



Edwardsville's Goshen Education Consulting Awarded \$2.7 Million Defense Contract For Summer Camps At Military-Connected School Districts

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EDWARDSVILLE - Goshen Education Consulting, an Edwardsville company, was recently awarded a \$2.7 million Department of Defense contract to coordinate STEM summer camps at military-connected school districts in 10 locations around the United States over the next three years.

“We partnered with the iBIO Institute (Illinois Biotechnology Industry Organization),” Dr. Matt Feldmann, Ph.D., principal researcher and owner of the company, said. “This proposal details a summer, a co-curricular camp that provides hands-on experiences in Science, Technology, Engineering and Mathematics for Kids (i.e., dependents) of Active Military Personnel.”

STEMKAMP is a multi-state rollout of a successful STEM camp framework to 10 military-connected school districts through 2023 that will reach up to 3,750 students. STEMKAMP will partner 10 military-connected school districts across the United States with an existing, successful hands-on summer STEM camp for 3rd–8th grades connect critical thinking and problem-solving skills to a wide variety of STEM careers through hands-on experiences with science, technology, engineering and mathematics (STEM) concepts and access to STEM professionals.

As a result, students will gain a better understanding of current STEM careers, develop basic laboratory skills, practice higher-order thinking skills, and gain the self-confidence and motivation to continue a path toward a STEM career, Feldman said.

“STEMKAMP will benefit the public through the expansion of a current STEM camp to 10 military-connected districts. Over the three years, up to 3,750 students will receive opportunities to engage in hands-on STEM laboratory activities that have been shown to encourage student interest in STEM careers and help them gain the confidence needed to continue a path toward a STEM Career,” Dr. Feldmann said. “STEMKAMP will create sustainability at each site by coordinating a network between local school districts, their state’s Coalition of State Bioscience Institutes (CSBI) organization, and other local informal STEM education resources. For this proposal, we partnered with 6 military-connected school districts who have successfully implemented large Department of Defense initiatives and who serve a population of 2,795 3rd–8th-grade kids of Active Military personnel (KAMP or KAMPers).

“Because the Department of Defense is the largest employer of scientists and engineers in the world, it is imperative that we begin with elementary and middle school students to attract and inspire them to become STEM professionals. We know that students who choose a STEM career by 8th grade are two to three times more likely to graduate with a STEM college degree (Maltese & Tai, 2011; Falk & Dierking, 2010). So, the STEMKAMP initiative is particularly focused on developing elementary and middle school student self-efficacy in the STEM disciplines (Patrick, Care, & Ainley, 2010)

with the intent of encouraging student STEM identity (Oyserman & Destin, 2010). Our summer camp approach is effective towards those ends with younger learners because the work is informal (Falk et. al., 2016), hands-on, and outside of the formal curriculum (Maltese & Tai 2011). STEMKAMP specifically focuses on KAMPers in school districts. As dependents of active military service personnel, these students have additional stressors associated with their parents potentially life-threatening occupation. They have high mobility rates that are on average three times higher than dependents of civilians (Flake, Davis, Johnson and Middleton 2009). This leads to many difficulties in adjusting to new schools with differing curriculum, instructional methods and climate.

“We conducted needs assessment with the partner districts and found that KAMPers in our partner school districts did not have ready access to local STEM summer camps. Our district contacts believe there is strong demand for these opportunities. My daughter attended for the first time but loved it all week! She couldn't stop talking about all they did and we will definitely do it again so hopefully it will continue year after year. Great work from all the teachers and assistants!”

Technical Concept Project Idea

STEMKAMP proposes to launch STEM summer camps at 10 military-connected sites around the nation over the next three years. These locations are currently underserved by summer science camps and students are not provided with hands-on, co-curricular opportunities to learn about science careers. Further, these projects will be connected to regional CSBI organizations that will support the local implementation of the project and work toward securing support for sustainability. Technical Rationale. There is no availability of STEM camps for students at the identified military-connected school districts. Six military-connected school districts joined the STEMKAMP program team to implement this program. To gauge the need for these services, districts were surveyed to reflect on what current STEM camp offerings were available for 3rd –8th-grade students. For 3 of the districts, there were no camps available within a 20-mile radius. Among the districts with camps, there was only one program that served 3rd –5th graders, and the median cost for a one-week program was in excess of \$500, which is beyond the reach for most of our military families.

