

# The Lighthouse Almanac

Volume 2, Issue 1

A peer-reviewed journal published by the Benjamin Banneker Association, Inc.

## Teaching Mathematics Through a Social Justice Approach



# The Lighthouse Almanac

The Benjamin Banneker Association, Inc.

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## Call For Proposals

The editorial panel of *The Lighthouse Almanac* encourages all readers – especially PK-16 educators, teacher educators, school/district leaders, and mathematicians – to consider writing for the journal. The focus for our next issue will be **Critical Issues in the Mathematics Education of Black Children**, and is scheduled to be released in September 2019. We will consider the following submissions related to the topic:

- A personal story / original essay;
- An abstract describing your current research or related projects you are developing;
- Commentary of a current event or issue;
- An activity or lesson for PK-16 educators or teacher educators;
- A resource for parents; or
- A tool (e.g. a Cultural Proficiency Rubric / Checklist) for educators, school administrators

Manuscripts will be reviewed and accepted based on their alignment to topic as well as the mission and goals of the Benjamin Banneker Association, Inc. For more information, please contact Brian Lawler at [blawler4@kennesaw.edu](mailto:blawler4@kennesaw.edu).

Proposal Submission Deadline: **May 31, 2019**

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The Benjamin Banneker Association would like to express our sincere appreciation to the following individuals who reviewed the submissions for this issue.

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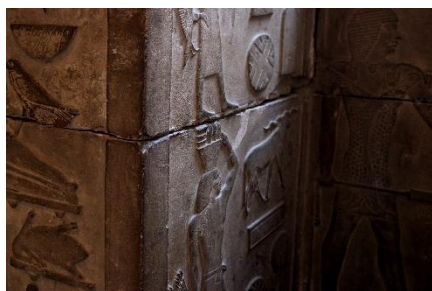
# About BBA's Position on Social Justice

Kwame Anthony Scott

My name is Kwame Anthony Scott. I am the North Central regional Director for the Benjamin Banneker Association (BBA) as well as the Board Liaison to the Educational Policy Committee. This committee is one of twelve committees of the BBA that are designed to serve as advocate for the educational and professional needs of its members and children of African ancestry.

The Educational Policy Committee was charged with writing a BBA Social Justice Position Statement, to include attention to equity. Social justice is not a new idea within the educational milieu, but BBA needed to give social justice a definition that is pertinent to the work we must do.

People of African ancestry have a unique history. For hundreds of years our beliefs were communal and our acts were corporate. However, our indigenous practices were distorted after centuries of slavery, Jim Crow segregation, racist terror, and institutional exclusion (Woodson, 1933/2017). Consequently, we need a process to identify, examine, diagnose, discuss, and determine solutions to those political, economic and social conditions that have an adverse effect on our lifestyles as a people. We call the name of this process ***Social Justice***.



The purpose for writing this article was to revisit and summarize BBA's Social Justice Position Paper, and to bring clarity to the readers to why we wrote it. The actual position is online on BBA's website [www.bbamath.org](http://www.bbamath.org). BBA's position paper can provide a resource and an encouragement for our membership to continue to join us in the struggle to move our children off the bottom of the academic achievement ladder.

The challenge for educators is to make the content relevant while keeping students engaged in the classroom activities as they learn the concepts, skills and application of mathematics that is presented in the school's mathematics curriculum. In response, we wrote the position paper to encourage teaching and learning of mathematics while placing the content within the context of the family, community, history and culture of the children of African ancestry.

What follows is a summary of the BBA Educational Policy Committee's purpose for writing the BBA Social Justice Position Paper. This does not cover all of the points, but the purpose, problem and method to illustrate the thought process we used to designing the position paper.

## Purpose

Too many teachers are missing or are unaware of opportunities to develop and implement issues of political, economic and social conditions as mathematical application so they can engage students in their lesson's activities. These opportunities could provide the ability to teach mathematics content using context that resonates with and appeal to student interests. Furthermore, these types of application can be used in mathematics instruction to achieve change in positive ways for the students' communities. Consequently, we need a process to identify, examine, diagnose, discuss, and determine solutions to those structural conditions. We call this process Social Justice.

# Promoting Self-Love and Knowledge in Mathematics for African-American Students

Kyndall Brown

In 2017, the Benjamin Banneker Association (BBA) released their position statement entitled “Implementing a Social Justice Curriculum: Practices to Support the Participation and Success of African-American Students in Mathematics.” The position statement is a call to rethink instructional practices in mathematics for African-American students. To support the implementation of a social justice curriculum, BBA (2017) recommends a variety of curriculum elements including Self-love and Knowledge.

