diversity of successful transfer students. It has also developed the Joint Engineering Program, a partnership among 16 California community college engineering programs to align curriculum and develop online courses available to students from any of the participating institutions. The ONE-STEP project has done well in promoting effective use of technology in teaching engineering, and in creating an active regional and statewide collaboration to help deal with challenges in supporting community college engineering programs (diverging curricula, declining enrollments and budget cuts).

Cañada's Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM) grant has allowed the College to further mentoring activities of faculty to promote students success, and has provided funds for additional professional development opportunities for students through professional conferences.

Professional Organization:
Being from a community college where the focus is on teaching, the American Society for Engineering Education (ASEE) is my main professional organization. One thing that ASEE does

particularly well is sponsor conferences. I regularly attend ASEE section, zone and national conferences where I get to share what I do in the classroom as well as learn about what others are doing in order to continually improve my teaching. One other good thing about ASEE conferences and publications is that they cover all fields of engineering. Being the only engineering professor at my college, I teach a variety of engineering courses that the major fields of engineering (mechanical, electrical, civil, materials). ASEE covers all areas of engineering, as opposed to other professional organizations, which focus on only one specific engineering field. ASEE conferences have also given the opportunity for my community college students to present papers and posters in a technical conference – something I did not get a chance to do until grad school. For instance, at the last ASEE Pacific Southwest section conference, my students (sophomore community college students) presented two papers and three posters on the work they did during their summer research internship.

ASEE has also done well in developing resources for engineering educators. The ASEE First Bell is a daily custom news briefing on engineering, technology, and engineering that is emailed to all ASEE members. The PRISM, ASEE's monthly flagship publication, is also very useful; it has some articles that are written in a less technical manner, making them appropriate for my freshmen or sophomore engineering students. The eGFI (Engineering Go For It!), both the magazine and the website, has a ton of useful resources for promoting engineering to middle and high school students.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

One area that needs attention (and funding) is strengthening Engineering Transfer Education. Currently, NSF's main program that is focused on community colleges, the Advance Technology Education (ATE), focuses on technician education and not on engineering transfer education. A new NSF funding opportunity needs to be develop and should focus on developing, implementing, and disseminating successful strategies that promote recruitment, retention, success, completion and transfer for community college students to four-year engineering programs, as well as research on approaches on the challenges and barriers to success (specific to community college engineering students) and approaches to overcoming them. This new program should encourage (require) collaborations between community colleges and four-year institutions, with community colleges as the lead institution, and four-year institution providing support in developing and implementing the research component of the project. This funding opportunity should be available to institutions seeking to disseminate strategies they have developed, as well as institutions seeking to adopt successful practices developed by others.

An example of a project that can be funded through this program is improving student preparation for college-level course work, specifically in math and sciences. Cañada College has developed (and institutionalized) a high successful program called Math Jam. It is a two-week intensive Math review and preparation program that has been successful in improving student initial math placement test results (and hence accelerate entry into STEM curriculum), and improve student retention and success in subsequent terms. Our Math Jam program has been visited by over a dozen different institutions (both two-year and four-year) who have sought our assistance in developing a similar program. We have prepared materials and worked with as mentors/advisers for these institutions but currently do not have funding to support such activities.

Enhancing Your Program Through Projects & Competitions

Paul Gordy, Engineering Program Head, Tidewater Community College

ASEE Model Design (robotics) Competition

The American Society for Engineering Education (ASEE) provides an outstanding design/build experience for freshman and sophomore engineering students through the Model Design Competition. My engineering students at Tidewater Community College (TCC) have competed in this event since it began in 1999 and it has had a tremendous impact on our program. The competition is held each June during ASEE's Annual Conference.

The Model Design Competition is sponsored through the Two-Year College Division of ASEE, so most of the teams are from community colleges, although some teams of freshmen & sophomores from universities participate as well. The competition centers around teams of students designing an autonomous (no remote control) robot that can navigate a track and perform various tasks. The robot designs vary widely, so the students are often surprised by some of the approaches taken by the other teams. The excitement level at the competition is very high in this challenging event as the students have worked for months to build their robots and they are often scrambling to get their robots to perform correctly or to improve their robots' performance.

ASEE provided moderate support for this event initially by providing space for the robot track in the Exhibition Hall during the conference and giving students passes to enter the Exhibition Hall without registering for the conference. The number of teams involved has grown from 3 in 1999 to 21 in 2012. ASEE's support has also grown over the years and now includes:

- Student teams can attend the conference for free (normal registration is $500).
- Bleachers are set up for the event (this is a huge conference with 3000 typically in attendance and the robot competition attracts a lot of attention)
- Each team is provided with a table, easel, and power outlets for displaying their robots and making presentations
- A work area is provided with additional tables and power for teams to work on their robots between trials
- A sound system, projectors & screens, and tables for judges are provided
- Announcements are made before the robot competition begins to attract viewers
- An ASEE photographer takes photos and we are generally featured in ASEE Prism magazine

The ASEE Model Design Competition has had a remarkable impact on the Engineering program at TCC. Some of the benefits include:

- We have received much publicity, including articles in college publications and local newspapers.

- Our college has provided much financial support for students to attend this event. Our students are also involved in fundraising. We typically send 6-12 students to the event. Past conferences have been in San Antonio, Portland, Vancouver BC, Salt Lake City, Honolulu, and Montreal. This is a rare and exciting opportunity for community college students.
- This competition helps our students to see engineering as more than just an academic exercise. The practical knowledge and confidence that they gain is quite valuable.
- TCC now has display cases with past robots. Incoming students are intrigued as they see the robots built by others in the program.
- The team skills learned in this competition are as important as the technical details. Students must learn to manage time and resources, divide tasks and communicate with other groups, and to depend on others.

Information on the ASEE Model Design Competition is available at:
http://faculty.tcc.edu/PGordy/ASEE/index.html

Each college is different, but perhaps it is important for each college or program to find some event, competition, etc., where students are engaged and where involvement will enhance their education beyond academics. Finding a supportive organization can provide the right forum and help to alleviate some of the expenses.

How to find discipline-based projects that are right for you

Many community colleges (and universities) are involved in discipline-based projects. Many of the projects are impressive, but faculty may feel that the projects just aren't a good fit at their community college. For example:

- What may work well in an urban setting might not be realistic in a rural setting.
- What may work well with a population of full-time students may not work well with part-time students.
- What may work well in a more affluent area may not work well in an economically depressed area.

Perhaps a valuable activity would be to assist faculty by:

- Doing an assessment of the college's characteristics (population, local resources, programs, etc)
- Developing projects that would fit the given college (work with local businesses or industries, work with specific community needs, etc)
- Discuss funding models
- Discuss how to integrate the projects into the curriculum
- Provide help in getting started

Support for Faculty and Building New Networks of Teachers

In August 2001, the Council of Representatives approved the establishment of the APA Committee on Psychology Teachers at Community Colleges (PT@CC). As described in the Association Rule, the committee's mission is to: (a) represent community college psychology teachers; (b) promote, within the 2-year college community, the highest professional standards for teaching of psychology as a scientific discipline with applications to a wide range of human concerns; (c) cultivate a professional identity with the discipline of psychology among psychology teachers at 2-year colleges; (d) develop leadership qualities among psychology teachers at 2-year colleges and increase their participation and representation in professional psychology activities and organizations; (e) establish and maintain communication with all groups involved in the teaching of psychology and with the greater psychological community; and (f) encourage psychological research on teaching and learning at 2-year colleges for the purpose of giving students the best possible educational opportunities.

In 2002, PT@CC met for the first time and agreed that establishing a membership category for two-year college teachers, developing teaching resources, and enhancing communications among community college psychology teachers would be among its top priorities.

The PT@CC Committee advocated for the creation of a new APA membership category for Community College Teacher Affiliates. In 2002, APA's Council of Representatives approved a Bylaw amendment to create the new affiliate membership category. Through support from the APA Education Directorate and leadership from the PT@CC Committee, a network of community college teacher affiliates was created and developed into a national membership group in APA called the Psychology Teachers at Community Colleges (PT@CC). PT@CC is the "home" within the national disciplinary association for community college instructors. PT@CC has given educators a voice on the national level to advance issues of particular importance to the teaching and learning of psychology at community colleges. Over the years, PT@CC has continued to grow and includes more than 1,500 members. Through its elected Executive Committee, PT@CC has taken a leadership role in the development of programs, activities, and teaching resources geared specifically to meet the needs of community college faculty.

