

The NCTM Achievement Gap Task Force
Final Report - October 2004

Charge: Prepare a report with a specific and detailed set of recommendations on how NCTM should use its resources to assist in diminishing the achievement gap for all groups of students by examining:

- Instructional issues
- Policy issues
- Assessment issues
- Research findings
- Teacher preparation and professional development

The recommendations should address:

- NCTM services and initiatives
- Public awareness and attitudes
- Possible political action

Meetings:

April 24, 2003 Conference Call

Present: Linda Fulmore (Chair), Gail Englert (Board Liaison), Beth Skipper (Staff Liaison)

May 22, 2003 Conference Call

Present: Linda Fulmore (Chair), Gail Englert (Board Liaison), James Barta, Robert Berry, Olga Ramirez, Mattie Saunders-Jones, Julian Weissglass, Beth Skipper (Staff Liaison)

September 26-28, 2003 Meeting, Denver

Present: Linda Fulmore (Chair), Gail Englert (Board Liaison), James Barta, Robert Berry, Olga Ramirez, Mattie Saunders-Jones, Julian Weissglass, Johnny Lott (NCTM President), Cathy Seeley (NCTM President-Elect) Beth Skipper (Staff Liaison)

January 24-26, 2003 Meeting, Reston, Virginia

Present: Linda Fulmore (Chair), Gail Englert (Board Liaison), James Barta, Robert Berry, Olga Ramirez, Mattie Saunders-Jones, Julian Weissglass, Beth Skipper (Staff Liaison)

May 10, 2004 Conference Call

Present: Linda Fulmore (Chair), Gail Englert (Board Liaison), James Barta, Robert Berry, Olga Ramirez, Julian Weissglass, Beth Skipper (Staff Liaison); Absent: Mattie Saunders-Jones

August 9-10, 2004 Portland, Oregon

Present: Linda Fulmore (Chair), Gail Englert (Board Liaison), James Barta, Robert Berry, Olga Ramirez, Mattie Saunders-Jones, Julian Weissglass, Cathy Seeley (NCTM President), Beth Skipper (Staff Liaison)

Presentations:

2004 NCTM Annual Meeting - "Understanding the Achievement Gap in Mathematics"

2005 NCTM Annual Meeting - "The Final Report of the Achievement Gap Task Force"

INTRODUCTION

The NCTM Board of Directors charged the NCTM Achievement Gap Task Force (AGTF) to study the achievement gap and make specific recommendations on actions that NCTM could take to reduce this gap for all groups of students.

As part of meeting this charge, the task force surveyed the NCTM membership to find out their perceptions concerning the achievement gap in mathematics education. AGTF collected data via an online survey sent to a random sample of 5,000 non-student NCTM members, with 623 members completing the survey. The survey results indicate both NCTM members' concern about the achievement gap and the complex nature of their perceptions. For example, the perceived causes listed by **one** respondent are:

- *Biases and beliefs about students' capacities to learn mathematics*
- *Practices that segregate top math students from other students and that perpetuate beliefs about different capacities to learn mathematics, i.e. tracking practices*
- *Different curriculum and expectations that are given to students in tracked programs*
- *Teacher assignment practices that give the most experienced teachers the most able students, and give new inexperienced teachers the least able students*
- *Traditional teaching practices that put the teacher in the center of the classroom, between the student and the mathematics, and involve telling students what to do vs. asking students to think for themselves*
- *Educational institutional patterns of privilege that enable students from affluent backgrounds to assume positions of leadership and authority to the exclusion and the detriment of students from poor backgrounds*
- *Remedial educational programs that never move students ahead in their learning but hold them to study content that is trivial, procedural, and not conceptual and behind their age peers.*

Individual members of the task force also had diverse professional and personal experience in regard to the achievement gap. After considerable deliberation, AGTF adopted the following working definition to respond to its charge:

The achievement gap is an indicator of disparities between groups of students usually identified (accurately or not) by racial, ethnic, linguistic, or socioeconomic class with regard to a variety of measures (attrition and enrollment rates, drug use, health, alienation from school and society, attitudes toward mathematics, as well as test scores.)

