



SENATE FINANCE SUBCOMMITTEE ON PRIMARY AND SECONDARY EDUCATION  
OHIO SENATE

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Sub. H.B. 166, Biennial Operating Budget 2020-2021

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President and Chief Executive Officer, PAST Foundation

Chairman Terhar, Vice Chair Lehner, Ranking Member Fedor and members of the Senate Finance Subcommittee on Primary and Secondary Education, thank you for the opportunity to testify today. My name is Annalies Corbin, and I am President and Chief Executive Officer of the PAST Foundation. I am here to request your support of our amendment to Substitute House Bill 166.

PAST Foundation is a non-profit, working across the state to provide STEM (science, technology, engineering, and mathematics) education, curriculum design and workforce development. PAST stands for “Partnering Anthropology with Science and Technology,” and I founded our organization in 2000 to improve education using transdisciplinary problem-based learning. These learning strategies challenge students to link learning to real-life through hands-on, student-centered activities and instruction. Problem-based learning is foundational to Ohio’s Department of Education’s Guidelines for STEM School designation and we use it to help catalyze the expansion of STEM education toward workforce development.

We have received national recognition for our work. In 2016, PAST Foundation was recognized by the U.S. Department of Education for its Excellence in Innovation in the *STEM 2026* vision report. PAST was the only educational entity in Ohio to be included in this publication. In 2015, PAST was recognized by the White House as a Next Generation High School Collaborator for our work with teachers and schools to empower students to seize opportunities in today’s economy and expand access to STEM teaching and learning. Just last month, Forbes magazine included the PAST Foundation along with Khan Academy and the Super School Project as three national education innovations changing the future of workforce.

Our success is based on partnerships with industry and organizations across the state. One of those industry organizations – BioEnterprise – is here with me today to talk about a joint program we have developed to address gaps in the STEM workforce. Following the House process, we realized we could be more effective and reach more Ohio teachers and students if we collaborated and combined our expertise, programming and regional assets into one, more robust program with exponentially higher impact.

**PAST Foundation and BioEnterprise are requesting an investment by your subcommittee of \$500,000 per fiscal year in HB 166 within the Educator Preparation appropriation item for the STEM Educator Professional Development Collaborative** to provide professional development and strategic training for teachers in the STEM fields that is tailored to each region of the state and community in which teachers teach – all inside an incubator setting that enables teachers to test instruction before bringing it into their classrooms. The program will enable extrapolations that can be applied and scaled to regions across the state.

The focus of this project is on training teachers in the top five in-demand STEM jobs that are experiencing gaps in the workforce throughout Ohio to address some major challenges inhibiting students from reaching their full potential. A significant number of teachers do not feel confident and even anxious about STEM, are ill-prepared and lack an understanding of how to include STEM principles in various courses in their classrooms. This is particularly severe among elementary teachers of which only 4% have a college degree in math or math education and 5% have a degree in science, engineering or science education.<sup>1</sup> In order to build the STEM pipeline of talented workers, entrepreneurs and inventors, we need our teachers to be able to teach STEM with confidence and in a meaningful way that includes problem-solving based on real-life challenges facing industry and most of all, is engaging for students.

Yet the STEM fields are the fastest growing source of new jobs – growing six times as fast as non-STEM jobs in the past decade.<sup>2</sup> STEM-related jobs will grow to over 9 million by 2022, with almost all of the 30 fastest-growing jobs requiring STEM skills, according to the U.S. Bureau of Labor Statistics.<sup>3</sup>

Through our partnership with BioEnterprise, we have an amazing opportunity to position Ohio to fill these STEM-related jobs. **PAST works hand in glove with industry to help educators design curriculum, internship programs, and mentoring opportunities that have given over 244,000 students in 19 years the ability to develop skills necessary for a successful career in a high-demand STEM field.** Meanwhile, BioEnterprise has spent a dozen years working with over 300 entrepreneurs and companies primarily in health innovation but touching all of the STEM fields from the inside out, helping them form business plans, find talent, develop skills, pitch to venture capitalists and build the pipeline of STEM workers. With PAST's expertise in training teachers and educating students across the state and BioEnterprise's expertise in working with companies needing to hire STEM-savvy employees and providing skills development programs, the **STEM Educator Professional Development Collaborative** can meet a state need with a uniquely effective approach.

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<sup>1</sup> Many Elementary Teachers Have Anxiety About Teaching STEM Subjects, [https://grandchallenges.100kin10.org/assets/downloads/many-elementary-teachers-have-anxiety-about-teaching-stem-subjects/GrandChallengesWhitePapers\\_Haverly.pdf](https://grandchallenges.100kin10.org/assets/downloads/many-elementary-teachers-have-anxiety-about-teaching-stem-subjects/GrandChallengesWhitePapers_Haverly.pdf)

<sup>2</sup> STEM Jobs: 2017 Update, U.S. Department of Commerce, <http://www.esa.doc.gov/sites/default/files/stem-jobs-2017-update.pdf>

<sup>3</sup> U.S. Bureau of Labor Statistics Occupational Outlook Quarterly Spring 2014, STEM 101: Intro to Tomorrow's Jobs

PAST has piloted a program in STEM Educator professional development that will serve as a model for this program. Our first cohort, launched in Central Ohio in partnership with Battelle, focused on preparing teachers to deliver problem-based instruction and innovations in teaching. The cohort impacted 17 school districts, including 27 schools, and over 10,000 students have now benefited from this instructional strategy, and we continue to be a resource for teachers long after this professional development training. By also offering online sessions and workshops focused on learning through a specific content lens, we can tailor to teachers' needs. By using an Adaptive Curriculum Development approach, we help teachers learn how to blend activities and technologies to address real-world issues and drive deeper student learning.

The pilot has been extremely effective and quite popular. We have waiting lists from educators in school districts around the state. By scaling our program in partnership with BioEnterprise, leveraging their insights of the inner workings and talent needs of health and high-tech businesses, we will have a broader impact around the state.

PAST Foundation applauds the DeWine administration and the House Finance Committee for increasing the Educator Preparation appropriation item (GRF line item 200448) and valuing our educators. **We ask that you consider an investment through this appropriation for the STEM Educator Professional Development Collaborative to address our state's challenge of preparing the emerging workforce with the *STEM skills* needed to fill jobs in Ohio.**

As the educational landscape evolves and more high-tech innovations emerge, new tools for teachers to use in designing and delivering robust STEM learning through hands-on activities that strengthen skills and knowledge for solving any problem is critical for the state of Ohio. Teachers must understand and be confident in facilitating STEM learning and help build the workforce needed for Ohio to be globally competitive. The state can support this effort by investing in the scale-up **STEM Educator Incubator Professional Development Collaborative** for PreK-12 educators.

Thank you for your consideration of our budget request. I would now like to introduce Grady Burrows, Director of Health IT Talent for BioEnterprise, to explain his perspective on the program. We will then be happy to address any questions you may have.

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