The mathematics curriculum is inclusive of lessons which use historical and contemporary context to highlight the contributions of Africans and those of African ancestry. As a result, a sense of dignity in their culture, heritage, ethnicity/race, is cultivated in the classroom. Negative stereotypes about students’ identities and abilities to create and apply mathematics are deconstructed as a result. (p. 4)

In order to attend to the curricular element of Self-love and Knowledge, teachers of African-American students need access to instructional resources that include the contributions of people of African descent to the field of mathematics. Unfortunately, few textbooks that are used in K–12 schools have any information of this nature. It then becomes the responsibility of the teachers of African-American students to find this information for themselves and incorporate it into their mathematics lessons.

There are a number of ways that teachers can increase their student’s knowledge of the contribution of people of African descent to the field of mathematics. One way is for teachers to allow students to explore African mathematical artifacts, number systems, and games. For example, the oldest mathematical artifact in the world is the Ishango Bone, a counting instrument that was “discovered” in the 1950’s by a Belgian archeologist in the African country of the Congo (Zaslavsky, 1973). The instrument has groups of markings that imply an understanding of addition, doubling, base 20, and prime numbers. Students can study images of the bone to identify the many number patterns. Such an activity can lead into a discussion of prime numbers and factorization. *An outline for a classroom activity is provided in Figure 1.*

Another option would be to study the number system of the Yoruba people of Nigeria (Zaslavsky, 1973). This base-20 number system relies on addition, subtraction, and multiplication to compose numbers up to one million. Studying the Yoruba number system reinforces place value and order of operations.

There are a variety of methods of multiplying that were used in Africa. The Egyptian method of multiplication by doubling, and the lattice method are two of them (Van Sertima, 1983). Students can be taught these methods of multiplication, determine why they work, and compare them to the standard algorithm currently used in schools. African games like ACHI and Mancala can be used to teach logic, critical thinking, and problem solving.

Another way to attend to Self-love and Knowledge is to research the contributions of people of African descent to the field of mathematics. For example, African-American students can study the wealth of mathematical knowledge of the ancient Egyptians. Artifacts “discovered” in Egypt reveal the ancient Egyptians had their own number system, measurement system, and methods of performing mathematical operations. The ancient Egyptians also had a very unique way of solving equations of the first and second degree known as the method of false position (Gillings, 1972).

**The BBA position statement on social justice is not just for teachers. There is most definitely a role for teacher preparation programs, district personnel, and professional development providers in helping mathematics teachers make their curriculum and instruction more culturally responsive and relevant.**

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Thomas Fuller. Taken from <https://bit.ly/2Pm6x5H>

Teachers can have their students study African-American mathematicians like Benjamin Banneker, or his less well-known contemporary Thomas Fuller. The first African-Americans to receive PhD's in mathematics, Elbert Francis Cox and Euphemia Lofton Haynes, could be the topics of great research projects. The popularity of the recent movie and book "Hidden Figures" has opened up a new chapter in the history of African-American women in mathematics (Shetterly, 2016).

The BBA position statement on social justice is not just for teachers. There is most definitely a role for teacher preparation programs, district personnel, and professional development providers in helping mathematics teachers make their curriculum and instruction more culturally responsive and relevant. In order to assist teachers in incorporating these ideas into their instruction, teacher preparation programs must do a better job of exposing pre-service teachers to resources such as those referred to in this commentary. The contributions of people of African descent can be incorporated into mathematics methods courses, and teachers can be required to create lessons that include this information.



Dr. Elbert Francis Cox. Taken from <https://bit.ly/2BVc4Nj>



Dr. Euphemia Lofton Haynes. Taken from <https://bit.ly/2QJNiMo>



# Reclaiming Their Time: Removing the Barriers to Ensure Equity in Our Children's Education

Natalie Holliman, Veda Pendleton, Kelli Mack, Kendra Nwosu



Photo credit: All4Ed on Foter.com/ CC BY-NC

For years I labored with the idea of reforming the existing institutions of society, a little change here, a little change there. Now I feel quite differently, I think you've got to have a reconstruction of the entire society, a revolution of values.