It is important to recognize that the achievement gap is *not* a result of membership in any group, but rather *is* the result of the systematic mistreatment of learners caused by racial and class bias—conscious and unconscious, blatant and subtle, personal and institutionalized. There is plentiful evidence of deep structural injustices in how the U.S. school system distributes

opportunities to learn mathematics. (Secada, 1989; Secada & Meyer, 1991) There are extreme disparities in mathematics achievement for groups for whom demographers predict increased growth. (Hodgkinson, 1985, 1989; Pallas, Natriello, & McDill, 1989) Some authors contend that disparities in the learning of mathematics represent a danger to our society's functioning. (National Research Council, 1989; Quality Education for Minorities Project, 1990; Secada, 1990a, 1990b, 1991a) Although there are some ambitious curriculum-reform projects for school mathematics and science (American Association for the Advancement of Science, 1989; Mathematical Sciences Education Board, 1990; NCTM, 1989; NRC, 1989), there is a danger that mathematics education for members of underrepresented groups will remain un-reformed and un-restructured. Under such conditions, disparities in opportunities, achievement, course taking, and economic success are likely to increase, resulting in the creation of a permanent underclass of people who cannot fully participate in the nation's social or economic activity.

Although the task force recognizes the inadequacy of current assessments and many individual teachers in schools have made progress on eliminating the achievement gap, it is clear that however you define the achievement gap there has been little change in the national scene over the past 30 years. For example, although the gap between white and Latino/a 13-year-old in NAEP mathematics scores narrowed from 1973 to 1986 from 36 points to 19 points, it increased from 1986 to 1999 to 24 points. (Kober, 2001)

We recognize that the progress made to date in mathematics education reform has been based on the substantial *infrastructure* (theory, methods, leadership, resources) developed over the past two or three decades. That infrastructure encompasses theoretical, methodological, curricular, and human resources. Theories of constructivism (including social constructivism) have been widely disseminated. Methods for helping teachers reflect on and change mathematics curriculum and pedagogy have been developed and shared. Revisions of curricular and assessment materials have received considerable resources from both private and public sources. Articles, reports, and books have been written concerning pedagogy, content, and assessment. Large numbers of educators have become skilled leaders of professional development and helped teachers with both curriculum and pedagogy. NCTM has played a crucial role in these impressive developments. There is, however, no comparable infrastructure with regard to issues related to the achievement gap (sometimes referred to as equity issues). (Weissglass, 2000)

The scarcity of sessions addressing equity issues at NCTM annual meetings described under Recommendation 1 is an indication of the lack of infrastructure. The research literature is another. In his review of the research on race, ethnicity, social class, language, and achievement in mathematics, Secada (1992), for example, pointed out that, "what became increasingly clear as I reviewed this topic was its marginal status relative to mainstream mathematics education research. With few exceptions, *work in this area was not found in mathematics education research journals, nor was it the product of mathematics educators*" (emphasis added). Although the situation may have improved in recent years, there is still much work to be done.

The task force believes that race, class, and language bias affects national, state, and local policies; funding; allocation of resources; teacher education; curriculum; pedagogy; and assessment. The conditions of education contribute to many students in our country not

realizing their full human potential. Although past initiatives have been helpful in understanding the situation and many individual teachers in schools have made progress on eliminating the achievement gap, decades of research and exhortations have not made significant progress in closing the gap or significantly affected the conditions that cause it. Although NCTM does not have the responsibility, and is not able, to change all the societal conditions that affect the achievement gap, there is much that NCTM can do. Bolder initiatives are *imperative* at this time.

We make concrete recommendations in the areas of leadership and infrastructure development, research, policy and political action, and professional development. Each category is summarized below.