With community college student enrollment at an all-time high, this is important because of the large number of undergraduates who are studying psychology at community colleges. PT@CC works to advance quality in the teaching of psychology and to promote academic achievement and student readiness for transfer to 4-year colleges and universities and into the workforce.

Resources to enhance the teaching of psychological science

One of the most exciting and innovative opportunities for the APA began in 2005 when the National Science Foundation (NSF) approved funding to create the APA Online Psychology Laboratory (OPL). OPL was the first funded entry in psychology in the National Science Digital Library (NSDL). OPL provides a coherent set of reliable, stable, quality controlled laboratory experiments and resources for use in the teaching of psychology and related disciplines. The site now includes 27 studies. Each of these studies constitutes a fully functional experiment for student participation, explanatory materials for instruction, data download capabilities for real time data analysis, and graphing downloads to illustrate effects of scientific phenomena. The resources section of OPL includes 62 interactive demonstrations. Each of the demonstrations provides an interactive illustration of

a psychological principle or phenomenon. Teachers can use the demonstrations during class and students can visit the site to repeat the demonstration if they wish to study the material. Each demonstration is annotated so that educators can easily find resources for teaching. The site will continue to serve as a resource for students and faculty in high schools, 2- and 4-year colleges and universities.

New activity to engage community college instructors in professional associations

I would seek funding to design a tool kit for establishing research laboratories to teach psychology courses at community colleges. Having a tool kit to develop research laboratories would facilitate hands-on experiences for undergraduate students and would promote psychological science as a career pathway. It would also afford students an opportunity to learn scientific reasoning and critical thinking skills prior to transferring to baccalaureate degree granting institutions. With more than 1 million students enrolled in an introductory psychology course annually, research laboratories will have an enormous impact on how students view psychological science. Students will have an opportunity to not only propose research questions, but also to collect data to answer research questions. Moreover, because laboratory exercises are designed to be engaging and informative, non-majors may begin to think about pursuing a degree in a STEM discipline.

PT@CC members recognize the value of undergraduate research and the need to infuse this high impact educational practice into their teaching. The APA PT@CC Committee is working on a guide for establishing research laboratories at community colleges. If this grant proposal were funded, PT@CC members would have the tools that they need to create a laboratory for lower division courses in psychology.

This grant would be used to disseminate information to faculty about setting up a research laboratory at a community college. For example, APA can host a webinar about strategies to promote undergraduate research including how to set up a research laboratory. In addition, staff could present information about the proposed tool kit for establishing a research laboratory at national meetings and regional teaching conferences. Our newsletter, the *Psychology Teacher Network*, and our website would provide additional ways to share this information with psychology instructors.

Community College Undergraduate Research Initiative

James Hewlett, Professor of Biology, Finger Lakes Community College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

The Community College Undergraduate Research Initiative (CCURI) employs a model of incorporating undergraduate research (UR) into community college curricula in order to engage students from the moment they enter the classroom. The model employs a case study method of instruction in freshman coursework. The CCURI writing team develops cases that instructors can use to teach basic scientific concepts within the context of an ongoing research project. Students are then given an opportunity to explore those projects as either a CURE (Course Undergraduate Research Experience), a SURE (Summer Undergraduate Research Experience) or PURE (Program Undergraduate Research Experience). The growing CCURI network has become a rich source of collaboration on both the curricular and research side of the CCURI model. This network represents the third level of the CCURI model. In this level, students are connected to research opportunities and opportunities to transfer their experience to a four-year institution as they continue to pursue their STEM career.

CCURI is effective because it uses a model that is based on a holistic approach to curriculum reform. Instead of focusing on a specific course or program, the model incorporates other aspects of reform, including infrastructural and human resources. The change being proposed within the CCURI model has depth and breadth and impacts a large number of institutional elements that might not be found in a focused classroom reform effort. In working with our 26 partners, the project helps teams of faculty and administrators incorporate this multi-dimensional approach to developing a strategic plan for implementing an undergraduate research program. The CCURI project has also incorporated an iterative process where a quantitative analysis of the barriers associated with this implementation is conducted. The results of the analysis are used in a formative way to inform both the current partners, and partners that come online as CCURI disseminates its results.

As educators, we are convinced of the pedagogical power of undergraduate research. Undergraduate research represents one of the more powerful teaching tools available for use in higher education. The challenge for community colleges has been focused around barriers that are specific to this institution type. The primary strength of the CCURI program is its focused approach to program development that addresses those barriers.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity; explain why it is needed and why it is not currently available.

In 2003, faculty at Finger Lakes Community College (FLCC) conducted a Root Cause Analysis (RCA) in order to explore the primary reasons why our attempts at developing an undergraduate research program were failing. While our focus was on undergraduate research, the results of this analysis apply to a variety of discipline-based projects. The results of the analysis showed that one of the primary limitations in place for community college faculty who are looking to pursue innovations in teaching and learning is a lack of access to networks of individuals who share a common goal.

The example provided in our analysis included the professional networks that exist within specific scientific disciplines. For example, a faculty member at a four-year research institution working in the area of microbial genetics would consider not only their institutional colleagues as part of their "professional network" but also the microbial genetics scientific community. The latter represents a much larger external network that has built-in networks of individuals working together on specific scientific questions. Research on networks is extensive, but clearly one of the results of network development is the synergy that is produced, and the accelerated pace at which new innovations, questions, and discoveries are generated.

As our analysis showed, community college faculty do not have the level of access to networks that exist at four-year research institutions. This paucity of network membership represents a serious barrier to community college faculty as they look toward developing innovations, curriculum reform, and discipline-specific scholarly activity. Funding for activities that engage the community college STEM faculty would help to create those networks—this is one of the primary deliverables of CCURI (http://www.ccuri.org).

ACS Office of Two-Year Colleges

Tom Higgins, Professor, Harold Washington College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

Recently, the American Chemical Society created an Office of Two-Year Colleges (OTYC) to specifically address the needs of community college chemistry faculty and to make the broader chemistry community more aware of the impact community colleges have on higher education and the workforce. This office has been active in collecting and sharing resources of general interest to chemistry teachers, as well as developing high-quality materials to support the work o community college chemistry faculty. A prime example of the latter is the "ACS Guidelines for Chemistry in Two-Year College Programs".
(http://portal.acs.org/portal/PublicWebSite/education/policies/twoyearcollege/CSTA_015380)
This document has been an excellent resource for leveraging scarce resources and helping prioritize where those resources are applied.
The ACS OTYC has also worked closely with the ACS Committee on Chemistry in the Two Year Colleges (COCTYC) to identify and develop future leaders from the two-year college chemistry community both by inviting people to get involved in ACS Task Forces and by offer leadership development workshops at conferences relevant to community college chemistry faculty members.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

I would work on cross-institutional leadership development projects that created new collaborations between two-year and four-year faculty members. Ideally, these would be intense, multi-day workshops where teams of faculty from different but geographically proximate institutions came together to solve problems of mutual interest such as developing new curricula, sharing expensive resources, or supporting student transfer. I think these types of activities are not happening because there is not enough faculty-faculty communication across different institutions, even though many of them are sharing the same students.

NABT and BioQUEST Curriculum Consortium

Stacey Kiser, Biology Instructor, Lane Community College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

I think of myself as participating in two different groups at this time: NABT and BioQUEST Curriculum Consortium (http://www.nabt.org/ and http://bioquest.org/). NABT provides a professional group that allows national dissemination and a focus specifically on teaching. NABT also crosses three very important groups: AP Biology, Two Year colleges, and Four Year colleges and universities. I can attend presentations on biology education research, symposia focusing on new biology research, how-to laboratory sessions, and keynotes by nationally known biologists. NABT makes room for application-level sharing of biology education research. The BioQUEST Curriculum Consortium has evolved into a group focused on faculty workshops. What I appreciate about BioQUEST is the workshop model that mirrors good teaching practices. Participants first learn new tools and do biology research, presenting to each other about their research project. The second half of the workshop puts participants back in the role of instructor, and people work on developing materials they can use in their classes. Posing problems, solving those problems, then persuading your peers of your answer is foundational to BioQUEST curriculum and faculty workshop design. I find myself changing deeply held ideas about my teaching due to this model in much the same way I hope students change their misconceptions about biology in my classes.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

What so often happens though is that we design our tests and teach to those tests, never opening ourselves (and our students' knowledge) up to a broader audience. Assessment using calibrated instruments may convince more instructors to change how they teach to improve student learning. Workshop Physics took their Force Concepts Inventory on the road in order to convince instructors that their students may have not deeply understood concepts in their classes.