– Dr. Martin Luther King, Jr. (Halberstam, 1967, p. 47)



Education exists in our society as it has for many years, one-dimensionally, where the teacher is the giver of knowledge and students bring their empty slates to be filled. One may suggest that by making a little change here and a little change there, small steps can work to reform the existing organization of education within our society. These little changes may look different in various contexts, and could include changing the curriculum, instituting mathematical practices, or changing funding formulas to better support the educational system. Within this article we call for a reconstruction of the educational system through advocacy and a revolution of educational values, both related to removing barriers that have been stacked against culturally diverse children in America.

Such a revolution should begin with the correction of written history. American history was written by the conquerors; whoever won by force had the opportunity to record history. McIntosh (1998) considers this version of history to contribute to an invisible, weightless knapsack of special provisions, passports, codebooks, tools, and blank checks; a knapsack that has been utilized by oppressors and outlines privilege in America. This privilege magnifies “power” that many possess primarily as a result of their racial identity, but also as a result of socioeconomic class, gender, and age, just to name a few.

The omission of mathematicians of color from our history suggests to children of color that they have no seat at the table of the sciences. If culturally diverse students can’t see themselves in history as mathematicians, if it’s not possible to see what their ancestors have done to advance mathematics, and if they have no idea of the contributions their culture has made to the field, how are they going to see where they are going or follow the path of those who came before them given the examples are minimal or non-existent? Within this reconstruction of education, we suggest a call to action centered on the idea of lifting up the contributions of African Americans and others of culturally diverse backgrounds in mathematics, illuminate the resilience and brilliance children bring with them to a mathematics classroom, and use these artifacts to represent precious commodities of excellence—in order to take back students’ time, empower them in mathematics, and advance their learning in mathematics.

A phrase re-popularized by U.S. Representative (Democrat of California) Maxine Waters, “reclaiming my time” was a stone-faced invocation of the United States House of Representatives floor procedural rules (Emba, 2017). Likely you have been there: while engaging in important dialogue and questioning with promising outcomes toward a solution, the opposition side-steps and draws attention away from the argument. *Reclaiming my time* is an interruption that suggests—you are wasting my time and using it on unrelated-irrelevant dialogue. In the instance of Representative Waters, “reclaiming my time” shut down the rambling of the opposition as well as redirected the conversation to address Representative Waters’ question. Her use of this floor-interrupting phrase rang out as a rejection of the avoidance, a premise that became an awakening for all who have been spoken over, ignored, or have had their time wasted by others (Emba, 2017). Waters’ dismissal of the opposition’s attempted misdirection allowed her to find value in long-established rules and to use them to her advantage. Ultimately, “reclaiming my time” was seen as a powerful negation of a system usually used to keep Representative Waters and those like her in their places. Rather than continuing to cede the floor to others, “reclaiming my time” signaled the moment for Waters—and an implication to all—to use collective knowledge and established societal tools to take back our power.

The omission of mathematicians of color from our history suggests to children of color that they have no seat at the table of the sciences.

# Creating Math Communities in the Neighborhood

Lesa Covington-Clarkson and Elena Contreras Gullickson



Prepare2Nspire (P2N) is a multi-grade mathematics tutoring and mentoring program situated in an historically working-class neighborhood comprised of predominantly African American residents. This urban neighborhood is known for its higher than average unemployment rate and the highest crime rate within the surrounding areas (Eligon, 2016). Given these demographics, the residents of this neighborhood along with program participants face social, economic and cultural obstacles. P2N provides a supportive, multi-ethnic academic space for young people to persevere in mathematics. As one participant describes this safe space “...when I come here, it feels friendly and alive. I feel accepted. I feel like I belong....”

## Rationale

This innovative project prepares under-served students to succeed on grade-level, high-stakes mathematics exams and to inspire them to continue their study of mathematics. The mission of P2N is to (1) develop mathematics confidence, content-knowledge, connections, communication skills, and community through cascading tutoring/mentoring and technology, and to (2) create a STEM (Science, Technology, Engineering and Mathematics) pipeline for urban underrepresented youth to post-secondary opportunities.

# Where Am I in My Equity Walk?

John Staley

*How might we, the mathematics education community, make a difference in the teaching and learning of mathematics so as to promote rich, rigorous, and relevant mathematical experiences for all students?* This one question has been on my mind for several years now and especially during the past few years as I have come to the realization that answering this question requires us to get to the root of the underlying issues related to equity, in other words multiculturalism, diversity, culturally responsive pedagogy, and most recently social justice.