1. **Leadership and infrastructure development.** Initiate a long-term leadership development plan that will increase the capacity and commitment of present and future leaders in NCTM to address, effectively and meaningfully, the social, political, and cultural issues that contribute to causing and closing the achievement gap.
2. **Research.** Support research related to closing the achievement gap and ensuring it is addressed at NCTM meetings and conferences at all levels.
3. **Policy and political action.** Expand existing policies (position statements) and political action initiatives to address the social, political, and cultural issues that contribute to causing and closing the achievement gap.
4. **Professional development.** Increase attention on the social, political, and cultural issues that contribute to causing and closing the achievement gap across all professional development activities.

The prioritized actions are described in detail on subsequent pages of this report. However, the **highest priority recommendations** are:

1. Conduct three residential workshops (two 5-day and one 3-day) focused on equity in mathematics education for strategically selected NCTM leaders.
 - a. Conduct a similar series of workshops to be open to rank and file leaders from Affiliates in places that are severely impacted by inequity in mathematics' education with people from the first series serving as part of a leadership team.
 - b. Convene a meeting of selected participants from these residential workshops to plan next steps after the first two series is completed.
2. Commission and support a panel consisting of: mathematicians, mathematics educators, sociologists, language experts, and psychometricians from different underrepresented groups to design a research agenda that documents the causes and remedies of the achievement gap in mathematics.

3. Create an extensive public awareness program to inform members, staff, policymakers, and the public of the complex social, political, and cultural issues that cause and close the achievement gap.
4. Create specific calls for presentations at regional and annual NCTM conferences that deal specifically with closing the achievement gap and invite speakers who are experts in achievement gap issues to present.
5. Rewrite all NCTM position papers (and create new ones) related to the achievement gap so they are up to date with current research including how race, class, and language bias affect the teaching and learning of mathematics.
6. Collaborate with other educational associations to inform the public of the critical need to improve educational opportunities for all children.
7. Encourage ongoing research (including dissertations) that examines: race, ethnicity, social class, and language issues pertinent to closing the mathematics achievement gap.

Recommendation 1: Leadership and Infrastructure Development

The Council should develop and carry out a long-term leadership development plan that will increase the capacity and commitment of leaders in mathematics education, (including its own Board of Directors, committee chairs, Affiliate leaders, and other NCTM members) to effectively and meaningfully address the social, political and cultural issues that contribute to causing and closing the achievement gap.

ANALYSIS OF NCTM’S CURRENT STATE

It is clear that there is commitment, at all levels of the organization, to address equity. The Equity Principle (*Excellence in mathematics education requires equity—high expectations and strong support for all students*) is the first principle in NCTM’s *Principles and Standards for School Mathematics*. (National Council of Teachers of Mathematics, 2000)

NCTM’s publishing in this area has been strong, including

- *Multicultural and Gender Equity in the Mathematics Classroom: The Gift of Diversity* (1997 Yearbook)
- *New Directions for Equity in Mathematics Education*
- The series *Changing the Faces of Mathematics*
- *Teaching and Learning Mathematics in Poor Communities* (Report of a task force)
- *Challenges in the Mathematics Education of African American Children* (Proceedings of the Benjamin Banneker Association Leadership Conference)

The national NCTM Affiliates, Benjamin Banneker Association, TODOS, and Women in Mathematics, have all made important contributions to advancing equity in mathematics education.

On the other hand, the number of sessions addressing equity in mathematics education has been small and many look at underrepresented groups of students from a deficit perspective. Weissglass (2000) analyzed the titles of sessions on the official program (not affiliated group sessions) at the 1987, 1990, 1993, 1996, and 1999 NCTM Annual Meetings. The number of sessions that referred *in the title* to equity (including minorities, discrimination, diversity, bias, prejudice, tracking, language issues), culture (including multicultural, African or African American, Hispanic, Latino, Mexican or Mexican American, Native American or Indian), or women (including girl[s], female[s] or gender) are shown below.

