



We are Family: Ways African American Families Engage in Mathematics

Desha L. Williams
and
Cheryl D. Pappy

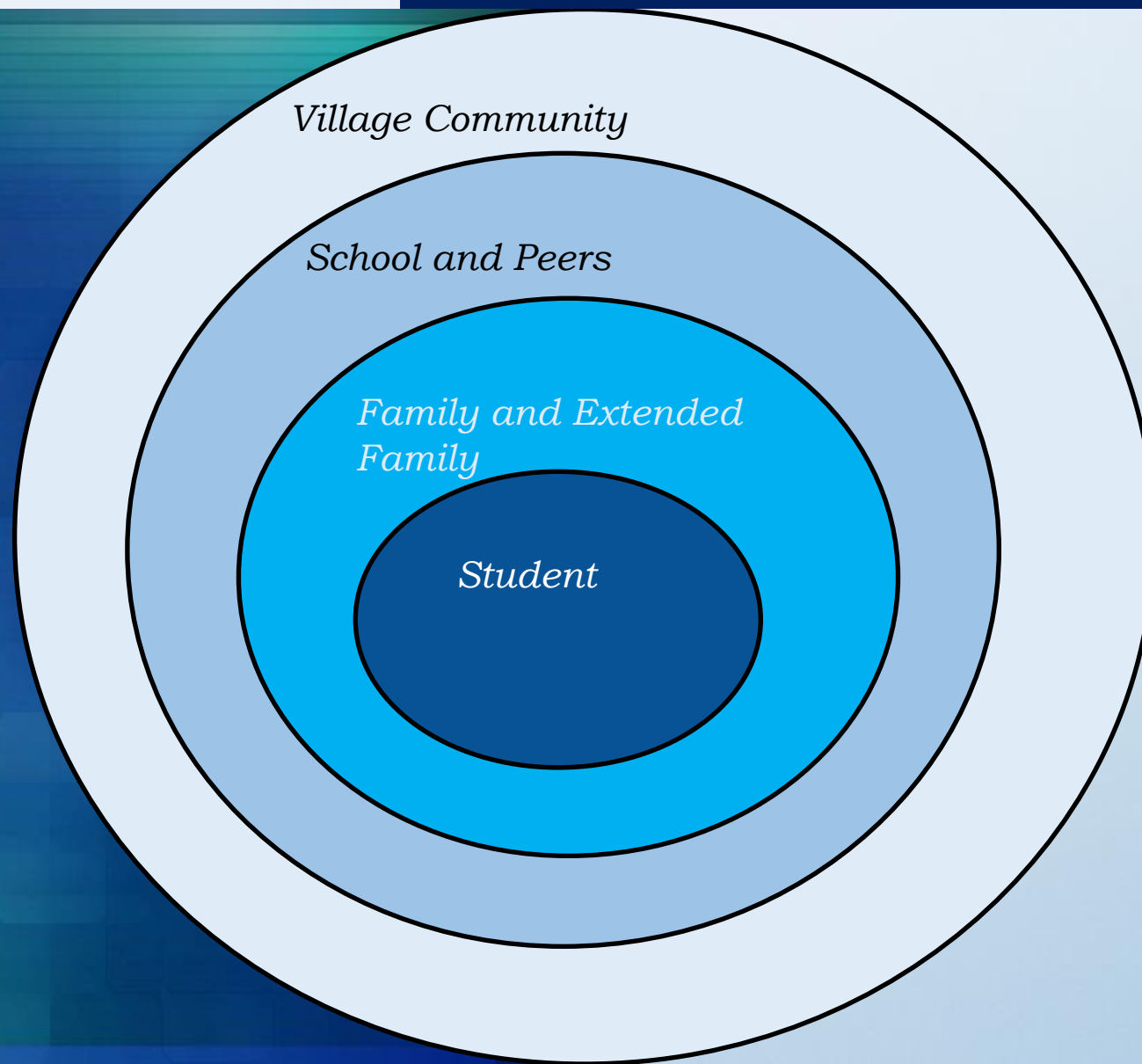
April 6, 2017



How does engagement look in your classroom?



How does engagement look at home?



Family Engagement

- ❖ Encompasses parent activities in the home, in the school, and in the community that promote critical thinking and learning mathematics during time families spend together.