As I reflect on my career as a teacher, teacher leader, district leader, parent, and grandparent, I look back and see three important questions that frame my journey: *Why is this work important?* *What is the purpose for teaching Mathematics?* and *What shifts in our instructional practices must we consider?* In this reflection, I will use each question to structure our conversation by sharing snapshots from my journey, a journey that includes conversations with many educators, attendance at conferences, and study of professional literature such as those listed in *A Call for a Collective Action to Develop Awareness: Equity & Social Justice in Mathematics Education*

([https://www.nctm.org/uploadedFiles/News\\_and\\_Calendar/Messages\\_from\\_the\\_President/Archive/Matt\\_Larson/CollectiveAction-EquityAndSocialJusticeInMathEducation\\_09\\_01\\_2016.pdf](https://www.nctm.org/uploadedFiles/News_and_Calendar/Messages_from_the_President/Archive/Matt_Larson/CollectiveAction-EquityAndSocialJusticeInMathEducation_09_01_2016.pdf)). I will also answer the question, *Where do I go from here?*

Before we begin, I would like for each of us to think about one child in our lives, be it a relative or friend, for whom we care for and would do all that is within our control to help them achieve their dreams. For those who have heard me speak, you may remember my granddaughter Bevelyn. My understanding of equity issues is closely connected to my dreams for Bevelyn and thus impact my words, thoughts, actions, and beliefs, especially when working with students, parents, teachers, administrators, and the community. Now, prior to reading my reflections, pause, reflect and ask yourself, *Where am I in my equity walk?*

## **Why is this work important?**

We all have the responsibility to develop students' mathematical identity, "the dispositions and deeply held beliefs that students develop about their ability to participate and perform effectively in mathematical contexts and to use mathematics in powerful ways across the contexts of their lives" (Aguirre, Mayfield-Ingram, & Martin, 2013, p. 14). Too often, many individuals' negative beliefs and attitudes about mathematics, the value of mathematics, and their ability to do mathematics are shaped during their K–12 schooling experience. As we work to help students develop a *positive* mathematics identity, Cobb, Gresalfi and Hodge (2009) offer the following perspective on mathematical identity, specifically that it involves "the ways that students think about themselves in relation to mathematics and the extent to which they have developed a commitment to, and have come to see value in, mathematics as it is realized in the classroom" (pp. 1–2).

I invite you to pause and reflect as you unpack the term, mathematical identity, making note of key words or phrases that you may need to revisit at a later time. The following two phrases "Use mathematics in powerful ways" and "are engaged in and see value in mathematics" remind me of the importance of having a purpose for teaching mathematics that extends beyond the learning of content and deeply connects to helping students believe in and see themselves as doers and thinkers with mathematics.

As I think about how to support Bevelyn in developing a positive mathematical identity, I have concerns about the messages she may receive about mathematics from adults inside and outside of the classroom based on their previous experiences. I am mindful of the labels that are often attached to African Americans, females, and children from single-parent households. I also know that I am here to support her

# Join the Benjamin Banneker Association today!

BBA is an affiliate of NCTM and a member of the Conference Board of Mathematical Sciences

## Mission

Banneker members are deeply committed to finding solutions to the problems that must be solved for children of African ancestry to reach parity of opportunities to study and achieve in mathematics.

## Membership

Dues are \$30/year, \$50/2 years, and \$80/3 years. Discounts are available for students, schools, and pre-service teachers. BBA Student Group dues are \$50 per year, and include 1 membership for the group adviser. Silver and Gold Lifetime memberships are available.

Payment can be mailed to The Benjamin Banneker Association, PO Box 55864, Little Rock, AR 72215 or you can join online at [bbamath.org](http://bbamath.org).

## What Do I Get?

BBA Professional Webinars  
Opportunities to present at local and national conferences  
Free access to members only lessons, activities, and classroom resources  
Quarterly newsletters  
Scholarships and grants for teachers  
Access to members-only website for shared research, events, resources and opportunities  
Free access to the BBA peer-reviewed journal, [The Lighthouse Almanac](#)

## What Do We Do?

Promote equity and excellence in mathematics education through publications, presentations at conferences, and our online presence.

Collaborate with other organizations such as NCTM, NCSM, TODOS, AMTE, NAM and WME to take a social justice stance that includes fair and equitable teaching practices, high expectations for all students, access to rich, rigorous, and relevant mathematics, and strong family community relationships to promote mathematics learning and achievement.

Partner with community learning spaces such as the Boys and Girls Clubs of America.

Sponsor students competing in local, regional, or national math/science activities.