Year	1987	1990	1993	1996	1999
Total Number of Sessions	499	507	860	1013	1203
Number (and %) having word referring to equity in the title	7 (1.4%)	13 (2.6%)	39 (4.5%)	40 (3.9%)	40 (3.3%)

RATIONALE

Leaders in mathematics education can construct an infrastructure for making progress in closing the achievement gap. Without such an infrastructure, there will be little progress. And without leadership, there will not be an infrastructure.

Stanic (1989) points out “Because of the conflict and compromise that accompany reform efforts, there is every reason to believe that the goal of equity, particularly because it is again cast as a residual effect, will not be achieved.” Committed leaders can increase the likelihood that the mathematics education community does not compromise on equity. Leadership for equity in mathematics education, however, is *different* from leadership in other reform areas. The issues related to racism and other forms of bias are complex and often emotional. Explicit in-depth discussion of racial, class, and other forms of bias is rare in educational forums (even among organizations advocating student-centered, inquiry-based reforms). Leaders capable of productively addressing them will require exceptional commitment, understanding, persistence, and sensitivity. In addition to understanding mathematics education, language and cultural issues, and ethnomathematics, they will need to understand the personal, social, and institutional roots of inequities. They will need to understand how racism and classism work in schools and how to combat them. Leaders will need to do considerable work on healing from the hurts that a racist and classist society imposed on them in order to be able to raise controversial issues while building unity, to relate well with people from diverse backgrounds, and help people deal constructively with their and others’ emotions. A substantial effort will be required to develop these leaders since the necessary skills and knowledge are not routinely developed in colleges of education or in professional development.

There is expertise within the mathematics education community to begin the development of a leadership base to achieve equity in mathematics education. This expertise was developed through a National Science Foundation grant, *The Equity in Mathematics Education Leadership Institute* (EMELI).

RECOMMENDED ACTIONS

We recommend that NCTM take the first steps to implement a leadership development plan by funding leadership development workshops that will enable leaders to:

- Increase understanding of how race, class, language, and gender affect the teaching and learning of mathematics,
- Build trusting communities (Bryk & Schneider, 2002) in their institutions and regions that will enable educators to change educational practices that contribute to the mathematics achievement gap.

Specifically we recommend that

- A. NCTM conduct three residential workshops (two 5-day and one 3-day) focused on equity in mathematics education for strategically selected NCTM leaders.
- B. Conduct a similar series of workshops to be open to rank and file leaders from Affiliates in places that are severely impacted by inequity in mathematics’ education.
- C. Convene a meeting of selected participants from these residential workshops to plan next steps after the first two series are completed.

Timeline

First Workshop Series

November 2004 - February 2005	Begin organizing contingent on Board funding. (Find retreat locations, determine selection criteria, secure leadership team etc.)
March - April 2005	Recruit participants
July 2005	First 4-day workshop focused on racism
October 2005	Second 4-day workshop focused on classism
February 2006	Third 4-day workshop focused on sexism
June or July 2006	Fourth 4-day workshop focused on language oppression

Second Workshop Series

March 2006	Recruit participants for second series
July 2006	Leadership team workshop
August 2006	First 4-day workshop focused on racism
November 2006	Second 4-day workshop focused on classism
March 2006	Third 4-day workshop focused on sexism
May 2007	Task force to plan next steps
July 2007	Fourth 4-day workshop focused on language oppression

Recommendation 2: Research

NCTM should take a prominent position in support of research related to closing the achievement gap and ensuring that it is addressed at NCTM meetings and conferences at all levels. This research should go beyond suggesting causal relations between underachievement and racial/socioeconomic identity to investigate the social, political, and cultural issues that contribute to causing and closing the achievement gap

ANALYSIS OF NCTM'S CURRENT STATE

The Research Catalyst Conference conducted by NCTM addressed some of the issues that impact student achievement and the achievement gap. This conference was organized around eight working groups:

