



GLOBAL TEACHING PROJECT

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Testimony

Joint Hearing on Distance Learning

Mississippi State Senate Committee on Education
Mississippi State Senate Committee on Universities and Colleges

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Executive Summary

The Global Teaching Project has developed a template for distance education in rural Mississippi that may be adapted for wide use throughout the state, particularly at the secondary level.

Since 2017, the Global Teaching Project has conducted a program to provide promising high school students in rural Mississippi access to the advanced STEM courses they need to achieve their full potential, but which their schools otherwise would not offer, due to both limited resources and a severe shortage of qualified teachers. The Global Teaching Project's program is provided free to Mississippi school districts, schools, and students, and does not use any state funds—funding is entirely from private and federal sources.

The Global Teaching Project utilizes a blended instructional format, in which students are taught through various means—in-class teachers receive pedagogical support and professional development, and provide instruction utilizing lesson plans prepared by an AP-certified Supervisory Instructor; STEM majors from leading universities across the country provide tutoring through regular video conference sessions; students attend university-based, residential instructional programs; and students are provided physical textbooks, workbooks, Chromebooks, and extensive online resources. Since March, that blended format has been temporarily adapted so instruction is conducted solely online.

The Global Teaching Project currently offers 20 Advanced Placement (AP)[®] STEM classes in 15 high schools in 11 school districts, and plans to expand further. Since the program's inception, it has increased the number of Mississippi public schools offering the program's inaugural course, AP Physics 1, by 50 percent. In addition, the program has been uniquely successful in serving rural, high-poverty areas. Among public schools in the 30 Mississippi counties with the highest school age poverty rates, the only schools that offer AP Physics are those working with the Global Teaching Project.

Our experience has emphatically affirmed the premise of our program: there are bright students throughout rural Mississippi who, regardless of their circumstances, are capable of excelling academically if provided quality instruction and sufficient academic supports. Moreover, those students may be served effectively through a blended instructional program that incorporates distance learning, which is most effective when comprised of multiple elements that engage students and empower teachers.

Effective distance learning is essential to the progress of Mississippi students in rural and high-poverty areas. However, unless reliable broadband is extended to underserved areas, distance learning may exacerbate, rather than mitigate, educational disparities. Yet rural Mississippi schools currently have broadband service that is often limited and unreliable, and many rural residential areas have no service at all. Mississippi must implement a plan to provide broadband access so that all students may learn effectively.

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Chairman DeBar, Vice Chairman Blount, Chairwoman Parks, Vice Chairman Fillingane, and members of the Committees, thank you for the opportunity to speak with you today.

I also am grateful for the opportunity to learn from the others who have offered testimony. In particular, I wish to recognize the very important work that is being done by Dr. Wright and the Mississippi Department of Education, and to thank her for her leadership.

My name is Matt Dolan, and I am CEO of the [Global Teaching Project](#).

The Global Teaching Project provides promising high school students in rural, high-poverty areas access to the advanced STEM courses they need to achieve their full potential, but which their schools otherwise would not offer, due to both limited resources and, as members of the Committees know well, a chronic shortage of qualified teachers.

For the last three years, we have implemented a program to mitigate educational disparities in rural Mississippi, where we work with the Mississippi Public School Consortium for Educational Access, an entity comprised of rural school districts in various parts of the state that was organized for the specific purpose of implementing this initiative. The Global Teaching Project and Consortium currently conduct 20 Advanced Placement (AP)[®] classes at 15 schools in 11 districts spread across the Delta, northeast, and central Mississippi. Our inaugural course is AP Physics 1, to which we have added AP Computer Science Principles. We plan to scale our effort further, and to continue to add students, schools, and courses.

Our Mississippi program is provided free of charge to Mississippi school districts, schools, and students. Also, no state funds are used for the program. To date, our funding has come exclusively from private resources. Going forward, we also will be using funds from a federal grant from the U.S. Department of Education, which awarded our program a highly competitive [Education Innovation and Research grant](#).

We specifically seek to mitigate the disparate access to rigorous, college preparatory classes that greatly impedes the academic progress of potentially high-achieving rural and low-income students. Though AP courses have greatly increased—over 5 million AP tests were given in 2019, more than quadruple the total from 2000—AP offerings remain scarce in rural and low-income areas. A recent study found that [47% of rural school districts nationally offer no AP courses](#), while only 5% of suburban districts do not.