At the Introductory Biology Project conference held in Washington DC June 2012 I realized that many biology instructors are resistant to changing their teaching because they think that what they are doing works for the majority of students. As I watched presentations from biology education research groups I wanted to bring more of that level of assessment into my own classroom and use the data to locally disseminate my reform efforts. What I propose is a grant to

bring biology assessment experts to regional workshops to train two year instructors on assessment and provide support to instructors to implement regular assessment projects. In a "train the trainer" model, these instructors would then work locally to disseminate assessment projects to other instructors.

Two year college instructors seem to be a particularly resistant group in biology education reform. Teaching loads are heavier than universities and no national test drives reform efforts (as the AP Biology test does for high school instructors). It is very easy to work with your students and wish them well as they articulate with universities, never to hear about their successes or failures. Many two year college instructors are interested in assessment but are not confident enough in their own knowledge to implement it with their students. We quickly become divorced from our specialty and the professional society meetings because we teach a wide variety of classes outside our specialties.

A grant focusing on training two year college biology instructors to do assessment would help disseminate Vision and Change and future biology reform efforts through regional networks of instructors collecting data. These data could be collected at the national level as a way to measure the reach and success of biology education reform.

What do I see my organization does well, and what do I see as a need

Kathryn Kozak, Mathematics Instructor, Coconino Community College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

AMATYC hosts an annual conference where there are many sessions conducted by members that demonstrate different techniques to teach mathematics. This allows for the improvement of student learning, and the sharing of ideas. A committee reviews each application of presentations, and attendees at the presentation evaluated it. These ensure quality and relevance of the sessions. Each year the conference is attended on average by about 1200 attendees. So AMATYC reaches a large percentage of the teachers of mathematics at two-year colleges.

I have been involved in three NSF funded grants. Each grant had as a goal to bring real STEM applications to algebra, quantitative reasoning, calculus, and statistics courses. To achieve this goal, teams of mathematics educators worked to develop classroom activities that are based around a technological industry, such as NASA, semi-conductor manufacturers, wind power industry, and observatories. The activities allow teachers and students to see actual applications, and thus, pique their interest in STEM majors. The material for each of the different grants is available online, thus making the material accessible to all. This is effective, since many of the people who teach mathematics are not trained in many of the applications of mathematics. These activities give teachers tools to present the applications. The web links for each are:

NASA/AMATYC/NSF PC 2: http://cctc.commnet.edu/lta/
The Math Works Project: http://www.ccc.commnet.edu/MWP/index.shtml
Dimensions Program: no website is available

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

Many of the teachers of mathematics do not have science backgrounds. So they do not necessarily know how to apply mathematics. Presentations at AMATYC focus more on how to teach mathematics, and not on how to apply it. Being involved in the projects that I have, I understand the need to have applications for teachers. However, just having the applications is not sufficient. I believe that teachers, and therefore students, would benefit from workshops that

would teach the teachers on how to apply mathematics. So I would propose a several day workshop that would bring mathematics teachers together with teachers of other STEM discipline. The discipline teachers could then demonstrate how they use mathematics in their fields. Together the teachers could look over existing activities that have been developed, such as the NASA/AMATYC/NSF PC 2, the Math Works Project, or Dimensions Program, and develop more activities that can be used to show applications in other disciplines. Having appropriate applications to demonstrate mathematics to students, will help to bring excitement to students about mathematics.

Supporting Community College Faculty across the Disciplines

Robin Lightner—Psychology; Faculty Development

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

The discipline of psychology supports teaching in a few different ways. First, the APA has developed a set of suggested learning outcomes for undergraduate education. These outcomes create coherent, standard goals for curricula from schools across the country. The outcomes specify skills that students need with the major, and this provides a framework for individual courses as well as for the design of programs. The Society for Teaching of Psychology is a division of the APA that sponsors two national conferences a year, a listserv, website for resources, and sessions at regional conferences.

A second strength of the discipline comes from its approach to assessing what works in teaching. It has a robust scholarship of teaching and learning that is displayed in the journal *Teaching of Psychology*. The discipline contributes a number of strengths to the Scholarship of Teaching and Learning which relies on social science research methods. These include operationalizing variables, study design, and statistical methods. Many of the top contributors in faculty development were trained in research methods in psychology.

A third strength of the discipline in its contribution to the work of two-year college educators is the body of knowledge produced by the subfields related to college teaching, for example, from Educational Psychology. Across the field, psychologists are aware of the work for example from top scholars such as Clyde Steele on stereotype threat (the salience of stereotypes can impact performance), Carol Dweck on theories of intelligence and motivation (beliefs about the innateness of intelligence predict achievement), and Barry Zimmerman on self-regulation (the iterative process of setting goals, monitoring performance, and adjusting from feedback). Instructors in psychology frequently put these concepts to use in the design of their courses. Additionally, the subfield of Cognitive Psychology informs us about the topics such as attention, memory strategies, and the importance of context in learning new material. Not only do we teach some of this content into our classes, we use these lessons in the structure of our courses, and we integrate the concepts as we teach students study skills as part of our introductory level courses.

A fourth development that is changing the teaching of many psychology courses is the popularity of the flipped classroom. In this model, content coverage is pushed outside of class in a variety of ways—narrated PowerPoints, web simulations, readings, etc. Students are held accountable for this background knowledge (for example through quizzes), and then they spend class time on more advanced, interactive application projects. One way of conducting a flipped classroom is by using the team-based learning methodology that includes the use of IF-AT forms and significant, forced-choice multiple choice questions with simultaneous reporting by groups. Another trend that facilitates the flipped classroom is the development of rich resources from publishers that have many online quizzing options, videos, and personalized study plans.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed, and why it is not currently available.

Two-year college instructors are often uninvolved with their professional organizations because (a) they don't have time with classroom and service responsibilities, (b) professional development is not funded. These underpaid educators often have to pay for memberships and conference attendance out of their own pockets, (c) professional development is often not rewarded by their institution or part of their job descriptions. Work with professional organizations may not be part of promotion criteria or performance expectations, and (d) teachers at two-year colleges may feel marginalized, like unwelcome second-class citizens in the professional association comprised mainly of active researchers.

I do not have a plan to address these barriers, but here are a few brainstorms below to increase involvement.

- Local/Regional two-year college conferences/symposia/workshops for discipline specific teachers
- Grant funding for collaborations between research and two-year college faculty and students to serve as co-investigators
- When research is published on educational psych topics, journals could invite a response from a two-year college practitioner on how he or she might implemented a research finding
- Offer symposia at teaching conferences about topics that two-year college instructors are most interested in, e.g., teaching unprepared students, or working with students from poverty

These would require funding, coordination, and cooperation with larger research schools and for the collaboration to be a priority to the professional organization.

- Create a faculty learning community called, "The Best from the Fields" to support faculty as they learn about their own disciplines best practices. Two-year faculty are often more willing to participate in interdisciplinary faculty development than their four-year college counterparts and have unique contributions to make to the scholarship of teaching and learning (Tinberg et al., 2007). At our college, fairly low cost multidisciplinary faculty learning communities have been very successful on the topics of peer review of teaching, transfer of learning, developing SoTL projects, self-regulated learning etc. However, this point about increasing faculty members' connection to their own discipline can also be valuable. Perhaps colleges could start faculty learning communities where two people from several disciplines are invited to take part. Each pair brings in their own disciplinary best practices to inform the multidisciplinary group. Each member would attend a conference, find literature, and pairs would create a white paper on their disciplines' best practices—then people would share, borrow, and experiment. In order to be successful, this model would require funding for conference attendance, a facilitator's stipend or course release to coordinate and lead the group, and possibly for materials.

2YC Faculty Resources in the Geosciences

Heather Macdonald, , College of William and Mary

1. What are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well?

1. The geosciences have several national projects funded that aim to improve undergraduate geoscience education by supporting faculty including (see list below). These projects, each supported by grants from the National Science Foundation, have websites at SERC. Collectively they provide resources when getting ready to teach a class, designing or revising a course, helping develop student skills, and working to build a strong department or program. The project websites are listed below, with highlights about two of the resources.

The Math You Need, When You Need It provides web modules to help students succeed with mathematics in introductory geoscience classes and workshops for faculty interested in using these modules in their courses. The modules give students the quantitative skills that they will need, just before they will use them in a geoscience course. Each individual module addresses a single math topic in your geoscience course and is divided into three parts.

