

Children: Guinea Pigs Again?

Ruth C. Sun

In April of 1998, while reading the reports on the Third International Mathematics and Science Study (TIMSS), I learned for the first time that the "*Curriculum and Evaluation Standards for School Mathematics*," published by the National Council of Teachers of Mathematics (NCTM) in 1989 (hereafter referred to as the *NCTM Standards* or simply *the Standards*) was actually endorsed by the Department of Education as the intended curriculum for the nation's math education reform. In dismay, I asked, "How Could Secretary Riley be so wrong?!" Since then I have discovered that a host of people --mathematicians, educators, and parents have pointed out the problems of the *NCTM Standards* and the current math education reform [1]. However, I believe there is a need to know how the *NCTM Standards* came into being and to ask a few pertinent questions. So, let us hear Thomas Romberg, the architect of the NCTM math education reform, give us the historical origin of this document:

"The National Council of Teachers of Mathematics (NCTM) Commission on Standards for School Mathematics was created in 1986 and charged with the development of a set of curriculum standards concerning (1) the mathematics that ought to be incorporated into quality school mathematics programs and (2) the instructional conditions necessary for students to learn mathematics. In addition, the Commission was asked to develop standards for both the evaluation of a school program based on the new curriculum standards and on student performance in light of those curriculum standards.

"During the summer of 1987, four working groups met for a month and drafted four sets of standards: one each for grade levels K-4, 5-8, and 9-12, and one on evaluation. Drafts of the standards were distributed to NCTM members during the 1987-88 academic year for their review and commentary. During the summer of 1988, the working groups met again to finalize the standards based on the feedback received and to produce a final document that was officially presented for implementation at the 1989 NCTM Annual Meeting (in April) in Orlando, Florida" [2, p.38]. (Italics, color added)

And so, the Standards, a product of three-years-work from inception to implementation, has become the "bible" for the nation's math education reform. Incredible as it may seem, the NCTM Standards, which was never tried on real students and evaluated, was published with a list of 60 organizations under the heading as "Endorsers," "Supporters," and "allied." They did so with a product which, probably, they themselves had never seen, let alone tried! A full list of these organizations appears on page 3. Three questions are in order:

Question I: How could Richard Riley, the secretary of the U.S. Department of Education, commit the nation's children to the NCTM math curriculum/pedagogical reform which has never been tried and evaluated? It is inconceivable how could the U.S. use their children as guinea pigs again and again? In 1983, the National Science Board Commission called forth the education reform. But, has they not also given the following warning?

[1983] "*The new programs developed should be tested extensively in a variety of settings to insure that they work with real students and schools before extensive implementation is attempted*" [3, Vol. II, p.13]. [Italics, bold added]

In fact, John Dossey, a key player of the NCTM reform [4, preface], attended the conference which gave the above warning [3, Vol. 11, p.18]. But, where is the testing of the Standards?

Question 2: How could the **American Mathematics Society** (AMS), the nation's highest academic organization, a "research" organization at that, *endorsed* a math curriculum and pedagogical reform **which has never been "experimented"** in school settings? Compare these two events. At the beginning of the 20th century, there was also a call for math education reform. Thus, on December 29, 1902, Eliakim H. Moore, then president of the AMS, presented the reform ideas to its members for consideration, who convened in New York for the ninth annual meeting [5]. But, at nearly the end of the century (1989), the leaders of *that very same research organization endorsed* a math education reform which *their members obviously had no knowledge of*. For in March of **1997**, the Notices of the AMS, the official publication of the organization, published a letter to the Editor urging its leaders to withdraw endorsement of NCTM Standards. At least it is comfort to know that there is one organization in the U.S. where the "academic freedom" is still honored where its rank-and-file members are allowed to raise their voices of opposition without the fear of reprisal [6].

Question 3: Among the "Supporters" of the NCTM Standards one finds the National Associations of Elementary School Principals, National Associations of High School Principals, National School Board Association, American Federation of Teachers, National Education Association, American Association of School Administrators, Council of Chief State School Officers, etc. If that is the case, then how do we account for the following statement:

"(Secretary) Riley said States and local school districts should review and toughen their academic standards, and cited materials prepared by the NCTM as an example of how to improve the teaching of math." [7]

Again, with the support of these awesome body of powerful organizations combined, every teacher's knee will have to "bow" to the NCTM Standards. Then, how do you account for the TIMSS' findings that "*only a few apply*" as stated below?

"Most U.S. mathematics teachers report familiarity with reform recommendations (NCTM Standards), although "only a few apply "the key points in their classrooms"[7].

