

Texas Collaborative for Excellence in Teacher Preparation (TxCETP)

Report of the National Visiting Committee, February 2002

NSF Award #DUE-9987332

Meeting held: February 4-5, 2002, at Texas A&M Kingsville, Kingsville, TX.

NVC members attending: Jack Bristol, Midge Cozzens, Alfredo G. de los Santos, Jr., Sandra Laursen, Elaine Seymour, and Myles Boylan from the National Science Foundation. Report prepared by Sandra Laursen and Elaine Seymour. See Appendix 1 for a list of meeting participants and Appendix 2 for the meeting agenda.

Overview

The National Visiting Committee (NVC) commends the project on its continued high level of activity and progress toward its goals (attached as Appendix 3). The goals of TxCETP (hereafter referenced by number) are

- (1) to implement course reform integrating content, pedagogy, and classroom management across the ten partner institutions
- (2) to recruit more, and better prepared, teachers into science, mathematics, and technology teaching at the K12 level
- (3) to develop and implement programs that support and sustain pre-service and novice teachers; and
- (4) to strengthen systemic connections between TxCETP and related efforts. The objectives under each goal are delineated in Appendix 3.

Faculty continue to join the reform efforts and courses continue to evolve toward an inquiry model, albeit still at different rates on different campuses. The decision to move to the Level II funding model seems to be generating the desired higher level of activity on the individual campuses. The campus reports show the richness and variety of this activity. The project is also beginning to generate new spin-off projects as separate proposals. We offer specific advice and comment below and define specific issues for the project to address as it moves into its third year.

Taking Stock

This is a good time in the life of the project to sit back and take stock of the initiative and its components. Now that the participants have gained experience with different initiatives on the campuses and tried some things out, the question arises, what now is the project? A series of initiative-wide discussions targeted at clarification of project objectives will help you to focus your efforts for the remainder of the funded period. Doing this will also help you to give your evaluator a more specific set of criteria by which to judge the extent to which you are successful in your primary goals.

We urge TxCETP to pare down the current set of activities and focus its efforts around a set of

goals that encapsulate what you *most* want to accomplish. It is now important to decide which activities serve your cardinal goals, and what strategies are most likely to bring about the changes that you wish to see. Some steps in the process of taking stock may include the following:

- Make a map of TxCETP activity. Summarize the TxCETP activities that are now underway at individual campuses or across the collaborative as a whole.
- Distinguish what appears to be working and what does not on all campuses. Take the best ideas and roll them into a master plan for a reconceptualized initiative. Drop the others.
- Because you have already chosen “the course” as the unit of reform, begin a collaborative-wide conversation to define a reformed course (more on this below).
- Decide what you think are the best strategies for recruitment into teaching careers, retention in SME programs, and retention of young teachers. Are each of these still key goals? Note that these decisions will influence the evaluation plan because you need to find out whether your hypotheses about what kinds of strategies will achieve your goals are supported.
- Decide how you will inform yourselves about what other groups concerned with education reform have tried and found out—what is already out there that is working. How will you draw on the expertise, materials, and strategies that others have developed and successfully implemented? How will you share your strategies and their outcomes in return? What is the role of the web site, of graduate students (and others, such as, perhaps, summer pre-service interns) in gathering and disseminating these resources?
- Reconsider the value of each specific objective outlined in your initial proposal. Where there is concern about the utility to your primary goals of activities included in the cooperative agreement (such as the industrial internships for pre-service teachers), the NVC suggests that the project leaders prepare a letter to the NSF file requesting that the cognizant program officer acknowledge that this objective will not be realized, and explaining the reasons behind this request.

Defining a TxCETP Course

Because the course is the fundamental unit of change in this project, an important question to address is: What are the essential characteristics of a reformed course? At what intensity and depth must these characteristics be present for the course to be considered “a TxCETP course”? Defining the nature of the TxCETP label is important, because it shows others what you value. Important clues may be drawn from the work you have already done on the Inquiry Road Show.

We are glad to see that this important conversation has begun, with a working definition beginning to emerge that addresses the degree and “portability” of change but also needs to include the nature of the changes that you recognize as central to your goals.

We urge you to continue to refine your answer to the question, What comprises an inquiry-based course? In addition, we suggest that you work with your evaluator to develop:

- project-specific, self-administered faculty assessment instruments, and
- methods by which to assess changes in student estimates of their learning gains, and the

impact of program activities on their career decisions.

