



2016 Improving Teacher Quality

Summary Report

May 2017

Program Overview

Operating as Title II of the *No Child Left Behind Act*, the Improving Teacher Quality (ITQ) Grant Program is a federally funded program which provides grants to public and private higher education institutions and non-profit organizations. Administered in Tennessee by the Tennessee Higher Education Commission, these grants are designed to conduct professional development for in-service K-12 teachers.

The ITQ Request for Proposals (RFP) was distributed on August 15, 2015 to college and university chancellors, presidents, deans, and faculty. The RFP included the background of ITQ grants, federal requirements, funding priorities as determined by THEC, a description of eligible partners, competition guidelines, grant timeline, evaluation rubric, and all appropriate forms to be completed for proposals. A mandatory Notice of Intent to Submit was due on August 24, 2015 and the final proposals were due on September 21, 2015. An Advisory Committee consisting of both K-12 and higher education experts was established to review 30 grant proposals and make funding recommendations to the Commission. The 2016 ITQ Advisory Committee is listed in Appendix A. All proposals were evaluated based on the following criteria:

- Strength of the Program Objectives;
- Quality of Partnership with K-12 LEA's;
- Strength of Program Plan;
- Quality of Program Evaluation; and
- Program Budget.

On October 21, 2015, THEC announced the awarding of the 2016 ITQ grants. Twelve Improving Teacher Quality Grants to promote teacher development around the state through partnerships with higher education were awarded. The ITQ grant program is a federally funded program which provides grants to higher education institutions for teacher professional development. Each year, THEC works jointly with the Tennessee Department of Education (TDOE) to identify priorities that will have the greatest impact on Tennessee school districts and student achievement.

The 2016 Tennessee ITQ Grant program was on conducting professional development projects that focused on STEM (Science, Technology, Engineering, and Mathematics) subjects for grades 9-12 to strategically support the preparation and development of a strong workforce in Tennessee. The subjects/grade levels are determined based on where student need indicates additional teacher development would be of assistance, as well as areas in which districts are seeking shortages around qualified teachers for various grade levels. Every ITQ project included a higher education partner and included faculty from both the education school and from the department in the specified content area. Projects also included partnerships with local school districts to provide convenient opportunities for teachers to participate in the professional development.

2016 Improving Teacher Quality Projects

In this round of ITQ funding for 2016, THEC awarded roughly \$1 million dollars to 12 public and private institutions across the state. The projects provided professional development to approximately 275 teachers across 39 counties. Each of the projects provided a summer workshop, along with sustained activities throughout the 2016 school year for high school teachers. Projects were allowed a maximum funding level of \$75,000 and were funded from January 1, 2016 to December 31, 2016.

Institution	Amount Awarded	Amount Used	Percentage of Funds Used
East Tennessee State University	\$74,990	\$74,189	99%
East Tennessee State University	\$74,915	\$74,906	100%
Lee University	\$74,954	\$73,984	99%
Lee University	\$73,872	\$71,452	97%
Milligan College	\$61,719	\$53,316	86%
Middle Tennessee State University	\$58,120	\$58,120	100%
Tennessee Technological University	\$73,659	\$72,161	98%
Tennessee Technological University	\$74,996	\$74,990	100%
University of Memphis	\$74,978	\$68,107	91%
University of Tennessee, Chattanooga	\$74,699	\$70,029	94%
University of Tennessee, Chattanooga	\$74,994	\$74,813	100%
University of Tennessee, Knoxville	\$65,808	\$48,210	73%
Grand Total	\$857,704	\$814,282	95%

Counties Served

During the 2016 ITQ grant cycle, 39 counties were served through the ITQ grant. Figure 1 highlights each county served in the state.

Figure 1: Counties Served: 2016 Improving Teacher Quality



2016 ITQ Grant Projects

Institution: East Tennessee State University

Title: *Integrating High School Chemistry and Literacy for STEM Prosperity*

Project Director: Dr. Chih-Che Tai

Counties Served: Carter, Greene, Unicoi, and Washington

East Tennessee State University used ITQ funds to provide research-based professional development to 20 high school STEM teachers to increase their content knowledge and advance their pedagogical skills in Tennessee's Science, English Language Arts and Career Technical Education standards. Instructors from the Department of Chemistry, Department of Language and Literature and Department of Curriculum and Instruction modeled for teachers during a seven-day on-site and two-day on-line professional development.

Institution: East Tennessee State University

Title: *Reaching for Excellence in High School Biology and Literacy*

Project Director: Dr. Karin Keith

Counties Served: Hawkins, Unicoi, and Washington

The project focused on increasing content knowledge for 20 high school Biology teachers. Teachers participated in a total of seven-day on-site and two-day on-line professional developments to improve their students' academic performance and advance their own pedagogical skills. The instructors placed a strong emphasis on addressing content, as identified through districts and school plans, for improving teaching and learning.

Institution: Lee University

Title: *Career and Technical Content in High School Mathematics (CATCH Math)*

Project Director: Dr. Caroline Maher-Boulis

Counties Served: Bradley, Hamilton, Marion, McMinn, Meigs, Monroe, Polk, and Rhea

Lee University used ITQ funds to raise awareness among 24 high school mathematics teacher. The CATCH Math project showed teachers how to help students develop workplace and technical skills sought after by industry leaders. This was done through creating real world problems that encapsulated the targeted mathematical content, the effective use of manipulatives and hands-on scientific experiments and developing workplace and technical skills. Teachers participated in a 5-day summer workshop and four online follow up meetings.

