

Addressing the Needs of the Marginalized Students in School Mathematics: A review of policies and reforms

Robert Q. Berry, III, Ph.D.
Associate Professor of Mathematics Education
Curry School of Education
University of Virginia

Discover. Create. Change.

Goal

- Examine policies and reforms within historical trajectories using the lens of interest-convergence to understand whose interests are served and the benefits for marginalized students.

Discover. Create. Change.

Addressing the Needs of Marginalized Learners

- The needs and interests of Black, Latin@, Indigenous, and poor have not been met collectively.
- Reforms and policies are driven by interests convergence and not by knowing and understanding the needs of marginalized learners (fortuitous benefits)

Discover. Create. Change.

Addressing the Needs of Marginalized Learners

- While the disproportionality and conditions of marginalized learners is a cause for concern, it is important to understand that addressing the needs of these learners may not have been the primary goal of prior policies and reforms in mathematics education.

Discover. Create. Change.

Addressing the Needs of Marginalized Learners

- Many past policies and reforms have come at the expense of the needs and interests of marginalized learners by using language that positions them, their families, and communities as problem centers.

Discover. Create. Change.

Practice of developing reforms and policies

- How are problems and solutions defined?
- Who defines them and on whose behalf?

Discover. Create. Change.

Daily language, rituals, and habits

- How are people eligible for policy-driven services seen by those who enact policies?
- How are those eligible for policy-generated services, distinguished from those not eligible?
- How do policies introduce and build on biases about policy beneficiaries?
- What is denoted by policy-driven identities such as “Title I schools”?

Discover. Create. Change.

ESEA: Amendment (Dyad)

- Assessment of Educational Need-A local educational agency may receive funds under this title only if it makes as assessment of educational needs each year to (1) identify educationally deprived children in all attendance areas and to select those educationally deprived children who have the greatest need for special assistance (Education Amendment, 1978; p. 2164).

Discover. Create. Change.

ESEA (Dyad)

- Incentives to see students as deprived and to formally identify deprivation
 - Local institutions attain new motivation to look for, even seek out deficit and deficiency.
- The label of deprivation becomes part of the daily vocabulary.
 - Language to signify perceived deprivation,
 - “Title I students” students

Discover. Create. Change.

Framing Problems & Solutions

- “Mathematics has become a critical filter for employment and full participation in our society. We cannot afford to have the majority of our population mathematically illiterate: Equity has become an economic necessity” (NCTM, 1989, p. 4).

Discover. Create. Change.

Framing Problems & Solutions

- A consequence of this framing is that participation in mathematics is based on economic participation.
- Whose interests are met based on increased participation?
 - Workers
 - Economic growth

Discover. Create. Change.

Framing Problems

- Zion and Blanchett (2011) argued that the reason why improvements for marginalized students have yet to be realized is that the problem has not yet been framed appropriately.
 - The problem must be framed as part of the history and legacy of racism, and as an issue of civil rights and social justice, viewed through a critical lens.

Discover. Create. Change.

Framing

- Use a critical lens to apply the interest-convergence principle informed largely by the work of legal scholar, Derrick Bell (1980 & 2004).

Discover. Create. Change.

Interest-Convergence: Brown

- Bell (2004) argued that the *Brown* decision was not the result of America coming to terms with its democratic ideals or moral sensibilities.

Interest-Convergence: Brown

- “...the Supreme Court was more interested in providing immediate credibility to America’s struggle with communist countries to win the hearts and minds of emerging third world people than in doing what was morally right (p. 233).”

Interest-Convergence: Brown

- Under the interest-convergence principle, the *Brown* decision is best understood as progress requiring the coincidence of a pressing issue, more than a commitment to justice (Donnor, 2005).

Stories as Framing

- Urban students are underperforming in mathematics as measured on a standardized assessment...

Discover. Create. Change.

Stories

- What is the policy/reform story?
- What are potential policy/reform solutions?
- Where do interests converge?

Discover. Create. Change.

Stories

- When policies/reforms define a problem they construct a way of seeing
 - students, measure, context, & structural
- Language of the policy and reform reveals whose dominant and who is subordinate
 - what controls the dominant should exercise on the subordinate in order to effect desired change.