- a page that introduces and explains the concept (Why is it important? Where is it used?) and provides a set of steps that students can use to solve mathematical problems
- a set of practice problems in the context of geology with worked answers (using the steps provided on the introduction page)
- (optional) a set of quiz questions that provide an opportunity to for students to show what they have learned. If the instructor uses this part of the website, the instructor gives students a login and password.

There is also a webpage for the instructor that gives information about what is not covered in the rest of the module and some insight into why a given topic is hard for students.

On the Cutting Edge is a comprehensive, discipline-wide professional development program that offers an annual series of face-to-face workshops as well as virtual or hybrid workshops and webinars. Examples of workshops that have been of particular interest to community college faculty include teaching introductory geoscience courses, innovative and effective course design, the workshop for early career geoscience faculty. The website includes resources on ~ 40 topics including affective domain, assessment of learning, course design, data, simulations and models, metacognition, service learning, teaching methods, undergraduate research, urban students and urban issues, and visualizations (as well as numerous geoscience specific topics (see the website for the complete list). The website includes more than 1600 community-contributed teaching activities, an amazing resource for faculty interested in teaching. The website also provides a course design tutorial and resources on the two-year college faculty job search.

- The Math You Need, When You Need It: math tutorials for students in introductory geoscience http://serc.carleton.edu/mathyouneed/index.html

- On the Cutting Edge: http://serc.carleton.edu/NAGTWorkshops/index.html
- Starting Point: Teaching Entry-level Geoscience http://serc.carleton.edu/introgeo/index.html
- Building Strong Geoscience Departments http://serc.carleton.edu/departments/index.html
- InTeGrate: Interdisciplinary Teaching of Geoscience for a Sustainable Future http://serc.carleton.edu/integrate/index.html

2. I'm very excited about two of the outcomes of a workshop held in 2010 on The Role of Two-Year Colleges in Geoscience Education and in Broadening Participation in the Geosciences: a new organization and a new NSF-funded project, both of which are building networks and communities. The new organization is the Division of Geoscience in Two-year Colleges, the first division established in the National Association of Geoscience Teachers. The Geo2YC Division is described in more detail in the essay by Dave Voorhees. The new project is SAGE 2YC (Supporting and Advancing Geoscience Education in Two-year Colleges), which held its first workshop in July 2012 on Preparing Students in Two-year Colleges for Geoscience Degrees and Careers. Building a strong and diverse geoscience workforce is a critical national challenge and two-year colleges (2YCs) play an important role in increasing both the number and diversity of geoscience graduates. We are offering a series of follow-on workshops and a webinar series in the coming year will add to the website to expand the opportunities for participation in the project. Visit the project website for more details. http://serc.carleton.edu/sage2yc/index.html

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be?

I am intrigued by the possibility of a webinar series for faculty teaching introductory geoscience courses that builds on the model of the Economics "Cutting Edge" webinar series described in Mark Maier's essay. The webinar would include a presentation by a national expert on an important geoscience topic, recent geologic event, or innovative pedagogic approach followed by time for question and answer and discussion. I am also intrigued by the possibility of developing local/regional networks of geoscience faculty from both two-year colleges and four-year colleges and universities who would work together to enhance their introductory geoscience courses and who would work on improving transfer of 2YC students to geoscience students as majors.

Projects that worked/haven't worked in economics

Mark Maier, Professor of Economics, Glendale Community College

What has worked

1. NSF currently supports "Economics at Community Colleges," /econ/2yc/index.html , a project to explore ways to engage two year instructors in ongoing discourse about teaching and learning economics. It is part of another NSF project, "Starting Point: Teaching and Learning Economics" /econ/index.html , a portal for sixteen pedagogical approaches. (Both are housed at SERC).

The one activity that has most successfully engaged community college instructors is a webinar series in which a nationally-known expert discusses a current issue in economics such as antitrust law, the financial crisis or health care. See /econ/2yc/index.html We call the series, "Cutting Edge," borrowing the name from geoscience education /NAGTWorkshops/index.html, The webinars, one-half hour of presentation and one-half hour of open phone line discussion, investigate how new theories and evidence affect instruction in the introductory course. Registration for each webinar has been 40 – 50 participants, thus reaching more two year instructors (and at lower cost) than other approaches we tried including regional workshops and meetings at national conferences. Our goal is further engagement after the webinars in local study groups at which faculty will develop new teaching materials based recordings of the webinar presentation.

2. The American Economic Association has increased its support for teaching and learning activities with additional sessions at the national meetings and a separate conference on economic education http://www.aeaweb.org/committees/AEACEE/Conference/2012/index.php

One activity at the national meeting that has increased involvement by community college instructors is a poster session on teaching. Because the poster session has a much higher acceptance rate than regular sessions, more faculty are able to present at the meetings and therefore obtain funding to attend. Also, the poster session has created a social setting in which faculty talk about teaching and learning, not a common occurrence at the national meetings.

What I'd like to see

For five years, NSF supported the Teaching Innovations Program http://www.vanderbilt.edu/AEA/AEACEE/TIP/TIP.htm in which economics faculty met face-to-face in workshops to explore innovative teaching techniques and then worked online with mentors to develop specific applications in their courses. Unfortunately, only 4 percent of the more than 300 participants were from community colleges even though two-year faculty teach an estimated 40 percent of introductory economics students. It would be wonderful to re-create this

program specifically for community college instructors. The combination of face-to-face interaction followed by web-based activity was successful here and in other disciplines. The key would be to find ways to recruit community college faculty to the initial workshops (other disciplines have done so successfully) and then keep them engaged afterward. And, then, of course we would need NSF funding; it was not awarded to sustain the original project.

Supporting Community College Faculty

John Min, Northern Virginia Community College

From my perspective, the two things that discipline-based NSF-funded projects do particularly well in supporting educators are first enabling project managers to publicize and leverage the "NSF" brand to marshal additional resources – in terms of facility, marketing and funding - from their institutions (and administrators) to support their project. Second, NSF-funded projects are ideal for bringing like-minded folks together from diverse backgrounds to share thoughts on "how to best teach" economics in their classrooms to bring about a meaningful impact in their student lives. For example, with a NSF funding support, Northern Virginia Community College and Montgomery College were able to collaborate, publicize and host a first ever NSF funded "best teaching practice" workshop for "principle" instructors in Virginia, Washington D.C. and Maryland earlier this year. The workshop was well attended (despite a bad winter snow condition), and a post workshop survey clearly indicated that most participants were swayed to attend because "it was a NSF event."

If I could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, I would ask for funding to build and maintain a teaching "portal" for hosting teaching "apps" that can be readily accessed via computer, PDA and smart phone. The portal would enable instructors to search and utilize appropriate teaching apps in in their classroom to further illuminate key economic concepts and demonstrate their relevance with current news, indicators and real world examples.

Thomas O'Kuma – TYC Physics Professional Development

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

The two most obvious aspect of my physics NSF-funded projects do well in support of my work as an educator are providing professional development in physics pedagogy primarily and content secondarily and providing a network connecting our portion of the physics community together.

My involvement with NSF-funded two-year college (TYC) physics professional development projects started in 1991. The TYC Physics Workshop Project (http://tycphysics.org/default.htm) started in 1991 providing opportunities for two-year college faculty only originally, but expanded to include high school faculty starting in 2002. In 2006, the ATE Project for Physics Faculty (http://www.physicsworkshops.org/) expanded this to include technical education.

In 1991, two powerful pedagogically approaches with a physics education research base had compelling evidence for them to be presented to existing TYC physics faculty, most of whom did not experience these approaches during their formal education. The first approach, microcomputer-based laboratory (MBL)[1-3], provided a way of infusing technology (computers, interfaces, and sensors) with well crafted curriculum[4-5] into the introductory physics courses. Twenty-four 3-day intensive workshops have been given over the last twenty years on this very important approach. After the workshops, participants were expected to implement the workshop ideas and materials. Many of the participants did implement the MBL approach with many of them getting funding from their administrations because they had received training through the workshop on how to implement this technology in a powerful way.

The second approach was a "low-technology" approach involving pencil and paper activities that a participant could use immediately in their classes. The Conceptual Exercise/Overview Case Study[6-7] (CE/OCS) approach provided training for the participants with them leaving the workshop with classroom-tested materials. Twelve 3-day intensive workshops have been given over the last twenty years on this very important approach. Additionally, this approach has been incorporated in many of the other types of workshops that we have done. Besides most of the participants implementing some of the CE/OCS ideas after the workshop, one participant used these ideas to develop his entire curriculum, called Spiral Physics, which has been used by many others (http://web.monroecc.edu/spiral/).

