The BSCS[1] National Academy for Curriculum Leadership: Contributions and Lessons Learned

Executive Summary

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June 2006

The BSCS National Academy for Curriculum Leadership (NACL) is an educative and illuminative example of an effort to build curricular capacity and to help systems improve their science programs through the selection, adoption, and implementation of well-designed instructional materials.

Between 2001 and 2005 the SCI Center at BSCS[2] supported district teams seeking to improve their secondary science programs through a three-year program known as the National Academy for Curriculum Leadership (NACL). The project was funded through a grant from the National Science Foundation. Twelve teams representing ten districts completed the program. Six of the ten districts implemented curricula with the support of the BSCS NACL; five of them implemented between two and six programs. Beyond that, by helping districts move through one curriculum adoption and implementation effort, the NACL sought to create ongoing indigenous capacity for future science program improvement work. Inverness Research Associates (www.inverness-research.org) was the external evaluator for the project.

The cornerstone capacity that NACL sought to create is curriculum leadership. The mechanism and form for this leadership was the NACL leadership team – comprised of teachers, district leaders, and school principals. There were three main components to implementing the BSCS NACL strategy for developing curricular leadership: working with vertically integrated teams from districts "ready" to improve their secondary science programs; providing tools and support through intensive project activities over

[1] Biological Sciences Curriculum Study

[2] In May 2000 BSCS received Award No. ESI-9911615 from the National Science Foundation (NSF) to establish a high school implementation and dissemination center. BSCS named that project "The SCI (Science Curriculum Implementation) Center at BSCS," which is the subject of this evaluation brief. The funding for the SCI Center project ended in 2005; consequently, BSCS no longer lists the SCI Center at BSCS on its website. Instead, the work of the SCI Center, specifically the BSCS NACL, continues within the BSCS Center for Professional Development, one of three centers established by BSCS in 2003. To avoid confusion, we refer to the work of the SCI Center in this report as either the BSCS NACL or the BSCS Center for Professional Development, which are current entities at BSCS. For more information about the BSCS Center for Professional Development and BSCS NACL, go to www.bscs.org, and follow the links to the NACL within the Center for Professional Development.

three years, and the skills and strategies necessary for teams to use them back in their schools and districts; and providing support for teams throughout the year as they endeavored to improve the teaching and learning of secondary science in their schools and districts.

Although the project's initial vision of moving from selection through refined usage in three years proved to be overly ambitious, BSCS and the teams made important contributions to the participating districts in two areas: the implementation of standards-based curricula and the development of deeper capacities in the NACL districts.

Lessons Learned

Timing and interpersonal relationships proved to be key factors in the efficacy of teams and in their progress.

- The timing of the NACL involvement vis-à-vis the district adoption process was critical in determining the overall influence of the NACL work.
- The NACL model appears to function best when it coincides with existing efforts to make curricular changes and improve high school science programs.
- The integration of team work and district work was greatly facilitated by the involvement of a strong leader, a district "champion."
- Strong NACL teams included a vertical slice of participants, from teacher, to teacher-leader, to school administrator to district staff.
- NACL teams worked well in those districts where there is a strong centralized district leadership already pursuing a district-wide reform effort. In other districts the NACL team helped to further the work of a strong group of teacher leaders who shared a vision of and commitment to improvement of high school science teaching, but the impact of the participants was more limited.
- To be effective, teams ultimately had to meld their NACL work with the mainstream of district work.
- As with all human endeavors, the personal chemistry among team members and between the team and BSCS could matter greatly in the ultimate success of the team.
- The size and locale of the sponsoring agency (school, district or cross-district project or LEA) did not appear to be an important factor in determining which teams functioned well and persevered.

At a more general level, there are lessons about the use of curriculum as a leading edge for change.

- The careful study of new curricula, and the careful consideration of the current program, can serve as a way to get people at all levels to re-examine and further develop their underlying beliefs about teaching and learning in general.
- The NACL approach depends upon the existence of both well-designed curricular programs and also processes for productively interacting with such curriculum, on "educative curriculum materials."[3] The NSF curricular materials included in the NACL mandate not only are educative for students and teachers but also for curricular leaders.
- Actually doing the work of curriculum selection, piloting and implementation is the best way to develop strong curricular leaders.
- Curricular improvement should be seen as an ongoing and incremental process; it is not a singular event that happens without deep foundational work.
- Efforts to improve high school science can profit from the strong symbiotic relationship between the use of tools (i.e., instruments and processes to support change) and the development of leadership.
- The NACL strategy of leadership development and empowerment of individuals and teams is a deep and long-term strategy. The work NACL did with each team represented a considerable investment as it required multiple years and a cumulative development effort to develop and support each team.

Finally, there are broad lessons learned through the BSCS NACL about improving high school science.

- There may well be no short cuts and no quick fixes in improvement of science programs at the high school level.
- Given the difficulty of making changes in high school science programs, it seems likely that future efforts to improve science education will require national infrastructure that can assist in developing local capacity and in supporting local improvement work.

[3] Davis, E. A and Krajcik, J. S. *Designing Educative Curriculum Materials to Promote Teacher Learning*, Educational Researcher, Vol. 34, No. 3, pp. 3–14 (April 2005).