We note as well that these conversations are difficult and often repetitive, as each new person involved needs to participate in coming to the collective answer, but the process itself is rewarding in building the coalition that you seek.

Modeling a New Pedagogy

Another discussion that is fundamental to defining the project is to consider how inquiry pedagogies are modeled to new or potential project participants. Developing a common vocabulary about pedagogical strategies across the consortium will also be needed for these approaches to be effective. How do you articulate the connection between these pedagogies and increasing the recruitment of students to science teaching? Therefore, what part does modeling inquiry-based pedagogies play in meeting this project goal?

A closely related issue is the recruitment of teaching assistants to inquiry-based teaching. This is necessary because, at some institutions, TAs deliver significant amounts of instruction to undergraduates. Also critical to the success of your teacher recruitment goals in the longer-term is the issue of how to restructure the professional socialization of future faculty members in ways that support good science and math teaching.

Developing Theory-Driven Action

Throughout this process, we urge you to aim for theory-driven action, by building your strategies around hypotheses that are grounded in research data about the sources of the problems you are seeking to address, and in what is known about how to create and sustain change. While action should not be delayed, a good understanding of what is known or has been done already will help you to target your efforts toward strategies more likely to be effective and to weed out less effective tactics.

This is part of the "taking stock" process. We are suggesting that you now consider what causal knowledge is driving the selection of the courses of action that you have chosen, and whether you can make both those strategies, and the evaluation methods chosen to address their efficacy, align more closely with the causes of the problems you are seeking to address. That certainly implies finding out what those causes are. Without that, how can you know whether what you are doing is fixing the right problems?

This would involve a careful look at the literature to see what is already known. It could also involve some investigative research on a sample of campuses to find out, for example, why students do, or do not choose the courses leading to teaching careers in mathematics and science that you are targeting. You also need to know whether what TxCETP is doing is creating any of the changes that the evaluation process is tracking. (There's always a chance that something else is driving any changes that you spot.) In sum, you need to learn through the evaluation if you are addressing the right issues, and are doing so by strategies that make a difference.

We suggest you consider the following research questions as ones that might underpin both your choice of remedial actions, and the focus of your evaluation effort:

What can be learned about:

- The causes of low enrollment in courses leading to certification in math or science teaching?
- Factors that both encourage and discourage students to choose careers in math and science teaching. Which of these factors are more and less important in their impact on student choices?
- Changes in the patterns of student enrollment on each participating campus, in courses leading to science and math teaching certification?
- The role of TxCETP activities in enabling positive changes?
- The effectiveness of particular campus initiatives to increase the retention of teachers in their early career years?

Administrative Support

The NVC notes the uneven degree of administrative support for TxCETP and its goals across the participating campuses and finds this a disturbing state of affairs, as such support is necessary to the success of the project in the long run. TxCETP is part of an important national endeavor, supported by the President and funded by Congress. The national initiative focuses on states, such as Texas, that are experiencing both acute and chronic shortages in the math and science teaching force, and that have been seeking to address these shortages by a patchwork of emergency and alternative certification measures. The importance of this issue for Texas has also been recognized by the TAMU system and addressed in its Regents' Initiative, which includes several of the TxCETP campuses. We sincerely hope that all campus- and system-level administrators will soon recognize the significance of TxCETP's efforts to address problems of supply, quality, and retention of teachers.

However, this recognition is unlikely to occur without effort. Campus leaders are urged to explore the issues that will interest administrators locally and to explore the possibility of involving the deans who are already engaged to recruit the deans who are not. Campus administrators can signal their support in several ways, including emphasizing the role of excellent pedagogy and teacher preparation in making new hires, contributing financially to campus-based efforts in line with TxCETP goals, helping to coordinate efforts with those of the Regents' Initiative, and adjusting the faculty reward structure to recognize participation in crucial projects such as this. We encourage those administrators who are already involved in TxCETP to carry the message to their peers, including helping to identify places where effective links can be made between TxCETP and the Regents' Initiative.