Since the early years of this endeavor, many additional workshops have been offered that incorporate some of the MBL or CE/OCS ideas. Using ideas developed from the CE/OCS workshops, books on ranking tasks and TIPERs (Tasks Inspired by Physics Education Research) have been published[8]. During this project, the first assessment instrument on electricity and magnetism ideas was developed, extensively tested and revised, and finally published[9].

The 3-day workshops were emersion workshops. Participants worked together, ate meals together, and stayed together during the entire time. There was 20 to 22 hours of training on the main workshop topics; an additional 4 to 6 hours of development and participant presentation time; and 2 to 3 hours of project related discussions.

The second aspect of these workshops is the networking of the participants among themselves and with the workshop and project leaders. Many participants (roughly 50%) choose to attend more than 1 workshop (since we had several different workshop topics over the years). We encouraged participants to give talks and posters at section and national meetings of the American Association of Physics Teachers (AAPT) and at their colleges or high schools. Hundreds of the participants choose to do so. We would hold informal and occasionally formal gatherings of participants at national AAPT meetings. Many of the participants have become active in AAPT and sections of AAPT as a consequence of this networking. Some of the participants have collaborated with workshop and project leaders to continue their projects or to help with other projects. Some have created their own projects. Scott Schultz of Delta College in Michigan and Todd Leif of Cloud County Community College in Kansas have created a project called the New Faculty Experience for Two-Year College Physics Faculty (see website: http://www.aapt.org/Conferences/newfaculty/tyc.cfm) in collaboration with AAPT. This project is designed for new physics faculty at two-year colleges.

This networking part of the projects is very important. Dwain Desbien, who is the co-principal investigator on the ATE Project for Physics Faculty since 2006 was a new faculty in the mid-1990s and early participant of the TYC Physics Workshop Project. His involvement in these early workshops inspired him to become active nationally and to want to help lead the "next generation" of workshops and other endeavors.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

I would propose a "Center for Two-Year College Physics" that would be sponsored through the AAPT. The center would coordinate existing TYC physics projects (such as the New Faculty Experience project and the ATE Physics Workshop project) and create other new projects that are needed. One example of other projects that need to be done, but are not currently being done, is conducting national conferences. We need to have national conversations (conferences) on program needs like the need to establish a successful preparation of future teachers program at your TYC or a national look at ignored program areas like conceptual physics or algebra-based physics. Another example of other projects is the need to address community needs like coordinating surveys of physics programs to know how many students take this course, how many are in technical programs, and many other questions. We need to visit exemplary TYC physics programs so others can emulate these successful programs (like the SPIN-UP/TYC project – see website: http://aapt.org/Projects/spinup-tyc.cfm). Since AAPT is a national association, the Center would not be tied to any one college or any one individual. It would have the ability to serve the diverse TYC audience.

The Center concept is needed to help coordinate the limited resources that are available for TYC physics efforts into a national "master plan". The Center would provide a maximum number of services, yet requiring minimal infrastructure. Funding for the Center is not currently available since it does not "fit" into any funding agency's category. This concept does not fit nicely in the TUES or ATE program. AAPT, by itself, cannot afford to invest the necessary funding into a TYC Center.

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Support for two-Year College Faculty in Political Science

Sara Parker, Chabot College

As of yet, I don't believe that there has been work done with NSF based funding specifically for the discipline of Political Science. I look forward to the opportunity to advance this goal.

The main organization in Political Science, the American Political Science Association (APSA), appears to have done less than other disciplinary organizations to support community college faculty and/or integrate CC faculty into the Association. This concern has been raised to the organization directly in the past and was recently discussed on a regional APSA conference panel.

About a decade ago, APSA created an annual Teaching and Learning Conference. This is a great conference that promotes the sharing of pedagogical techniques. The separation of the teaching and learning conference from the more academic-oriented annual and regional conferences may have had the (perhaps unintended) consequence of distancing Community College faculty, who attend the TLC conference in greater numbers, while research institution faculty attend the annual and regional conferences.

One thing that APSA does well is to provide online teaching resources to faculty: http://www.apsanet.org/content_3842.cfm?navID=536 Although not aimed specifically at Community College faculty, I have used the resources often and find them very helpful.
I appreciate that there is a reduced membership ("Associate Member") rate for community college faculty.

I would like to see more opportunities for the inclusion of community college faculty at the annual APSA conference and at regional conferences. Here are some examples of the types of integration that could take place:

- Offering brief refresher or update courses at annual and regional meetings, either during the conference or in pre-conference sessions. Funding (possibly through a competitive process) would make participation feasible for CC faculty.
- Dedicating a web presence to CC faculty on the APSA website.
- Institutionally supporting the development and upkeep of a community college faculty network.
- Support and encouragement of initiatives that establish 4-year college/university outreach programs with 2-year colleges.

Community college faculty often lack funding and institutional incentive needed to remain current in their field. CC professional development tends to focus on broader pedagogy topics rather than discipline specific content. CC faculty members are motivated to stay up to date in their field but community colleges are often unable to support discipline-based professional

development or funding. Furthermore, community college instructors in political science teach courses across the discipline, which amplifies the difficulty of remaining current with the literature in any number of specialized sub-fields.

A concerted effort of greater inclusion, under the leadership of APSA, would improve the quality of political science teaching across the U.S., improve the quality of political science pedagogical research, and create a more collaborative atmosphere within the discipline for CC faculty.

Additionally, improved support of community college faculty would contribute to greater diversity within our discipline, and equity in academia. Community colleges disproportionately serve minority populations; outreach to community college political scientists is outreach to the undergraduate institutions where young people choose their future educational and career paths, and decide on a major.

Resources for Community College Faculty in History

Peggy Renner, Glendale Community College

RECENT SUCCESSES in HISTORY

Both the Organization of American Historians (OAH) www.oah.org and the American Historical Association (AHA) www.historians.org have provided invaluable resources to community college faculty. Of the two organizations, the OAH has the longest and strongest commitment to improving teaching.

Among the OAH's noteworthy supports is the Community College Teaching Workshop, which is organized by the Committee on Community Colleges, and conducted at the annual meeting. These sessions bring together faculty to address ways of more effectively teaching history. A recent session focused on the benefits and costs of using modern technology to access library and internet resources and how to respond to declines in students' the attention spans. This committee has also conducted summer retreats for community college faculty who cannot attend the annual meeting so they can brainstorm on ways of effectively teaching history to twenty-first century students. For the many who cannot attend the summer workshops, the OAH also publishes the Magazine of History www.magazine.oah.org which focuses on recent "hot" topics in history and providing scholarship, articles, and teaching strategies. This monthly publication is rich in resources. In addition, the Program Committee for the annual meeting specifically calls for sessions that are based on "collaborative partnerships among teaching historians and history educators at all levels" with an emphasis on teaching, not reading papers, and organized as roundtables or workshops". These sessions meet to an overflow audience even in the largest lecture halls.

The American Historical Association has more recently joined in addressing the needs of community college faculty and has develop its web page with a click to resources for Two-Year Community College Faculty www.historians.org/resources/TwoTearFacult.org . While this does not offer interaction for teaching faculty, it does provide invaluable resource materials. The AHA website provides other material focused on teaching. The most noteworthy is "A Status Report from the OAH Committee on Community Colleges" by Nadine Hata which was intended to raise awareness of teaching issues to the four year faculty who traditionally have not focused on teaching. And finally some historians have been beneficiaries of fund from the Teaching American History grants which bring together educators from the K-12, two and four year schools for three years to develop ways of effectively teaching history to students who grew up with technology.

WORK TO BE DONE

While both organizations support teaching and have worked to bring together the teaching faculty from the two-year schools with the research faculty from the four year schools, there is

need to focus more on the lack of preparation for the study of history that students receive in the K-12 system. With emphasis in recent years on English and math, we see many students who have no skills in analyzing primary sources, critically reading and essay, or even thinking about reading a book. These skills we see as vital in a democratic republic and we need to tackle this lack of preparation.

What works well?

