A University-Community-School Alliance

FLAME, the *Florida Local Alliance for Math Literacy and Equity*, is an affiliate of the National Alliance of "We The People---Math Literacy for All." Both local and national Alliances are dedicated to uniting a variety of schools and organizations fighting for equity and excellence in math literacy to prepare all our young people for the Information Age and Knowledge economy.

We are committed to the belief that students in grades K–12, who are chronically underserved and, thus, underperform on state tests in mathematics, must graduate from high school able to do college math without remediation or to pursue careers without their math education being an obstacle. FLAME recognizes that achieving this goal requires confronting long-standing issues of injustice and inequity in the quality of the nation's public schools. It requires, as a civil right, a new standard for education in the 21st century and for citizenship in a democracy.

Guided by the Algebra Project, FLAME participated in the National Science Foundation Conference, "Working Math Literacy from the Bottom Up," made possible by the NSF, *Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science* (INCLUDES) grant. This Conference highlighted the work of students, teachers, community members, school leaders, education policy advisors and higher education researchers and practitioners who are examining the nature of the problem, and the action steps needed, from their diverse roles working "on the ground" in sites around the country.

That network evolved into the creation of "We The People---Math Literacy for All" National Alliance. Afterwards, interested organizations and people created a local alliance in South Florida. As an alliance we engage in meetings, site visits, and on-going assessment of research and documentation. We attempt to consistently amplify the voices of teachers, parents, students and community in all phases of our work. We still struggle to create spaces where those constituents actualize real power in FLAME decision-making.

FLAME ORGANIZATIONAL PARTNERS:

The Algebra Project (AP) is now serving Broward County Public Schools with the Professional Development of Algebra Project (AP) teachers in Broward County. Working in concert with BCPS, AP has developed over 12 cohorts of math students in 9th, 10, and 11th grades. (A brief

graph of AP's philosophy, curriculum, and pedagogy is attached at the end of this summary on page 5.)

Broward County Public Schools (BCPS), led by Superintendent Robert Runcie and Academic Officer, Dan Gohl, since 2017, have participated in both the national and local alliances. Their system is one of the major "on the ground" labs for the work of "We the People-Math Literacy for All."

BCPS is the **sixth-largest** school district in the nation and the **second-largest** in the state of Florida. The District is Florida's **first fully accredited school system** since 1962, and has nearly 270,000 students and approximately 175,000 adult students in **241** schools, centers and technical colleges, and 89 charter schools; and serves a diverse student population, representing **204** different countries and **191** different languages.

BCPS presently engages three high schools: Coconut Creek H.S., Hallandale H. S., and Boyd Anderson H.S. with Algebra Project cohorts of students. In summer 2020, we are engaging Margate Middle School in Coconut Creek feeder pattern. Plans are being made for Attucks Middle School to be added in fall, 2021.

Many options are offered by BCPS:

- Magnet and innovative programs designed around specific themes
- Montessori programs
- Career and technical education programs allowing students to earn industry certifications
- Advanced academics
- Opportunities to earn college credits while in high school
- Virtual education
- Award-winning music, arts and athletic programs.

BCPS also offers the world's largest debate initiative and is a national leader for computer science in schools.

Broward College - North Campus, led by Dean Elizabeth Molina, has for the last two years given bold leadership to connecting student teacher interns to the Algebra Project lab schools in Broward County. They intend to involve more professors from multiple disciplines, including education, physics, and mathematics in the work of FLAME.

BC's Education and STEM/Math Pathways create, plan and facilitate cohort engagement activities on its college campus as well as in cohort high schools. Since about 60% of BCPS graduates attend BC, these activities will expose cohort students to higher education, encourage students to explore a career in STEM education and help students acquire knowledge about transitioning from high school to BC including the application process and the possibilities of financial aid. These on-campus events include but are not limited to: (1) STEM education hands-on events; (2) interactive seminars facilitated by the Education Pathway; (3) Math Awareness Week events; and (4) other college-wide events led by the Education and STEM/ Math Pathways, Student Services and Student Life.

Broward College students, faculty, and staff represent more than 150 different countries. BC is ranked as one of the top state/community colleges in the nation by the Aspen Institute---a recognition of student achievement and graduation rates, and the quality of the curriculum and faculty. All BC programs are structured under Career Pathways which helps students stay on track towards their goals from the first day of class through graduation. BC embraces all students, and especially first-generation in college students and students from underserved communities. The range of services available to students, include Academic Success Centers, advisors, specialized tutoring, and mentorship. Additionally, Career Centers offer work experience through internships, on-the-job training, and job placement.

The Children's Movement of Florida, Founded by David Lawrence, Jr. CMF is a 501(c)(3) nonprofit, nonpartisan movement of Floridians insisting on a strong start for all Florida children. We advocate for high-quality early learning opportunities, access to children's health care, and parent support programs in Florida. The advocacy and awareness work focuses on three pillars of early childhood: Health, Education, and Parent Support. We achieve impact at the local level by educating and empowering Floridians on the importance of the early years, and at the state level by encouraging elected officials to think of children when they vote. Here are a few of the initiatives include Improving Florida's voluntary pre-K program; Supporting high-quality parent skill-building systems; Securing health insurance for all children; Ensuring screening and treatment for all children who may have disabilities; Providing high-quality mentoring programs. To learn more, visit 2020 Agenda.