Building Connections

The process of taking stock and defining the project should occur through multiple conversations. The NVC urges you to find ways to engage in more conversation, to enable the group to define its shared values and agree what it is OK to disagree about. Conversation should occur among the following groups:

- within campuses about specific issues. The goal of these conversations is to let colleagues

and administrators know what you are doing and why, to invite their participation or at least their interest, to garner administrative support, to give feedback from the project as a whole, and to gain recognition for the project on campus.

- across campuses for each area of work. The goal of these conversations is to address specific problems and do creative work together. People get engaged when they are working collaboratively toward a common goal. These task-based working meetings also attract and engage new people. Conversations might include; arguing through the characteristics of an inquiry-based course; defining and shaping shared strategies for recruiting students into teacher preparation. Gatherings can also be a forum in which participants teach each other how to teach in an inquiry mode, or how to write successful proposals that will attract extra funding for good ideas. At larger meetings, working groups can meet to tackle specific problems and report back to the larger group on their ideas and progress. The experience of other education reform consortia (ChemConnections is offered as an example) shows how sustaining regular cross-campus conversations over time becomes the engine that generates ideas, produces work, recruits and sustains participants, and makes engagement enjoyable as well as productive.
- among leaders about project goals, values, and strategies. The goal is to continually refine and sharpen the focus of the project and to develop mechanisms for carrying out project objectives.
- between both the leaders and the campus groups with the evaluator about criteria for your choice of strategies and how to judge their efficacy. The project evaluation is, primarily, for you, the project members. Use it to get the feedback you need to review and adjust the focus of your work.

The effectiveness of these conversations is also be a question for evaluation:

What changes has TxCETP noticed in the level of conversation between groups that have been traditionally separated, such as the SMET disciplinary faculty and the education faculty?

Advice about particular strategies

Conversations on campuses, across campuses, and among project leaders can also help the collaborative develop mechanisms to address the issues it faces. The NVC offers here some advice about a few particular strategies that we heard about at the meeting or in the reports.

(1) The new student recruitment strategy of helping to nurture and support student pre-professional organizations and conferences seems a very promising one, and was endorsed by several NVC members. We encourage campuses that have tried this model to share their strategies and ideas (and maybe even their student leaders!) with others. The involvement of admissions and student services personnel may help you develop additional new recruitment strategies.

(2) In addition to recruiting students, recruiting faculty is a key issue for the collaborative that must be addressed to extend its life and impact. Should strategies for recruiting faculty into this work be addressed in Level II proposals?

(3) The Inquiry Road Show Training Camp appears to be a strategy that could address some of the issues raised about how best to model and disseminate inquiry-based pedagogy. We look forward to hearing more about this initiative next year.

(4) A focus for Level II proposals next year should be selected. It may be appropriate as well to accept another round of proposals that address teacher recruitment and retention issues, if some campuses still have these proposals under development. The mechanism of accepting small proposals on a rolling basis, up to a pre-set annual amount per campus, may be administratively ungainly but seems the most successful in encouraging small campus teams to initiate new ideas and providing the opportunity for rapid start-up. One issue that should be addressed is how you will close the loop. That is, how will campus-level benefits from Level II funding come back to TxCETP? What is the simplest way to let other participants know of adaptable activities on other campuses and in related initiatives that might spark new ideas or provide models?

Adjusting the organizational structure to serve the project goals

(1) We encourage the project to start thinking now about how to make the collaborative live beyond this five-year grant. This means optimizing the project leaders' time to undertake cross-campus, coalition- and momentum-building activities. The NVC endorses the decision to separate the duties of the project leaders from those of the campus leadership. This allows the leadership to focus on project-wide efforts, and also brings in new people to work on the home campus activities of the project leaders. Moreover, we recommend that details of organizing the annual meeting not fall on the project leaders, but be handled directly by the host institution as its contribution to the success of the project.

(2) The NVC also supports the project leaders in their efforts to devolve the executive and administrative work from the exhortive and promotional work of the project. The appointment of Harriett Lamm to coordinate data is viewed as a good step in this direction.

