Northern Illinois University’s Center for P–20 Engagement (P–20 Center) is unique in its focus on coordinated campus-wide efforts to connect external partners such as schools with people and resources across five colleges and more than twenty offices, centers, and institutes at NIU. Such coordination may seem like an obvious strategy, but the P-20 initiatives at NIU represented a new way of thinking about the typical organizational problem of the left hand not knowing what the right hand is doing. In the past, individual faculty members arranged projects with teachers in area schools. In schools with large, high-needs populations, NIU sometimes conducted three or more projects simultaneously in one building, quite unaware of each other. This scattershot approach caused frustration among school administrators, a sense of exploitation among teachers, and roadblocks for faculty seeking partners.

In meetings and surveys, internal and external education stakeholders indicated that the university needed to focus on mutually agreed issues and to follow through over the long-term. In response, NIU launched initiatives expected to reduce fragmentation and maximize the impact of off-campus P–20 activities by faculty, students, and staff. The unexpected consequences include innovative programs and products that expand the workforce pipeline in critical areas such as STEM as well as enhance the educational, social, and cultural vitality of the region. By integrating economic engagement data developed by the Center for Governmental Studies and Regional Engagement/Rockford, the P–20 Center connects faculty, staff, and students to regional priorities for workforce development.

Among more than 30 university-wide activities now managed by the P–20 Center, STEM Outreach offers many examples of high-impact collaboration with external partners. The mission of STEM Outreach is to increase STEM literacy and enthusiasm through on-campus and off-campus activities for learners of all ages. Campus involvement stretches across more than 20 departments. The STEM Outreach Advisory Board includes faculty champions from 5 colleges. STEM Outreach organizes quarterly meetings of NIU STEM students including 15 groups from 3 NIU colleges. These groups have developed engaged learning projects and inspired ongoing student participation in STEM Outreach’s extensive menu of science, technology, engineering, and mathematics activities.
SCHOOL-BASED ACTIVITIES THAT BUILD HUMAN CAPITAL FOR STEM CAREERS DELIVERED BY NIU STAFF AND STUDENTS

• Nearly 100 high-impact presentations at K–12 schools target STEM concepts identified by schools.

• Family STEM nights feature dozens of hands-on experiments and build parental support for local STEM programs.

• After-school clubs, Saturday sessions, and summer camps help learners explore STEM careers and expand their STEM knowledge and skills.

• Workshops for more than 400 teachers on STEM problem-based learning and Next Generation Science Standards improve teaching in subjects requested by school districts.

• Support for development of STEM career academies links high schools’ needs with NIU’s areas of strength identified by the P-20 Task Force.

REGIONAL ACTIVITIES DELIVERED BY MULTI-DISCIPLINARY GROUPS OF NIU FACULTY AND STUDENTS

• STEMfest provides hundreds of hands-on activities for 5,000 learners; nearly 600 NIU students and faculty assist by explaining STEM phenomena.

• STEM Teen Read inspires readers to learn about STEM concepts in selected science fiction books; includes face-to-face and online discussions, interactive web games, collaborative writing projects, and author visits; departments in five colleges, high schools, local libraries, and publishers collaborate.

• An online lab school now in development allows NIU teacher candidates to learn to teach in online environments and offers STEAM (STEM plus arts) learning opportunities designed with regional schools.

• Three video games were created by multi-disciplinary teams from six departments in three colleges. Picodroid helps students learn the periodic table. Bunnies in Space teaches vocabulary to struggling readers. Falling Ash requires mastery of science concepts to survive a volcanic disaster.
• **STEM Cafés** enable participants to discuss hot STEM topics with university experts and STEM professionals at local restaurants. More than 1000 community members attended STEM Cafés in 2012–13.

• **Bright Futures** brings families to NIU and four local libraries for hands-on activities, books, and kits that teach electricity concepts, and creates electronic art pieces for display at the libraries.

• **Green Lens Film Festival** sponsored environmentally-conscious activities for children and adults, involving faculty from three colleges, numerous “green” local businesses, and international activists.

Support for STEM career academies in 12 area high schools directly connects NIU and teens to workplace experiences.

**BY THE NUMBERS**

The P–20 Center measures the impact of its programs and partnerships such as STEM Outreach by tracking numbers of people involved; participants’ evaluations; regional stakeholder surveys; and annual reports that include milestones, outcomes, and benchmarks and are analyzed through rigorous, university-wide strategic planning processes.

In 2012-2013, the P–20 Center activities engaged 1,372 NIU students; 280 NIU faculty; 2,763 P–12 teachers; 46,714 P–12 students; and 11,800 community members.

At STEMfest, 90% of adults said they will encourage their children toward STEM studies; 74% of children said they hoped to work in a STEM field.

In response to a 2013 survey based on CICEP’s Institution Assessment, 90% of community partners valued the P–20 Center’s convening of regional partners. However, 55% indicated that better reporting of impact would stimulate further cooperation.

Programs such as STEM Outreach flourish in the P-20 Center, a neutral location. Departmental and college priorities and funding might have cramped STEM Outreach if it were located in a single college. Instead, faculty, staff, and students from all colleges voluntarily collaborate in P–20 activities. The P–20 Center reports jointly to the Provost’s Office and the Division of Outreach, Engagement, and Information Technologies. Deans from five colleges act as advisors and convey to faculty their commitment to P–20 coordination, cooperation, and collaboration.

In 2013, the Illinois Board of Higher Education granted permanent status to the P–20 Center, signaling full institutionalization of coherent, university-wide efforts to address education-related problems jointly with local partners.