1. Assessment and Student Achievement
2. Changing Nature of Schooling and School Demographics
3. Instructional Materials and Curriculum
4. Local Policy and Community Context
5. State and National Policy
6. Teaching and Learning
7. Teacher Preparation

The Research Committee and the *Journal for Research in Mathematics Education* provide a resource for advancing this recommendation. Chapter 25 of the *Handbook of Research on Mathematics Teaching and Learning* (Secada, 1992) contains a discussion of the problematic

nature of how researchers define underrepresented groups, a review of the literature on mathematics achievement by these groups, a review of efforts to close the achievement gap, and suggestions for future research. This provides a framework and an impetus to increased research in this area. Less favorable is that there is little attention on equity issues in *Lessons Learned from Research* (2002) and *A Research Companion to Principles and Standards for School Mathematics* (2003).

RATIONALE

Research can help us understand the extent and nature of the inequities that contribute to the achievement gap and to make reasoned conjectures about how best to go about remedying them. However, research on the disparities in mathematics education, as noted in the introduction to this report, holds only a marginal status relative to mainstream mathematics education research (Secada, 2000). Just as the differential distribution of mathematics among diverse learners can be seen as an equity issue, so, too, can the marginal status of research work that deals with equity and diversity. In addition, current mathematics education research, for the most part, has focused on explaining the problem of underachievement among groups most affected, by linking membership in a cultural, ethnic, or social group directly to underachievement. It has treated group membership as a variable, as a cause of underachievement and has not clarified that the causes of underachievement lie in the conditions of their education.

RECOMMENDED ACTIONS

We recommend that NCTM appoint a panel consisting of mathematicians, mathematics educators, sociologists, language experts (ESL, bilingual, limited English proficient, etc.), and psychometricians, with expertise in the education of underrepresented groups to aid NCTM in the design of a research agenda that will determine and document the causes and remedies of the achievement gap in mathematics. The task force recommends that the research agenda should:

- Move beyond the plethora of research that documents and describes the underachievement of certain groups.
- Avoid the trap of suggesting that membership in a group is the cause of underachievement.
- Encourage research that studies the conditions of education that cause the achievement gap.
- Increase understanding of what needs to change to eliminate the achievement gap.
- Focus on research that promotes improvement of curricular and instructional conditions that will close the mathematics achievement gap.
- Be useful to leaders in conducting the professional development necessary to eliminate the achievement gap.

The topics below are research areas that the appointed panel can explore. This list is not exhaustive or inclusive of all areas that should be explored.

- Race, ethnicity, social class, and language issues pertinent to closing the mathematics achievement gap.

- Characteristics of school curricula that empower students from underrepresented groups to learn.
- Cultural factors that influence mathematics teaching and learning, including analyses of the function of teachers' *worldview* in the process of teaching and learning.
- Characteristics of effective teacher preparation, teacher induction, and mentoring programs, including alternative teacher certification programs, in regard to its effect on the mathematics learning of students from underrepresented groups.

Research concerning the achievement gap can be reported in various ways for example through:

- The Journal for Research in Mathematics Education Monograph
- An NCTM Yearbook on the achievement gap
- An NCTM special publication (book)
- An NCTM monograph

Timeline

November 2004	President gathers potential names for panel.
January 2005	President or Board appoints panel
April 2005	First meeting of panel
April–September 2005	Writing of first draft of report
September 2005	Second meeting of panel
January 2006	Issuing of report
2006	Publication in <i>Journal for Research in Mathematics Education</i>
April 2006	Distribution at the research pre-session of NCTM

WHO

President appoints panel of 11 members: Mathematicians (2); Mathematics Educators (2); Sociologist (2); Language Experts –ESL, Bilingual, LEP etc. (2); Psychometrician (1); NCTM Board Member (1); NCTM Staff Liaison (1).