Katherine Rowell, Sociology/Center for Teaching and Learning, Sinclair Community College

As a community college faculty member of the American Sociological Association, I think the ASA Section on Teaching and Learning has worked well in supporting me as an educator. This section has over 800 members and these members come from various types of institutions (not just community college faculty). This section has also offered opportunities for leadership specifically targeted to community college faculty. The section chair rotates every three years to an elected community college faculty member and there are also three elected (three year terms) council positions designated for community college faculty. I believe this is the only section within ASA where community college faculty leadership is part of an intentional institutionalization. I enjoy being a member of this section in part because I am not singled out as being from a community college. The focus of this section is good teaching and all the members (no matter their institutional affiliation) are dedicated to good sociological teaching. In fact, this past year the focus was on teaching introductory sociology and I had an opportunity to learn from all faculty not just community college faculty.

New Faculty Experience for TYC Physics Instructors

Scott Schultz, Chair of the Science Division, Delta College

The project that I work with is the New Faculty Experience for Two-Year College Physics Instructors. This project consists of an intensive training experience to enhance STEM student learning through developing new physics faculty members at two-year colleges. To make a significant impact, the New Faculty Training Experience consists of, for each of the two cohorts of faculty members, 18 months of mentoring and professional development for two-year college physics faculty members who are in their first five years of teaching. This experience includes online discussions of seminal papers in physics education research, a four-day intensive training conference held at a two-year college led by instructors that have a proven record of teaching at a successful two-year college physics program, 15 months of mentoring these participants and a three-day commencement conference held in tandem with an American Association of Physics Teachers (AAPT) national summer meeting.

The project works with 30 new instructors per cohort, dramatically improving the way these instructors interact with students over the course of their careers. By scheduling the follow-up sessions in conjunction with the AAPT national meeting, the project will be able to introduce participants to the professional development opportunities available to them through this professional organization to support their professional growth as their involvement in this experience concludes. It also allows AAPT to play a role in developing the next generation of physics instructors.

The intellectual merit of the proposed project includes:

1. Reaching a significant number of new two-year college physics instructors to give them the intellectual knowledge about recent developments in physics pedagogy.
2. Presenting the material in an active engagement environment that models the type of classroom management that we desire them to implement.
3. Mentoring the participants to provide them the support they need to make significant changes in their programs.
4. Having a leadership team with extensive experience in mentoring new physics faculty members.

The broader impacts resulting from the proposed project include:

1. Significantly enhancing the use of interactive engagement techniques experienced by the students at the two-year colleges at which the participants teach.
2. Strengthening the physics content knowledge for the students taught by the participating instructors.
3. Strengthening the students' skill sets that are valued by employers by developing more robust learning environments using active engagement strategies.

4. Disseminating the results of the Two-Year College New Faculty Experience through talks and publications.
5. Developing a national model for two-college STEM faculty professional development.

More information can be found at http://www.aapt.org/Conferences/newfaculty/tyc.cfm.

Supporting and engaging community college sociologists

Stu Shafer, Professor, Sociology; Chair, Sustainable Agriculture, Johnson County Community College

Probably the most helpful resource the ASA has for community college sociologists is their Teaching Resources And Innovations Library for Sociologists (T.R.A.I.L.S.) website (http://trails.asanet.org). Essentially, what ASA has done is to put its entire teaching and learning library online in an interactive format. More than just a repository, it is a two-way medium. Not only can members search the library for everything from class activities to syllabi, they can also submit their own materials for publication. Of course, a key word in that description is "members." Access to the full site and submission rights is available for a membership fee, and ASA members get a substantial discount. Thus, community college faculty participation in this resource library is most likely dependent on their membership in the association, and in my experience those faculty who are not already association members are not especially interested in the resource.

Still, since this professional organization typically assumes that the proper place for community college faculty is in the teaching and learning section, this resource is the most likely interface for their participation. I have not investigated the extent of that participation, but I do know how I might be able to find out. And I have had some of my own materials published there (mainly because they had been published in print form by ASA prior to this move online, and it was a simple matter of giving permission for the online publication). Given that most community college members of ASA participate most actively in the Section on Teaching and Learning, I would guess that many of those are also significant participants in TRAILS.

The second thing the ASA has done to assist community college educators has been to establish two task forces devoted to enhance the association's responsiveness to community college faculty needs. Although recommendations of the first task force were not all implemented, leaving some frustration among those who were aware and had participated, the ASA has recently appointed a new task force that is just beginning its work. There is hope that this current effort will lead to significant changes in the openness of the organization to community college folks and a solid empirical understanding of their specific needs, resulting in the development of new structures and programs to meet those needs.

As for a new, funded initiative the ASA could provide that would engage more community college faculty and serve as a center and vehicle for more effectively meeting their needs, I think the establishment of a Section and Committee for Community College Sociologists would be most effective. I believe that membership in this section should be automatic for all community college faculty who join the organization, and in recognition of their generally lower rate of pay than that for university faculty, a discounted membership structure between the regular dues and those of graduate students should be established to further nurture and encourage the new

section.

Care should be taken to ensure that the implementation of the section would not diminish community college participation in the section on teaching and learning, including in its leadership. The section would be specifically charged with investigating the particular conditions of sociology in community colleges, and would recommend policies that would address those particular needs as well as unrecognized strengths inherent in the role community college faculty play in providing entree for as many as half of undergraduate students to the discipline.

In this way, community college sociologists would have the institutionalized opportunity to participate as full members in the ongoing social construction of the science and the discipline. I am not just talking about engagement of community college faculty as passive observers of the "real" work of "real" sociologists at the baccalaureate and graduate degree institutions. I am talking about engagement in the work itself, a kind of public sociology of sociology, whereby the strengths and experiences of community college sociologists as social sciences is given not only recognition, but also empowerment within the discipline itself.

Such engagement (and empowerment) in the professional organization would, in turn, further energize and enhance the role of sociologists in their own colleges and communities. I firmly believe that until sociology in the community college becomes active public sociology, bringing the science of sociology to bear on the needs and development of the communities that community colleges serve, community college sociology will not have reached its full promise as a discipline.

The AEA Committee on Economic Education

Wendy Stock, Professor, Montana State University-Bozeman

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

The American Economic Association (AEA) supports the AEA Committee on Economic Education (CEE) (information at: http://www.aeaweb.org/committees/AEACEE/index.php). The CEE organizes annual conferences on teaching economics and research on teaching economics and hosts breakout paper sessions on economics teaching-related topics at the annual AEA conference each year. They also provide weblinks to teaching-related resources on their webpage. They also partner with the Journal of Economic Education, the top journal in the economics subfield of economic education at all levels.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

I would suggest a method to bring top instructors and researchers on pedagogy from a wide range if disciplines together to share their findings and experiences. Their findings and experiences could be disseminated to a wide audience. Sometimes I worry that many of us "reinvent the wheel" with teaching methods and research on teaching because we don't know enough about each other's disciplines to absorb lessons from one another.

Undergraduate Research at CUNY Queensborough

Paris Svoronos, Professor-Chemistry Department, CUNY Queensborough Community College

Our NSF grant proposal awarded in 2007 aimed at increases in enrollment of both Chemistry and Biology courses as well as graduation of STEM students. This was envisioned as a result of expanding research opportunities and internships, group tutoring, student conference participation and regular holding of seminars given by outside speakers.

Two Queensborough faculty started undergraduate research in 2000 with one student. That number has expanded to an average of 50 student projects per year with several students involved in multiple presentations. These involve research conducted at Queens College (a four-year institution of CUNY), the Food and Drug Administration (FDA in Jamaica Queens), the NY City Division of Environmental Protection (DEP) as well as the Brookhaven National Laboratory in addition to research projects conducted in our Queensborough Community College campus. The departments involved are mainly chemistry and biology with the occasional contribution of a few physics and engineering students.
The process, capped by the joined trips to conferences, has enhanced the formation of a strong cohort of students that leads to a unique display of mutual respect and support of each other. Despite the incredible diversity of cultures and ethnic backgrounds, communication in English has improved their language skills, self confidence and ability to explain their findings in meetings. In addition, a dozen peer-reviewed publications bearing our own students' names have legitimatized the belief that community college students are able to start conducting research at the freshman level.

The establishment of an Honors Program at Queensborough in 2001 has provided the initial platform for providing the needed challenge to committed students. Since 2005 the college holds an annual CUNY-wide community college conference at the end of the spring semester. The students get their first chance to make a presentation in front of a "less hostile" environment that increases their ability to control the attention of the audience while they present their own power point.

