

NCSSM OUTREACH: DEFINITIONS AND GOALS

STATEMENT OF NEED

The needs of the North Carolina education community are as diverse as the 115 school districts in our state. In discussions with state and local K-12 educators, institutions of higher education, and the business community, NCSSM encountered a multitude of individual needs, with several persistent themes emerging relative to how those communities see NCSSM in the context of the state's educational makeup:

- **Help with new standards.** LEAs are struggling to implement Common Core and North Carolina's Essential Standards, and are beginning to look at emerging standards such as Next Generation Science Standards. LEAs have asked for sustained efforts to transform classroom practices to adopt these standards and develop teachers' and students' ability to do the complex kinds of thinking they require.
- **Differentiated instruction for gifted students.** The education community recognizes NCSSM's expertise in serving children ready for advanced academic challenges, specifically at the high school level. As schools are faced with additional decisions about resources and increased accountability, they have had to reduce the services available to their most advanced learners. Schools look to NCSSM to provide solutions that allow them to engage these learners in their communities.
- **Integration of problem solving and critical thinking into all areas of the curriculum.** While many schools identified the integration of engineering into math and science curriculum as a local goal, most acknowledged that they had a greater need for students to understand how to apply skills learned in the classroom in other contexts. Integrating engineering represents one path to this goal, and could serve as a pillar of a larger effort to develop problem solving and critical thinking skills in every classroom.

A DEFINITION OF OUTREACH

Outreach takes many forms at NCSSM, from scholarship-driven activities within an intellectual community by individual faculty and staff, to service to the community and state, to team efforts to improve K-12 teaching and learning at a local, state, and national level. NCSSM recognizes each as important, and provides faculty and staff with opportunities for these outreach efforts to be considered in evaluations of performance.

While NCSSM should never discourage individual outreach activities, the institutional focus for outreach (and corresponding allocation of resources) should center around three core activities: **engagement**, **direct service to students** and **legacy products**.

K-12 outreach and professional development has, in the past, been characterized by short bursts of activity around specific reforms. Consequently, statewide efforts have seemed fragmented or incomplete, and in certain areas of the state, educators suffer from reform fatigue—having been inundated with new reforms before previous efforts have had the chance to take root, and with little or no continued support for each successive reform, educators quickly become overwhelmed with the new practices and resort to the same behaviors they engaged in before the professional development.

Engagement requires a true partnership between teachers, schools, LEAs, and/or other organizations in the K-12 education community. In an engagement model of outreach, partners create and sustain a relationship that is mutually beneficial for the organizations, ideally increasing capacity on both sides to achieve organizational goals. As NCSSM shifts to an engagement model, it should fund and support with staff time outreach efforts that:

- Articulate a clear scope and measurable goals for the project at the outset.
- Identify partner schools and LEAs where the conditions exist for sustained partnership, such as support from leadership, a “boots-on-the-ground” champion for the effort who will be proactive in implementation, and data to support their need and readiness.
- Propose budgetary and structural changes at both NCSSM and the local site which will ensure that the efforts are sustainable over time, persisting even if the “boots-on-the-ground” champion or an individual expert becomes unavailable.
- Provide opportunities for formative assessment and adjustment of strategies, within the scope of the partnership, as necessary.
- Adopt the *NCSSM Outreach Model and Process for LEA and School Partnerships** (see appendix)
- Suggest next-step possibilities once the identified goals have been met.

Engagement, by nature, is tailored to the needs of both institutions, and may not be immediately scalable. As such, both NCSSM and the partner must be deeply committed to showing the change that takes place through formative and summative evaluation, collaborative publicity and advocacy, and internal messaging with faculty and staff in both organizations. Professional development sessions, materials, courses and curriculum development, mentorship and coaching models developed for use in an engaged partnership may be tweaked, extended, or redeveloped as digital assets for wider dissemination as a part of other efforts or at a later date.

An outreach strategy that provides **direct service to students** extends the reach of what NCSSM faculty and staff do on a daily basis in the residential and virtual programs. Providing opportunities to experience direct contact with NCSSM faculty and staff will extend the awareness of NCSSM and the goodwill in local schools and communities. Just as sustained professional development proves more beneficial to teachers than one-shot professional development, sustained contact with faculty proves more beneficial to gifted adolescents. NCSSM should look to focus funding and staff time on efforts that provide opportunities for students to prepare, participate in, and reflect on experiences with the guidance of NCSSM faculty and staff; reflection activities and other products should form the basis of the evaluative measures used to determine the success of the outreach. Examples include summer

programs, student conferences, and collaborations with public school classrooms. These outreach efforts should also look to involve NCSSM residential, virtual, and IVC students in the direct service to students as peer participants or as student coaches, teachers, and leaders.