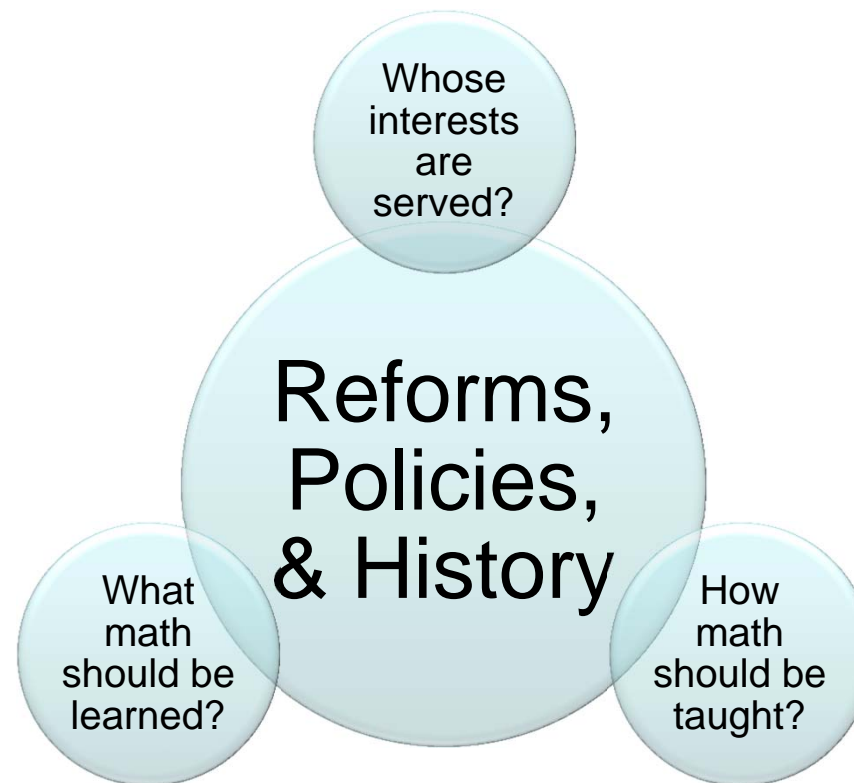
Discover. Create. Change.

Framing: Positioning

- Policies and reforms in education, often portray marginalized learners as in need of “fixing” to be more align with the values of the dominant culture (Stein 2004).
 - deficiencies are within cultures, families, and communities

Discover. Create. Change.

Historical Moments



Discover. Create. Change.

National Defense Education Act of 1958

- Designed to fulfill defense interests in mathematics, science, engineering and foreign languages through scholarships and research
- Laid the groundwork for gifted programs and use standardized testing to measure competency
- Identify the “best and brightest.”

Discover. Create. Change.

Sputnik & Brown

- Approximately three years prior to the launching of *Sputnik*, the United States Supreme Court issued the landmark ruling in *Brown*.
- The implementation of the *Brown* decisions occurred in the midst efforts to reform in mathematics education.

Discover. Create. Change.

Sputnik, NDEA, & New Math

- “New Math” reforms
 - pedagogical approaches included the use of manipulatives, guided-discovery learning teaching practices, and the spiral curriculum (Walmsley, 2003; Willoughby, 2000).
 - new mathematics content

Discover. Create. Change.

NDEA & *New Math*: Addressing Needs

- “Benign Neglect” (Tate, 2000)
- The needs and interests of marginalized students were largely ignored.
- Focused on defense needs
 - When we consider that the process of desegregation was slow, and that schools serving Black children often received used textbooks handed down from schools serving white students (Snipes & Waters 2005), the reforms of “new math” did very little to address the needs of Black children (Tate, 2000).

Discover. Create. Change.

War on Poverty

- On January 8, 1964 in his State of the Union address, President Johnson used a military metaphor to declared “War on Poverty.”

War on Poverty

- Education was one of the battlegrounds on which the “War on Poverty” was fought.
 - Poverty was theorized to be caused not by structural barriers but by characteristics such as low education, race, single parenthood, and communal problems of those living in poverty
 - Children growing up poor were painted as victims of the culture to which they were born
- Discover. Create. Change.**

War on Poverty & Great Society

- Elementary and Secondary Education Act of 1965
- Civil Rights Act of 1964
- Voting Rights Act of 1965
- Civil Rights Act of 1968

Discover. Create. Change.

Great Society

- In response to the radical protests of this period, the interest of those motivated by America's image to the world converged with the interests of the Civil Rights movement (Bell, 1980).
 - Whose interests are served?
 - Who benefited?

Discover. Create. Change.

Coleman Report

- The *Equality of Educational Opportunity* (Coleman Report) argued that school resources had little effect on student achievement and that student background and socioeconomic status are much more important in determining educational outcomes (Coleman et al, 1965).

Discover. Create. Change.

Coleman Report

- One finding that received significant attention from policymakers was that peer effects had a significant impact on student achievement.
 - meaning the background characteristics of other students influenced student achievement.

Discover. Create. Change.

Coleman Report

- The peer effect finding was interpreted to mean that marginalized children, specifically Black children, would have higher test scores if a majority of their classmates were white (Wong & Nicotera, 2004).
 - This finding coupled with the tensions of desegregation was a catalyst for busing.

Discover. Create. Change.

Coleman Report

- Busing was a policy sought to “fix” marginalized students because it existed primarily to assist these students by allowing them entrance to perceived superior schools that served white students.

Discover. Create. Change.

Coleman Report

- By displacing marginalized students from their communities, it positioned these students' communities as problem centers rather than as resources.

Discover. Create. Change.

Classroom-Level Resegregation

- In schools where significant numbers of marginalized children were bused, these children experienced resegregation at the classroom-level.