Group tutoring has also improved the tutors' ability to handle and explain concepts they learned in the classroom to fellow students, who may be classmates in other non-STEM classes. The tutors' confidence improves because they understand that if they can explain something, then this proves they know it. In addition the tutees feel more comfortable asking a question from a fellow classmate than the professor while taking advantage of working individual problems on the board in front of friends disregarding the possibility of mistakes and shameful display of ignorance.

Enrollment in the STEM fields has increased by almost 70% in the last five years, but graduation level sfrom Queensborough have not improved, as many of our students elect to transfer once they are done with their remedial. Nevertheless, in 95% of the Chemistry courses offered since 2001 the students, on an average, score higher than the average national score of every ACS exam they take at the end of the semester and during lab checkout.

Students in most cases go through a discontinuation of their STEM knowledge for more than three months (June-August) which leads to a minimal retention of what they have learned in the classroom with a subsequent slow start once the fall semester starts. Engaging the students in the sciences during the summer course through a STEM related activity or an internship would certainly be beneficial. The number of internships however is low and the maximum number of students a faculty can take in conducting research is no more than 2,3 or 4. In addition the availability of a lab space is rather limited since the number of lab sections offered during the summer is too high to allow such an opportunity. Moreover full time faculty prefer to teach in the summer and get compensated in a satisfactory manner. Thus the creation of more internships with national laboratories and government-run agencies will greatly help this cause.

Community College Efforts from the ASA

Margaret Weigers Vitullo, Director, Academic and Professional Affairs, American Sociological Association

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective.

One of the things that ASA has done tremendously well over more than 30 years is work to support the scholarship of teaching and learning in sociology, as well as the practice of scholarly teaching. This work was started by Hans Mausch and carried forward over a 24-year career by Carla Howery in the ASA Academic and Professional Affairs Program.

In addition to the tremendous leadership of individuals such as Mausch and Howery, the effort has been effective because of the passion and commitment of member sociologists. The ASA Section on Teaching and Learning is the community embodiment of that commitment, and is vibrant and professionally supportive of teacher-scholars at every level – as evidenced by the fact that every third year the Chair of the Section must be a sociologist located in a community college setting. The Section's listserv is the virtual town square of this community, with frequent discussions of teaching approaches and new resources and issues connected sociologists across the country.

The journal, Teaching Sociology, is another strength of the association. Published quarterly, the journal "publishes articles, notes, and reviews intended to be helpful to the discipline's teachers. Articles range from experimental studies of teaching and learning to broad, synthetic essays on pedagogically important issues. The general intent is to share theoretically stimulating and practically useful information and advice with teachers."

TRAILS, the Teaching Resources and Innovations Library for Sociology, is the Association's newest venture in supporting sociologists as teachers. TRAILS is an on-line, peer-reviewed library of teaching and learning materials in sociology. Launched in May of 2010, sociologists can upload teaching resources they have created (including syllabi, class activities, assignments, Power Point presentations, video, and images), along with supporting documentation such as learning goals and assessments, user notes, and an abstract. These submissions are then reviewed by a subject-area Associate Editor and subsequently by the TRAILS Editor. If a resource is accepted for publication it appears in TRAILS along with a cover page that includes a suggested citation. After accepting the user agreement and paying a small yearly subscription, sociologists seeking ideas for teaching can search TRAILS and download and adapt any TRAILS resources for their own classroom use. TRAILS currently has 819 subscribers and receives approximately 1000 unique visitors per month. Although still in its infancy, TRAILS already provides a new form of evidence of teaching excellence for teacher-scholars in sociology who publish their

pedagogical resources there. It also provides a new way to bring quality teaching materials based on cutting-edge research to sociology professors across the educational spectrum.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

As I mentioned in my profile, the ASA has just launched a new three-year Task Force on Community College Faculty, charged with investigating the characteristics, professional identity, advocacy and professional development needs of sociologists working in community colleges. The Task Force's report will undoubtedly point toward a variety of specific activities that could benefit and engage community college faculty, and will provide insights on how to prioritize them, but without the benefit of those insights, one possible activity would be to create a community college workshop that would help draw sociologists from community colleges together with faculty in four-year institutions to exchange pedagogical approaches and research findings. Working groups would build materials for specific courses, incorporating cutting edge-research into engaged, interactive teaching activities. Each team would produce a series of resources that would be published in TRAILS, expanding the impact of the project. Community college faculty who joined the association could be given a subscription to TRAILS as a free benefit of their membership, helping to assure the diffusion of the materials.

The Geo2YC Division of NAGT

David Voorhees, Associate Professor Earth Science / Geology, Waubonsee Community College

1. From your perspective, what are the two things that your disciplinary professional organization or discipline-based NSF-funded project does particularly well in support of your work as an educator? Please be specific about how this activity works and why it is effective. Add web links if available.

The Geo2YC Division of the National Association of Geoscience Teachers (http://nagt.org/nagt/divisions/2yc/index.html) was just formed in July of 2011, and we are still developing targeted programs and resources (white papers, study of best practices, etc). To date, we have supported workshops and technical sessions for 2YC geoscience instructors at the local and national meetings of the Geological Society of America and American Geophysical Union. We have begun to establish a network through the publication of 3 newsletters and the development of a website (http://serc.carleton.edu/geo2yc/index.html).

I am also the PI on an NSF S-STEM grant (DUE 0965822), which is a synergistic combination of scholarships with numerous resources, programs and activities which are designed to ensure the success of the participating scholars in their STEM-based education at Waubonsee Community College, and beyond. First, we match each student to a faculty mentor for their entire time at Waubonsee. This faculty mentor provides scholastic and career counseling to the STEM Scholar during their monthly meetings. Second, the STEM scholars are required to give a presentation on a STEM subject that they are passionate about during one of our monthly STEM meetings, and the highest peer-reviewed presentation receives funds to attend a notional level meeting in their STEM discipline. Third, the STEM Scholars are also required to attend (2) on-campus and (1) off-campus events per semester to broaden their STEM knowledge. We have just finished the first year of granting scholarships (May 2012), and for those students actually receiving money, we have had a 100% transfer rate, and the development of, what surely will be, successful scientists and engineers when they have finished their education.

2. If you could propose (and obtain funding for) one new activity to engage community college instructors in professional associations and other discipline-based projects related to teaching and learning, what would it be? Describe the activity, explain why it is needed and why it is not currently available.

For the geosciences, it has been conclusively shown that engaging students in research significantly increases (1) interest in the geosciences, (2) development of majors in the geosciences, and (3) success as geoscientists. Implementing scientific research at two-year colleges is difficult for many reasons, such as time constraints of the potential PI of the research grant (such as writing, developing, and implementing), access to equipment and supplies, training limitations of students, and time constraints of students trying to manage classes, job(s),

and family. Additionally, there are many part-time faculty willing and able to undertake such commitments, but are unable to because of institutional requirements of being full-time. To this end, it would be helpful if a nationwide resource of relatively accessible funds were available to support this kind of innovative approach to teaching geoscience in two-year colleges. This may be the only funding to support research that some faculty may have available to them, and therefore their students. These funds may not necerssarilyhave to support 'state of the art' research, as simulated 'research experiences' for the student can be very effective (see Bob Blodgett's well core analysis project at http://serc.carleton.edu/geo2yc/activities/46405.html, and in poster format http://serc.carleton.edu/geo2yc/workshop2010/posters.html).

A model for this program might be the 'Innovation in Learning Grant' available to faculty at Waubonsee Community College (http://ctlt.waubonsee.edu/inno_learning_gr.html). I have used this grant to purchase equipment to simulate the professional preparation of fossils in labs, and is being used in the Physical Geology (GLG101) and Evolution (BIO128) Labs. This equipment exposes the students to the techniques and challenges of professional paleontologists and paleontological research.

Part of the design of this research opportunities grant program would be to determine the need for such a resource. In order to assess this need, a nationwide survey would be designed, implemented and analyzed. Such a survey of geoscience instructors at two-year colleges is not available.