Florida International University is Miami's public research university and is one of only three percent of universities to earn Carnegie R1 classification for highest research activity. Ranked by *U.S. News & World Report* as one of the top 100 public universities in the country, FIU recently was officially designated an "emerging preeminent state research university" by The Florida Board of Governors. Graduate programs in six FIU colleges are ranked among the top 50 in public universities. FIU focuses on student success and research excellence, with nearly $200 million in annual research expenditures. Today FIU has two campuses and multiple centers including sites in Qingdao and Tianjin, China, and supports artistic and cultural engagement through its three museums. The university offers more than 200 bachelor's, master's and doctoral options, and South Florida's only public colleges of law and medicine. FIU has awarded more than 330,000 degrees to many leaders in South Florida and beyond. With a student body of nearly 54,000, we are among the top 10 largest universities in the nation as well as the largest Hispanic/Latinx university in the nation.

Florida After School All Stars, housed at FIU, led by Sean Prospect, also supports the work of BCPS through stipends and materials to after-school FIU student mentor/teachers and local, certified teachers.

FIU African and African Diaspora Studies. Former Director, Dr. Percy Hintzen, one of the original FLAME partners, helps facilitate local FLAME meetings as well as professor/teacher/partners Scholars' Reading Circle. He, too, invites AADS students to participate in the "ground-game" of FLAMEs work in the schools.

FIU College of Law, Senior Associate Dean, Michelle Mason, involved COL with hosting and financing summer camps for elementary students, participating in student-led Algebra Project and Young People's Project mathematics instruction. Mason also involves some of her law clinic professors with parent and student legal issues. Recently, she has been supporting FLAME by exploring the development of law students and professors who will investigate how to create networks of lawyers and disenfranchised community members to rally around the national and local alliances' drive to make demands upon the federal government to uphold the 6th U.S. Circuit of Appeals ruling that there is a constitutional right to a "foundational level of literacy.

FIU Office of Global Learning Initiatives (OGLI), Executive Director, Dr. Hilary Landorf and her staff support FLAME, through offering the resources of graduate research assistants, attending FLAME meetings, giving workshops at BCPS Algebra Project summer induction institutes, etc. OGLI's mission is to prepare FIU's students to be successful global citizens with global awareness, a global perspective, and a passion to make the world a better place. OGLI won the 2016 IIE Andrew Heiskell Award, ***Global Learning for Global Citizenship*** initiative. Every FIU student engages in active, team-based, interdisciplinary exploration of real-world problems as a condition of graduation. FIU faculty have created over 140 global learning courses across the undergraduate curriculum. Students choose among courses offered in every academic department to meet their two-course global learning graduation requirement. Faculty, staff, and graduate teaching assistants attend an array of OGLI workshops and can secure fellowships that hone skills needed to implement successful global learning experiences. The Global Learning Medallion program enables students to design their experiences. They can take additional GL courses and participate in globally-focused activities, study abroad programs, foreign language study, and/or original research to earn this graduation honor. Co-curricular offerings also include the Peace Corps Prep program, the Tuesday Times Roundtable series, and a myriad of student clubs.

FIU School of Education and Human Development, Senior Associate Dean Laura Dinehart established a partnership with Broward County Public School System three years ago to develop a South Florida Alliance of "We the People." Dr. Dinehart, and FLAME/FIU/BCPS liaison, Dr. Maria Lovett, have gathered many different professors, researchers, public school teachers, graduate students, and community agencies to join FLAME'S efforts to transform math education in public schools. Dinehart & Lovett organize college and university efforts to promote and develop FLAME's collaborations, interests, philosophy, and multi-layered, multi-faceted work.

FIU School of Computing and Information Sciences. Dr. Mario Eraso currently serves as Science, Technology, Engineering and Mathematics (STEM) Coordinator in FIU's School of Computing and Information Sciences. He participates in STEM outreach activities for elementary and secondary schools, networks with local tech companies that provide students with internship opportunities, provides students with academic support, and assists faculty with including educational components in their grant proposals. Mario is creating new opportunities for FIU engineering and computer science students to teach Saturday and after-school programs for FLAME's participating schools.

FIU's STEM Transformation Institute, led by Physicist Laird Kramer, was launched in response to the national call for 100,000 new STEM teachers and an additional 1,000,000 STEM professionals over the next 10 years. Building on the unique skills and perspectives of its diverse student population, STEM institute is improving institutional learning practices through evidence-based teaching. Promoting active learning and supporting more than 7,500 undergraduate STEM majors, it is a multidisciplinary collaboration working across the university. Through that collaboration, it develops research-based education practices that effectively produce substantial increases in the number of well-prepared STEM professionals, including teachers, entering the workforce. The STEM Transformation Institute serves as a living laboratory that develops, shares best practices, policies training for STEM professionals across the nation.