Institution: Lee University

Title: *Computations in Scientific Inquiry (CSI)*

Project Director: Dr. Lori West

Counties Served: Bradley, Hamilton, McMinn, Polk, Sevier

The project used funds to increase teacher knowledge and competency in STEM instruction for 24 high school mathematics and science teachers. This project promoted integrative

learning using a forensic science theme and provided teachers with the opportunity and resources to collaborate across disciplines. The program consisted of an on-line pre-workshop session, a 5 day workshop, an online and on-site follow-up meeting.

Institution: Milligan College

Title: *Hands-on CaMP: Integrating Chemistry, Math, and Physics to Support Real World STEM Applications*

Project Director: Dr. Lyn C. Howell

Counties Served: Carter, Hawkins, and Sullivan

Milligan College used ITQ funds to provide 28 teachers with hands-on opportunities to practice and refine their math, chemistry, and physics knowledge while equipping them with effective strategies for instruction and collaboration and exposing them to workforce needs. The project included three components: a pre-assessment in spring 2016; a five-day workshop in June 2016; and a post-assessment.

Institution: Middle Tennessee State University

Title: *POGIL to Success in Chemistry*

Project Director: Dr. Tom Cheatham

Counties Served: Cannon, Coffee, and Rutherford

This project served 30 Chemistry teachers using the Process Oriented Guided Inquiry Learning (POGIL) model. The POGIL model has been used effectively to support that students learn best and experience higher interest when doing science like scientists. The National POGIL Project provided their curriculum and Dr. Amy Phelps, a certified POGIL trainer and MTSU Chemistry professor, provided training during the 5 day workshop.

Institution: Tennessee Technological University

Title: *Coding Connections at the Interface of Algebra I and Physical World Concepts*

Project Director: Dr. Leslie Suters

Counties Served: Anderson, Blount, Campbell, Cumberland, Knox, Morgan, Roane, and Williamson

Tennessee Technological University provided professional development to 19 high school teachers focusing on computer programming and robotics with specific connections to Algebra I and Physical World concepts. The project included a two-week summer institute and one follow-up meeting.

Institution: Tennessee Technological University

Title: *Experiencing STEM: Demystifying the Practical Classroom Application of Immersive & Augmented Technologies*

Project Director: Dr. David Gallop

Counties Served: Cannon, Knox, Pickett, Putnam, Sevier, and White

This project focused on training 15 high school teachers to use new technology in the classroom and thereby enrich their course content. The project was a one-week intensive workshop that focused on teaching the participants about new virtual technologies, 3D software and application of this technology in the classroom setting. Teachers built course content and pedagogical knowledge that helped them to engage students in hands-on experiences that will lead to the creation of virtual educational materials.

Institution: University of Memphis

Title: *Improving Mobile Technology Integration in High School Math and Science Teachers' Instruction and Assessment Practices*

Project Director: Dr. Deborah Watlington

Counties Served: Crockett, Decatur, Hardeman, Hardin, Madison, and McNairy

University of Memphis sought to increase 23 high school STEM teachers content knowledge, improve instructional strategies and assessment practices through the integration of mobile technology. The focus of this project was to provide high school science and math teachers' instructional strategies in the use of mobile technology, specifically the iPad, in teaching in their STEM content area. The project included a one week summer workshop and follow up sessions during the fall.

Institution: University of Tennessee, Chattanooga

Title: *Equations, Functions, and Modeling with Real-world Problems in Algebra I*

Project Director: Dr. Deborah A. McAllister

Counties Served: Grundy, Hamilton, Marion, Polk, and Sequatchie

The project focused on improving mathematics content and pedagogy for 25 Algebra I teachers. The program emphasized the importance of equations, functions, and modeling for solving contextual problems. The project was presented through one spring Saturday session, a 5-day summer academy, and two follow-up Saturday sessions in the fall, including online discussion throughout the academic year. Hands-on activities, using mathematics manipulatives and technology, and constructivist strategies for teaching and learning, were emphasized.

Institution: University of Tennessee, Chattanooga

Title: *Real World Applications for the Mathematics Classroom*

Project Director: Dr. Francesco Barioli

Counties Served: Bradley, Hamilton, Marion, Polk, and Sequatchie

The goal of the project was to provide teachers with the methodology to enhance the teaching of algebra/statistics via real world applications using technology. The project implemented the use of a TI-84 Plus CE calculator linked to a variety of Vernier EasyData application sensors (motion sensor, temperature probe, pH sensor) in order to analyze real-world data from a science perspective. The University of Tennessee, Chattanooga used funds to provide professional development to 31 teachers through a week long summer workshop.

Institution: University of Tennessee, Knoxville
Title: *Connecting Math and STEM through Modeling*
Project Director: Dr. Lynn Hodge
Counties Served: Anderson, Campbell, Knox, and Scott

The ITQ project at the University of Tennessee, Knoxville provided 17 high school mathematics teachers professional development focused on research-based strategies to improve their students' learning and increasing their knowledge of future STEM career opportunities. The week-long professional development workshop gave teachers the opportunity to examine and implement math modeling challenges that applied what they had learned. In solving these challenges, teachers engaged with math as a tool in solving science, technology, and engineering-based problems.

Appendix A
2016 Improving Teacher Quality
Advisory Committee

Diane Berty
Tennessee Independent Colleges and Universities
Association

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