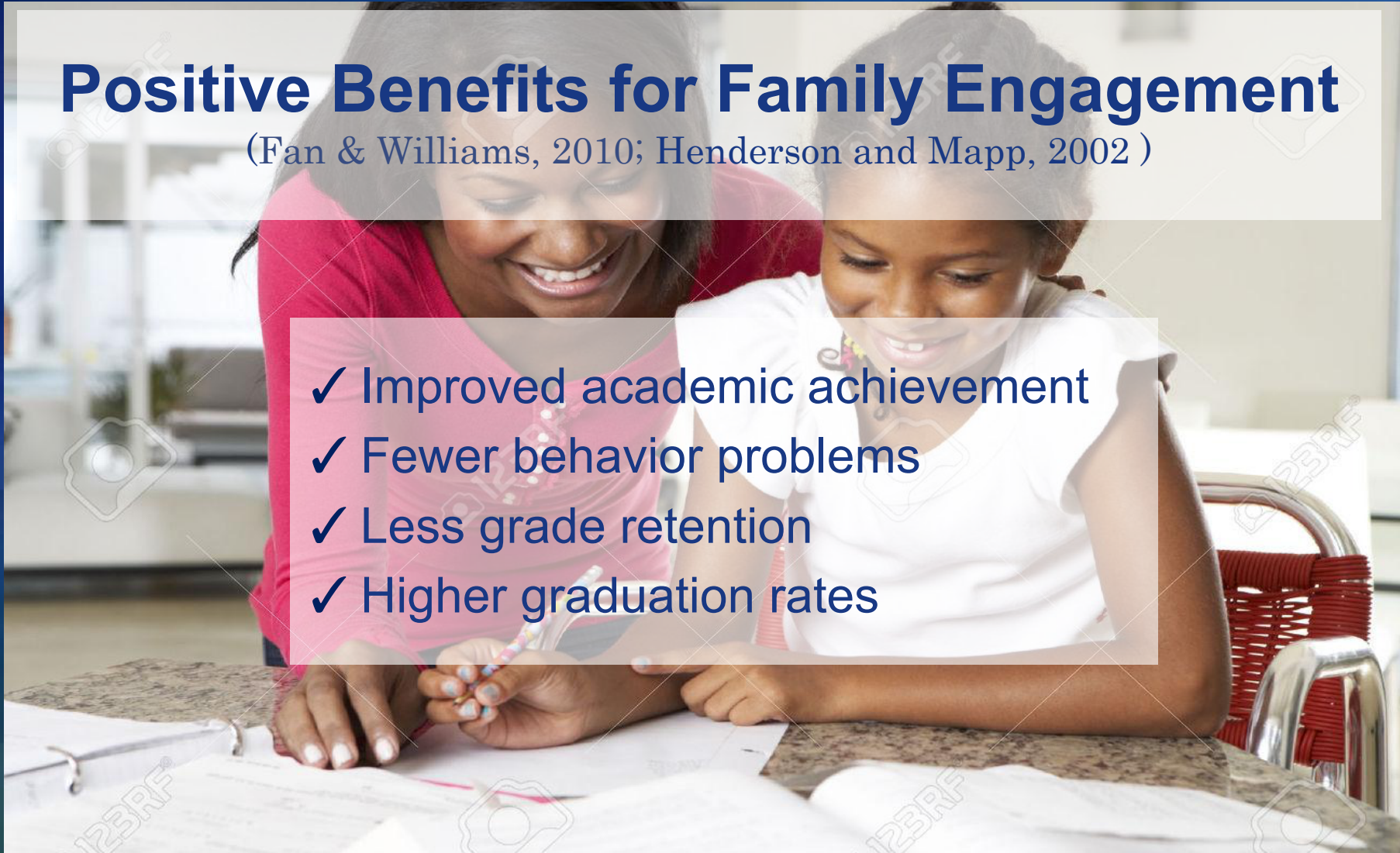
- ❖ Interactions included assisting with and monitoring homework, emphasizing family values, developing mathematical identities, promoting interests in mathematics, providing exposure to mathematical experiences, affording learning opportunities, and discussing expectations and aspirations for their children. (Fan, Williams & Wolters, 2012; Hoover-Dempsey, et al., 2001; Martin, 2000; Noble & Morton, 2012; Yan & Lin, 2005)

Family Engagement and Mathematics

Positive Benefits for Family Engagement

(Fan & Williams, 2010; Henderson and Mapp, 2002)