(3) A second aspect of thinking about life after the grant is to view Level II funding as a way to start a project, not just a short-term effort. We encourage you to use the Level II funds as a springboard or proof-of-concept for larger projects and to seek outside funding for the larger projects. Educate yourselves and each other about how and where to get grants in order to optimize your efforts. Grant-writing workshops are a useful tool for this purpose. Grant-writing is also a way to tighten focus through the process of having to explain what you want to do, and why. Your TEES partners and the campus office of sponsored projects are good resources for this. Outside funds can be used to enlarge and enhance a promising pilot project or to support meetings that continue the kinds of working conversations outlined earlier. NSF CCLI proposals are particularly appropriate for many initiatives that might grow out of TxCETP. Finally, support from administrators can leverage the resources available now on individual campuses, so it is a crucial time to get those administrators on board.

Collaborations

We encourage you to continue to develop and pursue collaboration. Make sure the links are real, not just on paper, and reflect useful collaborative action. Share and leverage resources among collaborators. Some collaborations worthy of focus include:

- State and Rural Systemic Initiatives (SSIs and RSIs): Overlapping leadership helps to make the relationship formal and to keep projects aware of each others' activities. We also urge you to build a grass-roots relationship between school district personnel and university activists at each of the campus sites before the NSF money runs out. We are eager to see participation in many of these initiatives by a growing number of classroom teachers and school principals, whether in arranging for mentoring of new teachers or for field experiences for prospective teachers or engaging in teacher enhancement activities.
- Two-year colleges: These links are important both to assure articulation of courses for the many students who transfer to the four-year institutions and to recruit these colleagues to join your efforts to improve the teaching in undergraduate SMET courses and encourage recruitment of K12 teachers. Indeed, these two efforts are complementary, as the same faculty who will aid your efforts are also better able to work with you to settle articulation problems than are administrators. We commend your initial efforts to recruit these colleagues and encourage you to continue to do so.
- Regents' Initiative (RI). We reiterate the importance of coordinating the efforts of and recruiting administrative support for both projects. The reports from campuses varied, and left open the question: Is TxCETP running a complementary, a parallel, or a different (even competing) initiative to the RI?

Evaluation

The evaluator is working hard, but the alignment between his work, and what the organizing group wishes him to monitor, is not yet clear. As the faculty reflect and take stock, they should also work with the evaluator to close the loop and make sure the evaluation is addressing the questions that the group finds important. He is training faculty to provide campus data, but needs help with the criteria (YOUR criteria) for success, so that he can judge the efficacy of your activities. Conversations between the evaluator and, the leadership, and the campus participants will provide feedback to participants and give the evaluator additional input. All of the evaluator's findings, particularly the very useful qualitative observations, are not yet reaching the campus participants and administrators. The NVC members would also like to hear more about these at the next annual meeting.

The project leaders should address the goals of the evaluation and, as outlined earlier, define the questions of greatest interest to you. As outlined in detail in the section on "theory-driven action", an important additional question to consider is whether the evaluation include a more fundamental inquiry into what can be learned about:

- why students don't choose math or science teaching as a career?
- factors that encourage students to choose careers in math and science teaching?
- the effectiveness of particular campus initiatives to increase both teacher recruitment, and the retention of teachers in their early career years?

The important basic question is, how much does TxCETP want to underpin its activities with an understanding of what is causing both the math and science teacher shortage, and the loss of young teachers, and what works in addressing either?

Campus reports

The individual campus reports were helpful in spelling out in detail the richness of activity at the different sites. However, they need to be available sooner to allow time for synthesis and digestion. This synthesis is needed both to shape discussion at the NVC meeting, and so that individual campuses can provide feedback on overall progress to their colleagues. Someone at the project level needs to take responsibility for preparing that synthesis in collaboration with the evaluator.

Some details of the individual campus reports should be clarified so that all are reporting the same information, and using the same definitions (e.g., for a 'participant' in various activities, and for a 'reformed course'). Campus numbers ought to agree with the evaluator's numbers where everyone is using the same definitions and categories. Adding information about the course audience will give a better sense of who is being reached by these changed pedagogies—teacher certification students, general education students, science majors?

Another helpful addition to the campus report would be a summary of issues and challenges with which campus leaders would like help. The detailed format with comments and explanations was helpful to read and will provide useful details for compiling reports to the funder, but the verbal reports at the meeting should avoid reiteration of those data. Rather, highlighting your new models and successes, challenges and issues, will shape the discussion and focus our time together on the issues on which the NVC can best provide advice.

Parting words

The next NVC meeting is tentatively scheduled for February 9-11, 2003. We look forward to seeing you all and wish you the best of success until then.