A third type of outreach, the development of **legacy products**, provides NCSSM with a means for reaching a large audience of teachers or students. Legacy products may result from engagement efforts or direct services to students, or may be the focus of development time and dollars. The vast majority of NCSSM's legacy products used for outreach are digital assets available through the STEM@NCSSM site, the NCSSM YouTube channel, and the NCSSM Livestream channel. Additional legacy products include curriculum packaged for local use and an online professional development course. The utility of legacy products depends on their relevance to current efforts at the local, state, and national levels, and their availability in multiple contexts. To fully utilize the collection of digital assets, NCSSM must invest in providing a suitable interface for searching the collection, including a metadata schema, and in continued curation of the collection. Curation will allow NCSSM to discard materials that have lost their relevance or no longer accurately reflect current research, identify materials which are most in need of updating or enhancement based on usage trends, and strategically identify content gaps that could be filled through targeted asset development.

OUTREACH GOALS

In conversation with groups of internal and external stakeholders, the following themes emerged as goals for NCSSM's institutional outreach efforts:

- **Target under-represented populations in under-resourced areas.** NCSSM should recognize that it can have significant impact by developing partnerships with LEAs and schools that have not been the focus of large-scale efforts by other state agencies (including the Department of Public Instruction). NCSSM should evaluate demographic data and align outreach targets to that data.
- **Focus engagement on a few partnerships.** Recognizing that ongoing individual outreach efforts serve a broad population, stakeholders were emphatic that the school cannot engage deeply with too many LEAs or schools and should focus resources on strategic partnerships.
- **Leverage the expertise and excitement of faculty and staff, while giving them a chance to innovate and grow their skillsets.** While NCSSM has been successful in areas including face-to-face professional development, curriculum development, video, and digital asset development, the school should not limit the scope of activities in partnerships to what has been done before. New activities, such as online professional development, MOOCs, and blended learning, should give faculty the opportunities to challenge themselves and enhance their skillsets—a process which will lead back to their classroom teaching.
- **Broaden systematic engagement without discouraging individual outreach efforts.** Stakeholders applauded the breadth of individual and small-team outreach efforts from NCSSM faculty and staff. With deep connections to professionals in their fields, the ongoing relationships that individual faculty and staff have developed often serve as a lifeline for the

populations they affect. As NCSSM clarifies its institutional goals and allocates time and funding accordingly, it must be careful to encourage and celebrate individual accomplishments in outreach, particularly in the areas of scholarship, leadership, and community service.

- **Consolidate efforts, particularly in the summer.** Various existing outreach efforts are developed by different areas of the school. Currently, each individual effort must coordinate a variety of functions (including marketing and publicity, facilities and inventory management, supervision, and activity programming), often replicating for the short term a service already provided in another area of the school. Efforts will be more efficient and scalable with clear areas of responsibility.
- **Organize, collect, and extend the reach of digital assets.** The strategic plan goal of reaching a million students in five years requires that NCSSM make digital assets more readily searchable and provide access to those assets in multiple contexts. Engagement efforts should look to leverage and refine existing digital resources, but NCSSM should also look for ways to re-publish and disseminate those materials.

NCSSM'S CORE COMPETENCIES

In addition to providing a residential academic experience for 680 students a year, NCSSM also provides advanced academic opportunities for middle and high school students, including distance education courses for credit, school year academic enrichment sessions, summer academic experiences, student conferences, math and science competitions, and fine arts events. During the 2011-12 school year, more than **3,900** students participated in one or more of these activities.

Underpinning the faculty expertise in these areas is an infrastructure which supports the school's outreach mission. Staffing NCSSM's four interactive video conference studios are four digital media specialists and an IVC technical manager, each of whom contribute throughout the year to outreach. NCSSM also has a newly-established creative suite, which combines web developers, animators, a photographer, a videographer, an instructional designer, and a communications expert to help faculty, staff, and administration craft a message, find the right delivery method, and develop materials for print or digital use. And the school's Student Life Instructors regularly contribute to programming with activities designed to teach students wellness, personal responsibility, and career skills.