In November, 1999, David Klein of University of California (Northridge) and three other mathematics professors co-authored an open letter to Secretary Riley requesting that he withdraw his endorsement of 10 math programs which followed the NCTM reform ideas. The letter was signed by more than 200 mathematicians and scientists [8]. I couldn't help thinking *if our teachers were allow to write an open letter to Secretary Riley, what would they say? (Many wish they could.) Would they like Secretary Riley to personally review the Standards and to have empirical knowledge of the classroom situations?*

We need to hear anew the critic made in **1904** by a member of the **Royal Prussian Industrial Commission** on America's public education. After observing America's public school, he praised the U.S educators for trying to adapt the elementary school quickly to the progressive requirements of the time, *but "condemns as fatal the abuse of utilizing the child for making experiments in methods and branches of instruction"* [9]. And at the end of the century, ***the U.S. Department of Education readily joined 60 organizations to use the nation's children, K-12, as "guinea pigs" again! Has the U.S. public school suffered because of too much politics, manipulation, and control?***

Appendix

The organizations are listed in consecutive order as they appeared in the Preface [5]:

Endorsers: 15 organizations will promote the vision of the NCTM Standards:

American Mathematical Association of Two-Year College, American Mathematical Society, American Statistical Association, Association for Women in Mathematics, Association of State Supervisors of Mathematics, Conference Board of the Mathematical Sciences, Council of Presidential Awardees in Mathematics, Council of Scientific Society Presidents, Institute of Management Sciences, Mathematical Association of America, Mathematical Sciences Education Board, National Council of Supervisors of Mathematics, Operations Research Society of America, School Science and Mathematics Association, Society for Industrial and Applied Mathematics

Supporters: 25 organizations support the quality math education of the Standards:

American Association of Physics Teachers, American Association of School Administrators, American Chemical Society, American Federation of Teachers, Association for Supervision and Curriculum Development, Council for Basic Education, Council for Exceptional Children, Council of Chief State School Officers, Council of the Great City Schools, International Reading Association, International Technology Education Association, Junior Engineering Technical Society, National Association for the Education of Young Children, National Association of Biology Teachers, National Association of Elementary School Principals, National Association of Second~ School Principals, National Association of State Boards of Education, National Catholic Education Association, National Congress of Parents and Teachers, National Council for the Social Studies, National Council of Teachers of English, National Education Association, National School Boards Association, National Science Teachers Association, National Society of Professional Engineers (bold, underlines added)

Allies: 20 organizations agreed to be allies of the NCTM math education reform.

American Association of Retired Persons, American Association of University Women, American Bankers Association, American Consulting Engineers Council, American Home Economics Association, American Indian Science and Engineering Society, American Institute of Certified Public Accountants, American Newspaper Publishers Association Foundation, Children Television Workshop, Consumers Union, In.4i@ Youth of America, Institute of Electrical and Electronics Engineers, Joint Council on Economic Education, Junior Achievement, National Coalition for Consumer Education, National Consumer League, National Council of LaRaza, National Council of Ne2ro Women, National Federation of Business and Professional Women's Clubs, National Federation of Independent Business Foundation (underlines added)

I would like to express my sincere appreciation to David Schaberg for editing the paper and many thanks to the reference and interlibrary loan staff of South Holland Library for their full cooperation in my research.

- [1] [htm://mathematicallxcorrect.com](http://mathematicallxcorrect.com) ; [htm://math.berkelex.edu/~wu](http://math.berkelex.edu/~wu) ; etc.
- [2] Mathematics Assessment & Evaluation Imperatives for Mathematics Education, Edited by Thomas A. Romberg, State University of New York Press, 1992.
- [3] Educating Americans For The 21 st Century, Vol. II, The National Science Board Commission on Precollege Education in Mathematics, Science and Technology, 1983.
- [4] Curriculum and Evaluation Standards For School Mathematics, NCTM, Inc., 1989
- [5] "On The Foundations of Mathematics," Eliakim H. Moore, Bulletin of American Society, 9 (May, 1903), 402-424. Also, The NCTM First Yearbook, 1925, pp.32-57.
- [6] "The Mathematics Education Reform: Why You Should Be Concerned and What You Can Do," H. Wu, The Mathematics Education Reform, December 1997,946-954, also at <http://math.berkelex.edu/~wu> Also, "Withdraw Endorsement of NCTM Standards," David Klein, Notices of the AMS, March 1997.
- [7] [htm://nces.ed.gov/timss/97198-9.html](http://nces.ed.gov/timss/97198-9.html)
- [8] "An Open Letter to United States Secretary of Education, Richard Riley," Washington Post, November 18,1999. Also, <http://www.mathematicallxcorrect.com/rilex.htm>
- [9] German Views of American Education, William N. Hailmann, Bureau of Education, D.C., 1906. rcsun@hotmail.com 1999 Ruth C. Sun, 1999