Recommendation 3: Policy and Political Action

The Council should expand upon existing policies (position statements) and political action initiatives to address the social, political, and cultural issues that contribute to causing and closing the achievement gap.

ANALYSIS OF NCTM'S CURRENT STATE

The recent declaration of a legislative platform and a strategic mission plan for the National Council of Teachers of Mathematics makes it clear that the Council seeks to ensure that every child in the United States and Canada receives an excellent mathematics education.

NCTM representatives intend to use the legislative platform with federal, state, provincial, and local groups to promote specific pieces of legislation. The communications department of NCTM (with the approval of the Board) has developed toolkits that can be used by Affiliates at the local, state, and provincial levels. The platforms, some needing specific adaptation, may also be of use with local school boards to influence issues in mathematics education.

The legislative platform's six key components are: Equity, Teacher Quality, Research, Assessment, Technology, and Teacher Shortage and Retention. While the Equity component appears the most obvious place to address efforts to eliminate the achievement gap, every component includes issues and actions that affect it. Similarly, there are many NCTM position statements that address the achievement gap, most obviously Early Childhood Mathematics; Promoting Good Beginnings; Evaluation of Teaching Performance and Effectiveness; Guiding Students' Attitudes and Decisions Regarding Their Mathematics Education; High-Stakes Testing; Induction and Mentoring of New Teachers; Mathematics for Second-Language Learners; Professional Development of Teachers of Mathematics; Research; and The Mathematics Education of Underrepresented Groups.

RATIONALE

In the past, it appears that the leadership of NCTM has favored an approach to legislation whereby legislators and other policymakers have been informed of the NCTM position on curricular and pedagogical mathematical issues. Certainly, there have been benefits from this approach as noted by the substantial influence the Standards documents have had on mathematics teaching throughout this nation and beyond. More aggressive efforts and stronger advocacy are necessary for the nation to challenge the focus on standardized testing and direct instruction and to change the social, political, and cultural issues that contribute to causing the achievement gap.

The description and analysis of the NCTM legislative platform and strategic plan along with NCTM President Johnny Lott's comments to the AGTF lead us to believe that a more overt and aggressive NCTM stance is required for our Council to have more political influence.

We are, therefore, recommending an extensive program to inform members, staff, policymakers and the general public of the complex social, political, and cultural issues that cause the achievement gap. Since legislation and policies adopted at the local, state, and national levels, including state standards, can and have hindered teachers' implementation of the NCTM *Principles and Standards*, we recommend that the Council continue to promote legislation that is consistent with the NCTM Standards and oppose legislation and policies that are inconsistent with them.

A key aspect of the NCTM legislative platform is based on the ideal that "Mathematics is the key to opportunity, and every individual in an economically competitive nation must be mathematically literate" (NCTM 2004). While economic competitiveness as a result of mathematical literacy may be a motivating factor for many educators and politicians, such a perspective may actually diminish advocacy for equal access to education and helping all children learn to their potential simply because they are our children.

RECOMMENDED ACTIONS

We recommend five areas related to policy and political action in which NCTM can act.

A. New Position Statement

Create a new position statement on the achievement gap, and review and revise existing position statements so that they are more responsive to the current political and economic realities affecting the achievement gap, including how race, class, and language bias affect the teaching and learning of mathematics of students from underrepresented groups. These efforts could be built into the structures that already in place, namely those of NCTM's Learning, Teaching, Curriculum and Assessment Committee (LTCAC), other NCTM groups or committees, and the Board of Directors. White papers could be employed to dispense more regularly and frequently important information relative to issues of closing the achievement gap. Members of the AGTF could be requested to collaborate via conference calls, e-mail, etc. to prepare the new achievement gap position paper and provide expertise needed in the development of white papers. Each NCTM position paper or white paper should reflect connections to and discussion of race, class, and language bias and be reviewed to ascertain that it includes such a discussion.