Many faculty members contribute to the improvement of teaching and learning across the state, nation, and world through providing teacher professional development and presenting at state and national conferences. NCSSM faculty reached more than **2,800** teachers through professional development or presentations at conferences in 2011-12.

Service is an important aspect of the NCSSM experience and students engage in many community service activities during their time at the school. The Class of 2012 provided at least **21,000** hours of community service.

NCSSM faculty play pivotal roles in their fields of expertise through leadership in their professional associations and through contributing scholarly work. During the 2011-12 school year, 13 faculty members served as an officer or committee members in a professional organization or association, and five faculty members authored or co-authored a book, book chapter, textbook article, or refereed journal article.

PROCESS FOR STAKEHOLDER FEEDBACK

NCSSM solicited feedback on the purpose of outreach, NCSSM's core competencies, and the core needs throughout the state through surveys and conversation with a variety of partners. All faculty contribute to a yearly survey of their outreach activities, compiled by the NCSSM Office of Institutional Research, which led to an inventory of activities included in the development of NCSSM's core competencies. A voluntary group of faculty, staff, and administration met three times in spring 2013, discussing the outreach definition and goals, and serving as a liaison between the voluntary group and the academic departments. The Board of Trustees subcommittee on distance learning and extended programs offered feedback on outreach goals and the NCSSM partnership model in December, 2012. Additionally, NCSSM faculty and administration had extensive conversations regarding outreach activities and directions with personnel in the field, including higher education faculty and past faculty, past officers of national professional organizations, K-12 superintendents and school administrators, the North Carolina Business Committee for Education, and the North Carolina Department of Public Instruction.

Appendix:

Engagement Model and Process for LEA and School Partnerships

Phase I: Exploratory Phase – provides NCSSM and a prospective partner(s), the opportunity to explore each organization's mission, vision, data and strategic needs to assess the potential value of creating a partnership to yield mutually beneficial outcomes by engaging in partnership activities. In this phase, partners would assess what they see as potential advantages to their organization by considering a potential partnership. This phase should include engagement by the key decision makers within each organization as part of assessing initial buy-in and needed support for potential collaboration.

Phase II: Possibilities Phase – based on the successful completion of Phase I and a commitment to reconvene, Phase II would be designed to engage the potential partners in identifying specific ideas of potential partnership results and strategies that would add value to both organizations in meeting particular needs of each organization. This session would help discover existing strengths and resources each partner would bring to the partnership. Key decision makers within each organization should be briefed on the potential benefits and broad goals of the partnership and anticipated resources needed to develop the initial intent of the partnership and action plan.

Phase III: Development Phase – based on the successful completion of Phase II, Phase III would build on the ideas generated in Phase II and the identification and development of a specific action plan to implement the partnership. This should follow an agreed upon process for action planning beginning with a clear statement of the purpose of the partnership and expected outcomes. The action planning process should include the appropriate people from each partner who will be involved in the partnership as it develops. The action plan should involve developing the draft goals of the partnership, key strategies, key milestones/outcome measures of success, anticipated completion dates, lead person responsible for the goal/strategies, and anticipated needed resources. The Development Phase should culminate with a joint presentation to the senior leaders (decision makers) of each organization to solicit feedback and secure sponsorship of the partnership.

Phase IV: Implementation Phase - based on the successful completion of Phase III, a communication plan should be developed to kick off the partnership and begin engaging the appropriate people from each partner in the implementation of the partnership's action plan. This phase needs to attend to ongoing communications, periodic milestone reviews, and problem solving on the logistics of the partnership. A program evaluation component should be developed early in this phase to assess the fidelity of the implementation of the action plan, documented adjustments, and impact/results. Formal reviews and updates should be embedded in this phase with the senior leaders from the partnering organizations. New ideas for improving, expanding, or enhancing the partnership should be captured and considered in an ongoing review of the partnership.