A Proposal for a Thematic Series of Workshops/Retreats

Jim Wysong, Hillsborough Community College

Of the many seminars and programs that I have participated in over the years, **one program that stands out** as a model for effective, informative, and *truly useful* information that improves teaching and learning in the classroom is the Teaching Excellence Workshops series offered by the Center for Astronomy Education (CAE) – based at the University of Arizona[i] . These workshops are a joint project of NASA/JPL and the University of Arizona's Conceptual Astronomy and Physics Education Research Team (CAPER)[ii]. They are funded by support from the university and through a grant from NSF[iii]. While directed at improving introductory Astronomy education, the pedagogical methods and research-based, classroom-validated, materials and techniques are applicable and adaptable across the disciplinary spectrum. What also sets these workshops apart is the data-supported evidence of the effectiveness of the methods discussed *and modeled* in the workshops, as well as the involvement and commitment of the workshop presenters – Dr. Ed Prather and Gina Brissenden – to providing follow-up opportunities and resources for past participants. Additional examples of the elements that make these workshops so worthwhile include:

1. The workshops are **well paced and very efficiently scheduled**, generally two days on a weekend. They are offered with the academic calendar in mind, often in conjunction with (or immediately before or after) major national or regional professional society meetings/conferences, thus maximizing the use of the participant's limited time and travel funds.

2. The workshops are **offered in different geographic locations**[iv] to maximize the opportunities for participation without undue travel costs.

3. **The workshops are stepped up in "tiers"** so that participants are able to attend follow-on workshops that build on the knowledge and experience they gained previously. This also has the benefit of breaking up the information into manageable amounts, and allows participants to gain experience using the methods and materials in their own classrooms before returning for more instruction. Currently, there are three tiers offered along with occasional "special topics" workshops such as integrating technology with active learning.

4. The goal of the workshops is not only to impart knowledge, but also to **build a community of scholars**[v], fostering networking and cooperation between colleagues and institutions. I can tell you that I have seen this as a stated goal of many other programs, but this one really delivers. Participants are encouraged to return to their home institutions and "spread the word" – multiplying the effectiveness of this program well beyond the 1000 plus faculty members who have attended thus far.

In conclusion, this is a great program that offers valuable information for educators, good return on the investment of NSF grant dollars, and a good model to follow for developing other similar programs.

My proposal is based on three observations that I have made over the course of attending, presenting at, and organizing various faculty development programs. The first observation is that field-based programs are popular with participants and have the advantage of "sequestering" the participants, maximizing interaction and communication among them. The second is that a mix of participants that brings together experienced faculty with those new to the profession creates a rich atmosphere for sharing ideas and building relationships between institutions and colleagues. The third observation is that by calling on the participants to be presenters as well as

attendees dramatically increases the effectiveness and engagement level. With these observations in mind, I will describe below, the type of program I would like to propose.

I would like to see a series of workshops/retreats organized that would center on a theme – the Yellowstone Super-volcano, for instance - which would involve course information and field trips devoted to the theme topic. Providing new and interesting information to enrich the curricula of the participants' courses would only be one of the workshop's goals. An equal or greater outcome would be achieved by the sharing of best practices and the creation of an expanding network of educators across the country. To accomplish this, the participants would be selected to attain a mix of experience levels and would all be asked, as part of the application process, to be prepared to present a short lecture to the group on a best practice or student success strategy that they use or are otherwise familiar with. Following the conclusion of the presentations, participants would be challenged to describe how they could incorporate any of the ideas, methods, or strategies that were shared into their own teaching to achieve greater results. During the workshop, both the field activities and the presentations by the group members would be captured on video and turned into a "work product" of the workshop that would be part virtual field trip/video album, and part "proceedings" of the presentations and discussions conducted. Participants would be further encouraged to try putting into practice something they took away from the workshop upon returning home, reporting their experience on the workshop's main website (with a message pushed to their fellow member's emails). This is of course, intended to maintain the connections made at the workshop and to be a reminder and reinforcement of some of the ideas that were shared.

An important part of planning these programs will center on **pairing a content expert with a pedagogy expert** for each workshop. Future workshop conveners would, ideally come from the ranks of past participants. While a "core group" of several individuals would organize and administer this program on an ongoing basis, I would expect that a "critical mass" of past participants would ultimately be reached that would make the program self-sustaining with regard to new topics, locations, and ideas to share.

This proposal obviously borrows elements from many past - and some current - programs that have been very successful. You will no doubt see some "DNA" from SERC; the "old" NSF Chautauqua Program[vi]; the CAE programs described in question 1; and National Geographic's State Alliance programs . **Why I feel this is needed** is because currently there is no ongoing workshop series (that I am aware of) that blends the *content knowledge, field experience, pedagogy/methodology, and networking aspects into a program directed at 2YC educators*. Ideally this type of program would be somewhat interdisciplinary by its nature and it would reach out to people across and between the memberships of the well- known professional societies.

Why is there nothing quite like this currently available? I do not think it is due to a lack of potential organizers or participants (and certainly not to unmet need or a dearth of interesting topics), rather it may be due to the grant review process and funding models presently used by NSF and other grant agencies. While notable exceptions exist, a great many grant-funded projects are funded for too short of a time period to become established and self-sustaining. Furthermore, the "measureable outcomes" of these programs are often considered by reviewers to be too subjective or intangible to be meritorious. Perhaps the answer is to obtain grant funding to *initiate* the program with a clear plan delineated at the outset for the financial and organizational commitments for the longer term to be supported by professional organizations, and one or more institutions.

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[i] CAE website: http://astronomy101.jpl.nasa.gov/

[ii] The CAPER Team has recently relocated to the University of Wyoming http://www.uwyo.edu/caper/

[iii] Grant No. 0715517, a CCLI Phase III Grant for the Collaboration of Astronomy Teaching Scholars (CATS)

[iv] CAE workshop locations: http://astronomy101.jpl.nasa.gov/workshops/

[v] CAE CATS program: http://astronomy101.jpl.nasa.gov/cats/

[vi] Chautauqua Program description: Chautauqua Short Courses are an annual series of forums in which scholars at the frontiers of various sciences meet intensively for several days with undergraduate teachers of science. The courses provide an opportunity for invited scholars to communicate new knowledge, concepts and techniques directly to college teachers in ways which are immediately beneficial to their teaching.

Math professional organizations

Bruce Yoshiwara, Professor of Mathematics, Los Angeles Pierce College

1. Two strengths of the American Mathematical Association of Two-Year Colleges (http://www.amatyc.org/) are its annual conference and its affiliates.

AMATYC has an annual fall conference (http://www.amatyc.org/Events/conferences.htm). The conference site changes each year, with an effort to cycle through different geographic regions. The conference typically attracts more than a thousand participants who attend dozens of presentations, workshops, committee and regional meetings, and forums to discuss and debate AMATYC position statements.

The annual conference is now supplemented by year-round webinars (http://www.amatyc.org/publications/webinars/) sponsored by the various AMATYC academic committees (http://www.amatyc.org/committees/).

The conferences and webinars provide networking opportunities vital to educators who do not have sufficient supportive colleagues at their home institutions. And just as critically, these physical and virtual meetings expose members to points of view that they might never have encountered within their home institution.

The existence of the national organization helps to strengthen the local affiliates (http://www.amatyc.org/affiliates/). Membership in an affiliate does not require membership in AMATYC (New York and California "affiliates" both actually predate AMATYC) nor vice versa, but the cross-communication helps to give all the organizations a broader knowledge base.

2. It would be desirable to have meetings and other communications among full-time and adjunct faculty about the content and pedagogical practices associated with specific courses taught at my college. Currently most of our math classes are taught by adjunct faculty, and many of them teach at multiple campuses. The result is that there is too little commonality across sections within our college--not all the instructors are even genuinely attempting to teach to the same course outline because there is a tendency among some instructors to teach the same course they have already taught at another school. But the goals and philosophy of our department (as specified in our course outline and our list of desired Student Learning Outcomes) do not always agree with those of math departments in neighboring schools.

Most of our math faculty would be willing and perhaps even happy to attend meetings to discuss what our department values in the content and pedagogy of each course. But the union leadership on our campus (specifically the chapter president and grievance officer) discourage faculty from participation in activities intended to improve the academic program.

For example, the union president sent out a memo to all campus faculty recommending that faculty not cooperate with department requests to collect copies of examinations given in Pierce classes. The memo was evidently a sort of escalation of the grievance officer's complaint about an email request (from our course liaison for elementary algebra, not from the department chair) that our elementary algebra instructors provide copies of the exams they give and that they could participate in an electronic forum using the school's Moodle site. The grievance officer said that the department cannot "demand" (his word) faculty to turn in exams nor to use Moodle.

The union president said that collecting exams was an infringement of academic freedom. He countered the argument that a collection of exams would be useful to determine if instructors were appropriately following the course outlines and Student Learning Outcomes by writing that "we must assume they are doing a competent job, and let the evaluation process confirm that at appropriate intervals."

The union would almost certainly allow the department to encourage participation among faculty in course-specific discussions by offering stipends.