Through our work in Mississippi, we have developed a blended model of instruction, in which we teach students through various means:

- In-class teachers, physically present in the classrooms, preside over the classes, and implement lesson plans prepared by a leading Mississippi-based, AP-certified Supervisory Instructor.
- Supervisory Instructors help create the curriculum and maintain an online course platform and web site. They also provide pedagogical guidance to in-class teachers through weekly video conferences to review lesson plans, informal consultations, and residential professional development programs at Delta State and Mississippi State Universities.
- Asynchronous video instruction is provided by leading subject matter experts—in AP Physics 1, instruction is provided by, among others, Professor Meg Urry, director of the Yale Center for Astronomy and Astrophysics, and a member of the Global Teaching Project Advisory Board. We also have had a guest lecture from Massachusetts Institute of Technology Professor Rainer Weiss, winner of the 2017 Nobel Prize in Physics.
- Students are provided physical textbooks and workbooks, and extensive online resources.
- AP Computer Science Principles students are provided Chromebooks for their exclusive use throughout the school year.
- To prepare for the rigor of advanced course material, students attend a summer residential program at Mississippi State in which they receive immersive math and science instruction; engage in hands-on activities observing, quantifying, and analyzing Physics principles; experience life on a major university campus; prepare college applications; and develop a cohort of high-achieving students from various parts of the state. YouTube videos of our last three summer programs, which provide some sense of our work, are [here](#), [here](#), and [here](#).
- Additional residential instructional programs are held during the school year, including a January program for all students held jointly at Millsaps College and Jackson State University, and spring programs at Mississippi State for Computer Science students and at the University of Mississippi for Physics students.

- STEM majors from Yale, the University of Virginia, MIT, Stanford, and other prominent universities work closely with our students, both at the university-based residential programs and throughout the school year through regular video conference tutoring sessions—often held twice weekly.
- Due to the coronavirus, in the past two months, we have had to adapt our blended instructional model to temporarily operate exclusively online.
- During the school closures, we have conducted daily video conference instructional sessions and provided other academic supports. In addition, we have sought to recreate for our students other elements of typical school experiences beyond their classes. For example, we honored our graduating seniors with a [Senior Day program with guest speaker MIT Professor Rainer Weiss](#), winner of the 2017 Nobel Prize in Physics, and had a Class Photo Day in which pictures were taken on a video conference web site. In addition, though this year's spring program at Ole Miss was cancelled, the summer program will be conducted online.

We acknowledge that we still face many challenges, and that the efficacy of our program will not be fully evident for several years. Nonetheless, since we began our Mississippi program in the 2017-2018 academic year, we have made considerable progress, and have achieved unique success in reaching promising students in rural, low-income areas.

- We have increased the number of Mississippi public schools offering our inaugural course, AP Physics 1, by 50 percent from 2017 levels. Moreover, that statistic understates our impact in rural and low-income areas of the state because existing programs were clustered largely in relatively populous and affluent areas. Among public schools serving the Mississippi counties with the [30 highest school age \(5-17\) poverty rates](#), our schools are the *only ones* that offer AP Physics.
- We stand out nationally as well. The [College Board](#) authorizes 6,079 U.S. schools to offer AP Physics 1, and 1,905 schools to offer AP Physics 2. Yet in the nation's [20 most impoverished counties](#) (out of 3,142 total), our schools are the only public schools in *any* state to offer either course.
- We have expanded our course offerings in the current school year by launching a new class, AP Computer Science Principles, and plan to expand our curriculum further.
- [Mississippi State University](#) reported that students who attended our summer residential program "achieved dramatic gains in substantive understanding of course content, according to nationally recognized pre- and post-program assessments utilized by the American Association of Physics Teachers."
- A leading national education publication identified our AP access initiative as the [top story in Mississippi education in 2018](#). Articles about the program also have

appeared in publications associated with the [University of Mississippi](#), [Mississippi State](#), [Yale](#), [Columbia](#), the [University of Virginia](#), [PBS](#), the [Walton Family Foundation](#), and prominent [education media outlets](#), as well as in multiple front page articles in the [Clarion Ledger](#) and [Daily Journal](#). Our program has been the subject of multiple stories on Mississippi [TV News](#).

- Positive word-of-mouth among both educators and students has led to sharply accelerated enrollment growth—the number of students taking our AP classes has roughly tripled from last year. The number of schools we serve also continues to grow, and we expect to continue to add both schools and districts.
- In October of 2018, [U.S. Secretary of Education Betsy DeVos visited our program](#). She later praised our initiative publicly in numerous statements, including at a 2019 U.S. Senate Appropriations [Subcommittee hearing](#) at which the Secretary stated our program was a "Win-Win" and a model for rural districts. The Secretary also has said that our program provides "[a very practical solution](#)" that is "an example of what rural communities could and should think about", and that our AP access program "[has worked really amazingly well](#)."
- In September of 2019, the U.S. Department of Education awarded our program a highly competitive [Education Innovation and Research grant](#), an important validation of our program's design and efficacy by an independent review panel of education experts.

Implementing effective distance learning is essential to address the disparate educational opportunities that impede the progress of Mississippi students in rural and high-poverty areas. However, unless reliable broadband is extended to underserved areas, distance learning may exacerbate, rather than mitigate, educational disparities. Yet rural Mississippi schools currently have broadband service that is often limited and unreliable, and many rural residential areas have no service at all. Mississippi must implement a plan to provide broadband access so that all students may learn effectively.