“One school district contact shared that the primary barriers to attending STEM camps are costs and transportation.,” Dr. Feldmann said. “A second contact agreed and said that the STEM camp where teachers send their kids is to a University (35 miles away, across the state border) and the cost is \$2,500.” All the military-connected school districts agreed that a local STEM camp would be well attended and would be well supported by the local teachers. STEMKAMP is modeled after the successful STEM girls camp developed by the iBIO Institute, the Illinois member of CSBI. The STEM girls camp has served over 560 3rd–8th-grade girls over the past four summers. Pre-post

survey results have shown positive changes in participants' STEM self-efficacy and desire to pursue a STEM career.

“Furthermore, the camp at Red Bud became sustainable through independent funding in 2019 based on the work of the local regional office of education connecting local needs with regional organizational support. Applicant capacity. The primary applicants are Goshen Education Consulting and IBIO Institute. Goshen Education Consulting is a STEM educational evaluation and research center located in Edwardsville. Since its founding in 2009, Goshen Education Consulting has conducted more than 60 educational evaluation and research projects. The iBIO Institute is a non-profit organization that represents the 85,000 life sciences employees in Illinois.

Dr. Feldmann continued: “Since 2012, the iBIO Institute has hosted two successful outreach programs, STEM girls and Stellar Girls. Evaluation and Research. This program is designed to assess the ability of the STEMKAMP to replicate the model of the STEM girls program. The key features of the STEM girls program that are necessary for the replication to be successful are 1) Can the program sustain itself? And 2) Does the program have similar positive effects on students' STEM self-efficacy? Goal 1: Connect a network of STEM-related informal education organizations with military-connected school districts. Objective 1: Convene two meetings annually to facilitate networking opportunities between the local school districts and their states' CSBI organization.

“Objective 2: Sustain the program after the grant has ended. Seven of the 10 program sites will be 80% sustainable after program completion in September 2023. The measure of sustainability will be developed by Goshen Education Consulting staff. Goal 2: Expand the successful STEM girls camp to a nationwide STEMKAMP. Objective 1: Expand the number of school districts participating in the STEMKAMP program to 10 sites by reaching out to school districts through DoDEA connections. Objective 2: Achieve the same percentage of KAMPers participants as the percentage represented in their local school district. Registrants will be prioritized first for KAMPers, second to other military-connected students, and third to historically underrepresented groups in STEM. Objective 3: Establish the same impact on students' STEM self-efficacy that the STEM girls program has shown as measured on the S-STEM survey and the Draw a Scientist Survey Instrument.

“An external evaluation panel of 5 nationally known evaluation experts will be convened twice a year to provide review and guidance for the program evaluation approach and to verify evaluation findings. This is necessary since Goshen Education Consulting is responsible for both the program research/evaluation and the program implementation”

Sustainability

Goal 1, Objective 2 above indicates that the program will be sustainable after the grant has ended by helping 7 of the 10 program sites toward 80% program sustainability.

"We know this is possible because the Red Bud camp was independent of iBIO Institute financial support in 2019. In 2019, Red Bud raised all the necessary funding themselves for camp expenses," Dr. Feldmann said. "STEMKAMP program organizers will connect local school districts with their state's CSBI organizations to develop a network of STEM education resources. The CSBI members are invested in developing the STEM workforce pipeline as shown through their support of current local educational outreach initiatives. STEMKAMP will complement current Department of Defense initiatives including the Army Education Outreach Program (AEOP) Gains in the Education of Mathematics and Science (AEOP GEMS), and the Society of American Military Engineers (SAME) camps."

AEOP GEMS focuses on 5 –12-grade students at select army bases. STEMKAMP focuses on younger students, grades 3 –8, at military impacted school districts in most different states (that currently include: Illinois, Kansas, Wisconsin, North Carolina, North Dakota, and Rhode Island). The SAME camps are engineering-focused camps for high school students in grades 10, 11 & 12. While it is our intent to serve students in different communities, the STEMKAMP program will be headquartered in Southern Illinois close to both a SAME camp (conducted at Scott Air Force Base) and an AEOP GEMS camp (conducted at the University of Illinois). We intend to use these strategic geographic connections to learn from the existing programs, find ways to integrate common themes, and to develop pathways for our students to explore the partner programs.

"The effective implementation of STEMKAMP is personal to the staff at Goshen Education Consulting," Dr. Feldmann said. "The consulting firm was one of the first contributors to the development of the original Stellar Girls after school program and helped to convert the program to the STEMgirls Camp curriculum. Dr. Feldmann and Mr. Withee have enrolled their three daughters in the STEMgirls Camp. In summer 2019, they waived professional fees to become fully invested as sponsors for the program implementation in Red Bud, Illinois."