- ✓ Improved academic achievement
- ✓ Fewer behavior problems
- ✓ Less grade retention
- ✓ Higher graduation rates



African American Families and Mathematics

- Take fewer math classes (Sheldon & Epstein, 2005)
- Persistent disparities in math scores (National Assessment of Educational Progress, 2015)
- Negative attitudes attributed to racism (Alliman-Brissett & Turner, 2010; Martin, 2000)
- Often viewed from a deficit perspective (Berry, 2008; Stinson, 2008; Jeynes, 2005; Martin, 2006; Jackson & Remillard, 2005; Qi, 2006)
- Lack of “math identity” (Martin, 2006)

African American Families and Mathematics

- High expectations and aspirations for their children (Fan & Chen, 2001; Fan & Williams, 2010; Yan & Lin, 2005)
- Increased home based involvement (Green et al., 2007; Hayes, 2011)
- Parents' success in math correlates with them facilitating better outcomes for their students (Jeynes, 2005)

Why African American Family Engagement



Collaboration- two-way communication
Strengthens Partnerships- Home-
Teacher-School
Building Positive Mathematics Identity

Applying to African American Family Engagement

Cultural capital values types of knowledge, skills and abilities that often are unrecognized or acknowledged.

Linguistic capital gives significance to the rich oral, storytelling traditions in the home environment.

Familial capital is similar to the “village” ideology and is based on bonds within the African American community.

Social capital is considered the different types of networking of people and peers to help navigate through society’s institutions.

(Yosso, 2005)

Crossing Generations

Old School Math vs New School Math

- Less procedural learning and more conceptual learning
- Different routes to the same destination
- Technology changes
- Families need to experience “new” best practices instructional strategies

It's a Family Affair

- The “village” and community responsibility
- Care and advocacy for all children
- High Expectations and Support from family
- Passing the Baton
- Expressed Family Values

How can you help families engage?

Source: Google Images

Three steps to Engagement

- Beliefs and mindsets
- Relationships and communication
- Investing families in student goals and helping them monitor progress and support learning

(Spielberg, 2011)

Culturally Relevant Pedagogy

“...capitalizing on students’ home and community culture...using cultural referents to impart

1. Knowledge

2. Skills

3. Attitudes”

(Ladson-Billings, 2004)

Connect with students’ home and community culture

Culturally Responsive Teaching

✪ Using cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant and more effective for them (Gay, 2000).

How...

1. Gamify
2. Socialize
3. Storify

(Hammond, 2015)



Helping Families Engage

Game and Social

- [Building communication](https://www.youtube.com/watch?v=TZ-V_n8SOJk) and family relationships (https://www.youtube.com/watch?v=TZ-V_n8SOJk)
- Mathematics Connection: lateral thinking and topology or the mathematics of distortion
 - Mathematics Practices
 - Persevere in solving problems
 - Construct viable arguments and critique the reasoning of others
- Connecting through the African-American tradition of hair braiding
- http://csdt.rpi.edu/african/cornrow_curves/
 - Mathematics Connection
 - Geometric Transformations
 - Mathematics Practices
 - Model with mathematics
 - Look for and make use of structure



Connecting Old School and New School

Stories

- Old School Humor
 - Mathematics Connection
 - Error Analysis in Arithmetic
 - Mathematics Practices
 - Attend to precision
 - Construct viable arguments and critique the reasoning of others
- Camping (<https://www.youtube.com/watch?v=Psjk6gHK09w>)
 - Mathematics Connection: Logic
 - Mathematics Practices
 - Construct viable arguments and critique the reasoning of others



Engagement is not just for Elementary Students

- **Statistics**
 - Driving while Black or Brown (Eric Gutstein) – High School
 - Surveys – Middle School
- **While watching movie**
 - Hidden Figures
- **Personal Health**
 - Exponential Growth

Other ideas of engaging families in the learning of mathematics



“In many ways, African American parents and community members are the conduits for change in helping reverse problematic achievement and persistence trends among African American students. ...” (Martin, 2000, p. 187)

- Encourage and Support Parental and Community Engagement in Mathematics
- Exchange information about learning in the mathematics classroom, in the home and in the community



THANK YOU FOR YOUR
ATTENDANCE
AND NOW
QUESTIONS???

Desha Williams
dwill178@kennesaw.edu