I am very grateful to the Committee on Education and the Committee on Universities and Colleges for focusing on the critical issues of distance learning and broadband access through rural Mississippi.

I do not presume to be a technical expert on broadband issues, but perhaps I can be helpful to the Committees by sharing my observations based on many, many visits to schools throughout the state over the last three years.

The most important points are overwhelmingly positive—

- First and foremost, our experience has emphatically affirmed the premise of our program: there are bright students throughout rural Mississippi who, regardless of their circumstances, have the aptitude and work ethic needed to excel academically if given quality instruction and sufficient academic supports.

- Second, it is possible to deliver high-quality instruction and extensive academic supports to rural Mississippi through a blended instructional format that incorporates elements of distance learning. Moreover, we have learned that distance learning is most effective when comprised of multiple components that engage students and empower teachers by providing a range of resources to both. Our program has developed a template for such a blended model.
- Third, we have found that some of the nation’s leading educators and top STEM tutors are very eager to work with Mississippi students if provided the means to do so remotely.

However, the news is not all good.

Unless reliable broadband is extended to underserved areas, distance learning may exacerbate, rather than mitigate, disparate educational access and outcomes. Yet rural Mississippi schools currently have broadband service that is often is limited and unreliable, and many rural residential areas have no service at all.

I have witnessed these deficiencies many times at our schools—I have seen classes huddle around a single cell phone to observe a tutoring session, struggle to make sense of a flickering or frozen image, strain to hear fractured audio, or, more often, simply fail to connect.

Broadband access is, of course, even worse in the residential areas of the communities we serve, a shortcoming that greatly impedes the academic progress of our students.

Even prior to the pandemic, we generally could provide tutoring and other online resources to our students only during the school day. Students in rural areas are largely bound by bus schedules, and often cannot stay after school to participate in supplemental learning and tutoring sessions. Without internet connections at home, these students had extremely limited interaction with our tutors beyond school hours, and limited access to learning resources other than physical textbooks and workbooks.

However Mississippi chooses to move forward on rural broadband, it is critical that the state insists that networks meet criteria relating to capacity, reliability, and ubiquity.

- **Capacity:** Schools should seek to have a minimum broadband capacity of 1 Mbps per student to ensure adequate connectivity both now and in the future, when additional capacity is highly likely to be needed. That 1 Mbps capacity has been identified as the appropriate threshold by leading [advocates for public school connectivity](#), and based on their analyses, we concur. Moreover, capacity should be available during periods of peak usage, not just in the middle of the night.
- **Reliability:** Establishing a broadband connection is not enough. Our schools need internet they can count on. Faculty at one of our schools, for example, tell

me that they often lose their internet connections when it rains. That is unacceptable.

- **Ubiquity:** Internet needs to go to each addressable location within a service area. Even if our schools have flawless internet, our ability to provide instruction is greatly impeded by a lack of home internet access. As noted, rural students often cannot stay at school beyond the class day because of school bus schedules. We need to be able to work with them at their homes as well. Furthermore, as a practical matter, providing ubiquitous access requires developing a reliable map of existing service.

I recognize that creating broadband networks that meet these three criteria involves considerable time and expense. In the meantime, there are meaningful steps that may be taken immediately and at little or no cost that also may have a positive impact.

In particular, our schools need to have much better information about what steps they can take to mitigate current shortcomings.

When the coronavirus shut down schools, we advised our schools that we were willing to pay for some or all of the internet connections, hotspots, and devices that are students needed to learn remotely. We asked only that our schools advise us of what was available, what they recommended, and how much it cost. Yet, despite considerable efforts over several weeks, and numerous attempts to work with internet service providers and other entities, our schools were unable to find answers to those questions. As a consequence, we have been unable to reach some of our students after schools closed for the year.

Finally, I wish to address briefly the issue of funding.

Although I know very little about technology, I have worked on federal tax and budget matters for over 25 years, first as a staff attorney in the U.S. Senate, and subsequently in the private sector.

I recognize that the federal government does not face the funding constraints confronting its state and local counterparts. Thus, as a practical matter, the federal government may be the most promising source of funding to further expand and improve rural broadband in Mississippi. I am heartened to note that, in addition to the CARES Act, numerous federal proposals to fund rural broadband are under active consideration. I also am pleased to report that, as I have observed first-hand, Senator Wicker, Senator Hyde-Smith, and Congressman Thompson have been very attentive to our education efforts, and, along with other members of the state Congressional delegation, are working very hard on behalf of the state.

It is very important that, whatever legislative or regulatory initiatives to expand rural broadband are implemented, they prioritize service to areas of greatest need, and that such need be determined based on factors that are particularly evident in Mississippi.

I welcome the opportunity to work with the members of your Committees, other Mississippi legislators and officials, state educators, and the state's Congressional delegation to help ensure that Mississippi gets the help it needs to provide reliable broadband access to the state's rural schools and communities.

Thank you again for the opportunity to testify. I am happy to respond to any questions.