Classroom-Level Resegregation

- Development of and placement in low-level mathematics courses
 - Segregated classroom within integrated schools.
 - Disproportionate number of black students were placed in special education programs (Doughty, 1978).

Discover. Create. Change.

Classroom-Level Resegregation

- Given the consequences of resegregation at the classroom-level, it is plausible to consider that desegregation as policy for reform was a facade to hide the interests of those who wanted to maintain segregation but appease the interests of those who fought for desegregation.

Discover. Create. Change.

Classroom-Level Resegregation

- It is plausible to consider that the needs and interests of marginalized students in mathematics, continued to be unaddressed and ignored.

Discover. Create. Change.

Classroom-Level Resegregation

- Classroom-level resegregation suggest that *Brown* did not permanently integrate schools in the long-run; in fact the intended goal of racial balance and desegregation of *Brown* has not been realized.

Back to Basic

- The “back to basics” movement called for teaching basic mathematics procedures and skills and was closely connected to the minimum competency testing movement used extensively by states in the 1970s and 1980s (Resnick, 1980; Tate, 2000).

Discover. Create. Change.

Back to Basic

- Testing had a significant impact on the mathematics content that was taught and the methods used to teach mathematics. Typically, students were taught mathematics content deemed important for passing tests.

Discover. Create. Change.

Back to Basics

- It plausible that the pedagogies and the curriculum offerings during the “back to basics” reform were similar for marginalized students during the “new math” reform.
 - The pedagogies of “back to basic” have always been apart of marginalized students’ mathematical experiences.

Discover. Create. Change.

Back to Basics

- If one considers the context of the late 1960s and 1970s and the persistent limited educational opportunities available to marginalized children, discussion of an achievement gap serves to reinforce an ideology about marginalized children's intellectual inferiority.

Discover. Create. Change.

A Nation at Risk

- “If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war” (p. 1).

Discover. Create. Change.

A Nation at Risk: Problem

- The inflammatory rhetoric of *A Nation at Risk* heightened concerns about national security and America was lagging in mathematics and science when compared internationally.

A Nation at Risk: Solution

- Proposed solutions included
 - increased core curricular requirements for high school graduations,
 - heighten performance standards,
 - longer school days and years,
 - improved teacher preparation
 - all aimed to alleviate the policy problem of a nation vulnerable by an enemy's technological advances.

Discover. Create. Change.

A Nation at Risk

- Within an interest-convergence framework, changes in standards led to increased enrollments for marginalized students in high-level mathematics courses

Discover. Create. Change.

A Nation at Risk

- The increased enrollment in the upper-level mathematics courses did not influence instructional methodologies to meet the increase in the diverse learning needs of children (Porter, Kirst, Osthoff, Smithson, & Schneider, 1993).

Discover. Create. Change.

NCTM 1989: Four Social Goals

- Mathematically literate workers,
 - Lifelong learning,
 - Opportunity for all,
 - Informed electorate.
-
- Whose interests and needs are served by these goals?

Discover. Create. Change.

NCTM 2000

- *PSSM* highlighted equity as one of its six principles for school mathematics:
 - high expectations and worthwhile opportunities,
 - accommodating differences to help everyone learn mathematics, and
 - resources and support for all classrooms and all students.

Discover. Create. Change.

2000 Standards

- The Equity Principle of the *Standards* contains no explicit or particular references marginalized students or the conditions they face in their lives outside of school (Martin, 2003)

Discover. Create. Change.

NCLB

- “...close the achievement gap between high- and low-performing children, especially the achievement gap between minority and non-minority students and between disadvantaged children and their more advantaged peers” (NCLB, 2002; Sec 1001).
 - Unpack the language

Discover. Create. Change.

NCLB

- If we consider one context in which NCLB was developed, there was public pressure on legislatures for competition in public schools through school choice and vouchers. These pressures lead to increase in public options for schooling.
 - The interests of proponents of school choice were served.

Discover. Create. Change.

NCLB

- Similar to the peer finding of the Coleman report, proponents of school choice supported giving students options to be in “good” schools with the idea that placement in “good” schools would have positive effects. This conclusion ignores the external factors that contribute to failing schools.

Discover. Create. Change.

CCSSM

- Common Core makes clear these reforms are emerging from the same interests of college and career readiness by positioning American students to be able to compete in a global economy (National Governors Association Center for Best Practices and Council of Chief State School Officers, 2010)

Discover. Create. Change.

Seeing

- When we examine patterns of reforms and policies, the language appears to situate marginalized as different from the constructed “norm” and/or ignore them.
- Language invokes ways of “seeing.”

Discover. Create. Change.

Addressing the Needs of Marginalized Students

- It is plausible to consider that the needs and interests of marginalized students in mathematics have not been met in an authentic way.

Discover. Create. Change.

Thoughts

- A focus on the structural conditions would reframe the policy problem, potentially calling into question the causes rather than the results of an inequitable resource distribution system.

Discover. Create. Change.