Phase V: Celebration/Evaluation/Renewal Phase – this phase completes the partnership model while also serving as the renewal phase of the partnership. Periodic celebrations should occur during Phase IV and into Phase V to help nurture organizational awareness of the partnership results and milestones achieved. Based on the program evaluation designed in Phase IV, based on the action plan developed in Phase III, a formal partnership evaluation should be completed in a timely fashion on an annual basis (at a minimum). The evaluation should be presented to the senior leaders of the partner organizations and then to the larger stakeholders of the partnership entities. Based on the performance of the partnership, and senior leaders should recommend: 1) a continuation and renewal of the partnership based on the action plan goals, 2) a revamping of the partnership goals and action plan prior to renewal, or 3) declaring that the partnership will not be renewed at this time. An annual report of the partnership should be disseminated to key stakeholders.

Partnership Continuum Overview

- Affiliated Partnership - NCSSM is working with a school district to provide interactive videoconferencing enrichment sessions to students and / or district-specific teacher professional development sessions.
- Cooperative Partnership - NCSSM is collaborating with a school district around providing courses for credit to students through interactive videoconferencing and / or dual-enrolled NCSSM Online courses.
- Engaged Partnership - NCSSM is working with a school district on providing joint programming for students. For instance, NCSSM and a school district could be jointly creating curriculum for a STEM-focused school or jointly seeking grant opportunities to expand educational opportunities for students.

About NCSSM: The statement shared by Dr. Melissa Thibault

Our work at NCSSM and statewide is focused on partnerships with rural, under-resourced schools. We work to provide direct instruction to students who may have strong interest and great potential but no access to honors genetics and biotechnology, honors aerospace engineering, AP Calculus, honors physics or other rigorous offerings. We teach these courses live using videoconferencing and there is no charge to the school for teaching, though they do purchase textbooks and provide facilitator support for the student participants. The full list of courses and more information about this service we provide to public schools statewide is available here: <https://www.ncssm.edu/ivc-courses>

As a part of our school's strategic plan we have developed a partnership model (attached). We have active partnerships in 80+ systems but we are always seeking to refine and improve our partnership structures as well as to be more strategic in these efforts. Many of the partner schools and systems either offer our videoconferencing courses to their students or offer dual enrollment for those students who will graduate from their local school but who are taking supplemental online courses like biomedical engineering, computational chemistry, or multivariable calculus as a part of NCSSM Online. More information about the courses and online program is available here: <https://www.ncssm.edu/online-program/academics>

In addition to the work we do with school systems we look for ways to partner with like-minded organizations whose missions align... I feel like STEM education is in many ways suitable for a collective action approach... there are so many organizations with aligned STEM outreach missions who could do more... together! We are looking with interest at the STEM Ecosystem work being done by because our strength is in the use of distance education and digital to level the playing field for URM and rural students... we use these approaches to extend our reach. In our state we work with the NC STEM Center <https://www.ncstemcenter.org/> and they work with The STEMconnector <http://stemconnector.org/> and the Connector <https://theconnector.org/> at the national level. Additionally, we are working in collaboration with many other organizations to reach the entire state with opportunities to engage in STEM activities during our NC Science Festival <http://www.ncsciencefestival.org/> Since these festivals started in 2010 we have reached a million North Carolinians... last year there were activities in 99 of our 100 counties (80 of our counties are classified as rural, many are becoming even more rural as 47 of the 100 have experienced net outmigration in the last 7 years.)

In addition to the work with students and teachers, NCSSM publishes hundreds of items a year to share with NC and beyond. From our Learning Innovations blog <https://www.ncssm.edu/learning-innovations> to the school's YouTube.edu channel <https://www.youtube.com/user/NCSSMDistanceEd> we have been developing and delivering high-quality content to learners for many years. We also offer enrichment activities, delivered live by NCSSM students to elementary and middle school classrooms across the state via videoconferencing: see <https://www.ncssm.edu/stemenrichments> Finally, we offer some teacher professional development opportunities and conferences, including the Teaching Contemporary Mathematics conference held each year in

January <https://www.ncssm.edu/tcmconference> This is an area where we really hope to grow and expand our reach.

As you can see, NC and NCSSM are really using technology to connect people with STEM and STEM orgs with each other and since the service area of our school is the entire state, partnerships and strategic approaches are key. As I said, NCSSM needs to partner to meet our strategic plan goals: developing engaged partnerships with all 115 public school systems in the state, and reaching 1,000,000 students and 100,000 teachers with NCSSM materials and services. For a quick graphic representation of our reach across NC see <https://www.ncssm.edu/about/impact/impact-across-north-carolina>