TIMELINE (for new position paper)

January 2005	Appoint committee to prepare position statement
March 2005	First meeting of committee
April–September 2005	Writing of first draft of report
July 2005	Second meeting of committee
September 2006	Submission of position paper to board

B. Key Statements

Advance NCTM's message of what is required to close and eliminate the achievement gap by including the following key statements in its communications:

- The achievement gap is the result of the systematic mistreatment of learners caused by racial, class, and language bias.
- Every student should be provided equitable and optimal opportunities to learn mathematics free from racial, class, or language bias by schools and teachers.
- Every student should be taught by mathematically competent and pedagogically proficient teachers using culturally relevant curricula and culturally sensitive instruction.

BUDGET

The costs to support this recommendation would be relatively small if these efforts are completed through existing NCTM communication mechanisms.

TIMELINE

Could be implemented immediately upon NCTM Board approval.

C. Public Awareness Program

Create an extensive public awareness campaign (in collaboration with other educational associations) through public radio and television announcements to inform policymakers, educators, parent groups (especially parents of underrepresented groups), and the public. The campaign should include the following key messages:

- The social, political, and cultural issues that cause and could close the achievement gap are complex.
- Many children in this country do not have books, materials, or access to technology, and they spend their days in rundown, poorly funded schools
- In such situations it should not be a surprise that many children are being left behind.

High-quality gripping short television presentations can be produced and broadcast. NCTM leadership can continue to improve their efforts to become more publicly visible in press, radio, and television.

Since these programs can be very expensive, we suggest that NCTM seek funding partners (other organizations, businesses, associations) to cosponsor such a public awareness campaign without compromising the message.

BUDGET

A budget would have to be developed. Depending upon the extent of collaboration efforts this could be of little or no direct cost to NCTM.

TIMELINE

Contingent on priorities and workload of staff.

D. NCTM's message

Every NCTM publication, product, and action/effort, insofar as possible, promotes the message importance of addressing the achievement gap. For example, a call for journal manuscripts that includes a recommendation for increased awareness of achievement gap issues would not increase the cost of the product. Similarly, a theme for a Yearbook already budgeted could include a section on the relationship of the achievement gap to the issue.

BUDGET

We cannot provide a dollar figure to describe precisely the cost of these inclusions but suggest they would be relatively minor.

TIMELINE

The timeline for this action would start immediately as all current panels could receive a Board directive reminding them to look at all they produce currently and in the future to include the important issues we have described.

E. Collaboration

Encourage NCTM's administration and leadership to take a greater role in setting a collaborative agenda with representatives of other subject specific organizations to become more creative and energetic in finding ways to close and eliminate the achievement gap completely.

BUDGET

There would be no significant additional cost for these efforts, because such meetings are already taking place informally between the NCTM executive director and his counterparts at other education associations. A refreshed and enhanced commitment to carrying the achievement gap message would be a major step and one that could be undertaken immediately.

TIMELINE

Such revitalized efforts could begin immediately.

The following recommendations, while not primary action steps, were a result of our deliberations and are included as suggestions for consideration in the implementation of Recommendation 3.

1. Promote curriculum and pedagogical efforts that make connections to ethnomathematics specific to the communities of learners to whom the education is offered.
2. Produce specific publications focused on what teachers are doing to improve mathematics education for all children.
3. Create packets of information suggesting specific actions teacher educators could take to better inform their preservice teachers on remedies for the achievement gap, and provide suggested activities to improve mathematics education for all students.
4. Communicate with specific sources of power (governments, industry, community organizers, and educators, for example) to (1) help them better understand mathematics equity issues; (2) encourage their efforts to carry the NCTM message of equity. Suggest specific actions groups of educators could take at the local, state, and federal levels to communicate with their legislative representatives about the current inequitable education situation.
5. Promote in the political arena the idea that all children who are not proficient in English should receive their mathematics instruction in their first language as they work to acquire English proficiency.
6. In the political arena advocate for the increased use of alternative and authentic assessment practices while challenging the federal mandate for achievement based on inadequate and inequitable standardized assessments.