Miami Algebra Project Council. Co-directed by David Lawrence, CEO of the Childrens Movement of Florida, and Michelle Mason, Sr. Associate Dean of FIU's College of Law, partner with and lend support of their organizations to FLAME. David Lawrence works directly with AP President, Bob Moses, with creating meetings with Florida businessmen and public officials to spread the word about FLAME and to garner support for the work. Michelle Mason continues to support the organization through involving the college's legal community in support of FLAME's work.

Sobe Innovative Rehabilitation. Dr. Nkume Sobe and Nadia Sobe, partners of FLAME, offer employment to youth involved in our public schools as well as worked at previous AP & YPP Saturday schools as math mentors.

South Florida Black Professionals Network. CEO Ken W. Burrough, has partnered with FLAME to involve Black Professionals with the work in public schools, especially the work in Broward County. They are particularly interested in supporting Broward's work with YPP's FLAGWAY game.

The Young People's Project. YPP's near peer mentoring program has been developed and studied in several grants. An NSF grant entitled Building Demand for Math Literacy demonstrated that YPP had the capacity to partner with a variety of community organizations and implement a cascading near-peer teaching/learning program in a variety of site settings. The project included 14 staff members, 32 instructors and trainers, 4 individual consultants, and 3 consulting organizations. YPP established collaborations with 10 organizational partners and provided services to 60+ schools and out-of-school programs. They developed a competency-based Training of Trainers program that produced 36 trainers who conducted 40+ Math Literacy Worker (MLW)-training sessions for about 274 college students and 1132 high school students, who in turn provided outreach workshops for 3900 elementary and middle school students, and conducted community math events for about 2000 parents and community members.

YPP FLAGWAY & Trainer Training: Project products included the new trainer-training model as well as a certification process; three highly interactive new math modules based on the Flagway Game (a game requiring skills in prime factorization of numbers through the Mobius Function), and piloting of Flagway "leagues", where teams compete in games that culminate in large-scale community-based tournaments. A national competition of Flagway teams was

recently featured at the 2019 National Math Festival in Washington DC under the sponsorship of the Mathematical Science Research Institute in Berkeley, CA

In Broward Schools, YPP implements summer programs (induction and other institutes) and during the regular school year, in and after school near-peer and peer-to-peer math literacy programs. These activities are intended to activate and build the inherent leadership capabilities of students, in support of an academic culture of high expectations, productive and engaging work, and student success. The summer induction, in addition to work with raising 9th graders, will provide training, coaching, and apprenticeship for 10 to 15 high school math literacy workers and 1 teacher/coordinator at each high school. YPP is a key feature of the summer induction, as it helps to create a peer-driven culture around learning and doing math together that teachers can observe and learn how to sustain in their professional practice

During the academic year, in each of the cohort schools, **YPP** designs and adapts the near-peer and peer-to-peer work to fit either an in-school or after-school program. A model for this work already developed is a Leadership Academy. The Academy meets after school with students once a week, to develop teams of students who can provide leadership in their classrooms for raising the level of math literacy for all.

DEVELOPING PARTNERS:

BCPS Parent Committee: Beginning in September 2020 a new out-reach committee will be investigating strategies for involving more parents in our work, amplifying their voices and urging their empowerment as decision-makers for FLAME's work.

BCPS Teacher Committee: Teachers have been active in creating spaces for the work of FLAME, especially as it relates to the development of cohort participation in their classrooms. Beginning in September 2020, a new teacher out-reach committee will be investigating how to involve more teachers in our work, further amplifying their voices and urging their empowerment as decision-makers in FLAME's work.

BCPS Student Committee: Through the work of the Young People's Project in Broward County, students have been empowered to grow their math skills, to share their knowledge with younger students, and to use their voices to help shape democratic school policies. Beginning in September 2020, a new student out-reach committee will be investigating how to involve more students in our work, further seeking the actualizing of their power as decision-makers in FLAME.

(Theory & Action Model undergirding math instruction, supported by FLAME is explained below on Page 7)

THE THEORY AND ACTION MODEL

UNDERGIRDING MATH INSTRUCTION, SUPPORTED BY FLAME

LOGIC MODEL & THEORY OF ACTION FOR AP's MATH COHORT MODEL
(Excerpt from Program Efficacy Argument (PEAr), by Educational Testing Service, 2014)

The diagram below displays the theory of action for the Algebra Project. The diagram begins with a list of the intervention's components. A series of numbered arrows then connects the product to intermediate outcomes and final outcomes.

Each arrow represents a specific hypothesis for what is expected to happen when the product is implemented. A summary of salient, relevant research for each hypothesis is detailed in the following sections. The research evidence presented is from studies that did not use the intervention, but that support the theory of action. The arrows and research summaries are numbered and color-coded for easy identification. Orange claims and outcomes refer to changes in teacher practice and knowledge; green claims and outcomes refer to intermediate student outcomes; and blue claims and outcomes refer to the final student outcomes.