Recommendation 4: Professional Development

The Council should support an increased focus on the social, political, and cultural issues that contribute to causing and closing the achievement gap across all professional development activities.

ANALYSIS OF NCTM'S CURRENT STATE

Currently NCTM offers a variety of ways for its membership to network, share ideas, and discover from colleagues what works in the classroom and why. The annual conference and the research pre-session provide opportunities for members to learn about effective instructional strategies as well as review current research impacting mathematics education. Regional conferences, held three times a year throughout the United States and Canada, provide similar opportunities. The Academy for Professional Development provides the membership with opportunities to deepen the understanding of content knowledge as well as broaden their understanding of assessment. Affiliates hold local conferences to meet the needs mathematics educators at the local level. Affiliate Leadership Conferences provide opportunities to exchange ideas about conference planning, membership and leadership development, and current issues in mathematics education.

As noted under Recommendation 1, however, the number of sessions addressing equity in mathematics education at annual meetings has been small, and many look at underrepresented groups of students from a deficit perspective. There was only one session at the 2003 annual meeting that explicitly addressed the achievement gap.

RATIONALE

The research seems to indicate that:

- Teacher quality has a positive impact on student achievement (Monk, 1994; Wenglinsky, 2002).
- Committed teachers working with engaging curricula can make a difference for students who are from underrepresented groups in mathematics. (Gutierrez, 2002) (Ladson-Billings, 1994)
- Students' feelings and anxieties that stem from the messages they have internalized about the group they belong to affect their performance on tests (Croizet & Claire, 1998; Shih, Pittinsky, & Ambady, 1999; Steele & Aronson, 1995).
- Teacher expectations and belief systems affects students' mathematics achievement (Strutchens, 2000).

Furthermore, there is convincing evidence that suggests that teachers can play a significant role in closing the achievement gap. Unfortunately, students who have greatest needs often have the least qualified teachers.

Mickelson (2001) studied the tracking and segregation patterns of Charlotte-Mecklenburg Schools and reported that "race matters" (p. 242) in maintaining the racial achievement gap among African American and white students. African American and white students of similar achievement at the end of elementary school show up in different proportions in upper high

school tracks (Mickelson, 2001). In addition, Mickelson reported, “Whites retain privileged access to greater opportunities to learn” (p. 243). Class also impacts the achievement gap. The National Center for Children in Poverty reported that children who live below the poverty level are more likely to attend schools in urban school districts (NCCP, 2002). Consequently, they are less likely to have access and exposure to high-quality educational resources. Kozol (1991) described many inequitable disparities in schools that primarily focus on discrimination based on social class.

RECOMMENDATIONS

- 1) Create calls for presentations at NCTM regional and annual conferences and other professional development activities that explicitly indicate that NCTM is looking for sessions that address issues of race, class, and language bias.
- 2) Invite speakers, including non-mathematics educators, who are experts on the achievement gap to present at the annual meeting and regional conferences.
- 3) Offer funding (possibly via Mathematics Education Trust) to support professional development efforts at the state and federal levels to ensure that all teachers are presented the best opportunities to maintain and increase their curricular and pedagogical knowledge for the improvement of mathematics education for all students.

TIMELINE

Professional development activities on addressing the achievement gap should be absorbed into the conference planning structure as soon as possible.

WHO

Presenters of achievement gap professional development activities should include experts in achievement gap issues as well as other members of NCTM approved to present proposals at the aforementioned conferences. It is recommended that the responsibility for implementing this action be the oversight of the Professional Development Services Committee and delegated to the various conference program planning committees.

BUDGET

Since professional development activities take place primarily at conferences, a budgeted amount would be negligible. There may, however, be a desire to “sponsor” individuals who are not otherwise financially able to attend a conference.

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