

Selected Publications

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Books and Reports

- Supporting Assessment in Undergraduate Mathematics*, (Editor), Math. Assoc. of America, 2005.
- Math and Bio 2010: Linking Undergraduate Disciplines*, (Editor), Math. Assoc. of Amer., 2005.
- Achieving Quantitative Literacy: An Urgent Challenge for Higher Education*, Mathematical Association of America, 2004.
- Quantitative Literacy: Why Numeracy Matters for Schools and Colleges*, (Co-edited with Bernard Madison), Princeton, NJ: National Council on Education and the Disciplines, 2003.
- Mathematics and Democracy: The Case for Quantitative Literacy*, (Executive Editor), National Council on Education and the Disciplines, 2001.
- Why Numbers Count: Quant. Literacy for Tomorrow's America*, (Editor), College Board, 1997.
- Heeding the Call For Change: Suggestions for Curricular Action*, (Editor), Math. Assoc. of America, 1992.
- Moving Beyond Myths: Revitalizing Undergraduate Mathematics*, (Editor), Nat'l Acad. Pr., 1991.
- On the Shoulders of Giants: New Approaches to Numeracy*, (Editor), Nat'l Academy Pr., 1990.
- Everybody Counts: A Report to the Nation on the Future of Mathematics Education*, National Academy Press, 1989.
- Calculus for a New Century: A Pump, Not a Filter*, (Editor), Math. Assoc. of America, 1988.
- Mathematics Today: Twelve Informal Essays*, (Editor), Springer-Verlag, 1978; Vintage Pr., 1980.
- Counterexamples in Topology*, (with J. Arthur Seebach, Jr.), Holt, Rinehart and Winston, 1970; *Second Edition*, Springer-Verlag, 1978; *Reprint*, Dover, 1995.

Articles and Papers

. . . on Mathematics

- "The 'Gift' of Mathematics in the Era of Biology." In *Math and Bio 2010: Linking Undergraduate Disciplines*. Mathematical Association of America, 2005, pp. 13-25.
- "Analysis 2000: Challenges and Opportunities." In *One Hundred Years of L'Enseignement Mathématique: Moments of Mathematics Education in the Twentieth Century*, Daniel Coray, et al., editors. Genève: L'Enseignement Mathématique, 2003, pp. 191-211.
- "The Science of Patterns." *Translations in Mathematics*, Chinese Academy of Sciences, 2 (June 1993)96-105.
- "Pattern," in *On the Shoulders of Giants: New Approaches to Numeracy*, National Academy Press, 1990, pp. 1-10; reprinted as "The Future of Mathematics Education," in *ASCD Curriculum Handbook*, Alexandria, VA: The Association for Supervision and Curriculum Development, 1991.
- "Election Mathematics: Do All Those Numbers Mean What They Say?" in *Readings in Public Sector Economics* by Samuel Baker and Catherine Elliott (Eds.), D. C. Heath, 1989, pp. 308-315.
- "Celebrating Mathematics," *Amer. Math. Monthly* 95 (May 1988) 414-427.
- "The Science of Patterns," *Science* 240 (29 April 1988) 611-616.
- "From Counting Votes to Making Votes Count: The Mathematics of Elections," *Scientific American* 243 (October 1980) 16-26B.
- "Unsolved Problems in Geometry," *Science News* (23 July 1979) 412-413; reprinted in *The Mathematics Teacher* 73 (1980) 366-369.
- "Catastrophe Theory: The First Decade," *Science News* 111 (2 April 1977) 218-219, 223.
- "Solution of the Four Color Problem," *Mathematics Magazine* 49 (1976) 219-222.
- "Highlights in the History of Spectral Theory," *Amer. Math. Monthly* 80 (1973) 359-381.
- "New Models of the Real-Number Line," *Scientific American* 224 (1971) 92-99.

. . . on Quantitative Literacy

- “Everything I Needed to Know about Averages . . . I Learned in College.” *Peer Review* 6:4 (Summer 2004) 4-8.
- “Mathematics and Numeracy: Two Literacies, One Language.” *The Mathematics Educator* (Journal of the Singapore Association of Mathematics Educators), 6:1 (2001) 10-16.
- “The Case for Quantitative Literacy.” *Mathematics and Democracy: The Case for Quantitative Literacy*. National Council on Education and the Disciplines, 2000, pp. 1-22.
- “Reading, Writing, and Numeracy,” *Liberal Education*, 86:2 (Spring 2000) pp. 26-37.
- “Numeracy: The New Literacy for a Data-Drenched Society,” *Educational Leadership*, 57:2 (October 1999), pp. 8-13.
- “Numeracy,” *Daedalus*, 119:2 (Spring 1990) 211-231. Reprinted in *Literacy: An Overview by 14 Experts*, Stephen R. Graubard (Editor), New York, NY: Hill and Wang, 1991, pp. 211-231.

. . . on School Mathematics

- “Facing Facts: Achieving Balance in High School Mathematics.” *The Mathematics Teacher*, 100th Anniversary Issue, January 2007.
- “Back to the Future in Mathematics Education.” *Education Week*, (April 7, 2004) p. 34.
- “Math Education: Still at Risk.” *Issues in Science and Technology*. 19:4 (Summer 2003) 79-81.
- “Data, Shapes, Symbols: Achieving Balance in School Mathematics.” In *Quantitative Literacy: Why Numeracy Matters for Schools and Colleges*, Bernard Madison & Lynn Arthur Steen, editors. Princeton, NJ: National Council on Education and the Disciplines, 2003.
- “Achieving Mathematical Proficiency for All: Moving Beyond the Math Wars.” *The College Board Review*, No. 196 (Spring 2002) 4-11.
- “Beyond Eighth Grade: Functional Mathematics for Life and Work,” (with Susan L. Forman), in *Learning Mathematics for a New Century*, (2000 Yearbook), Maurice Burke, Editor. Reston, Va: National Council of Teachers of Mathematics, 2000, pp. 127-157.
- “Twenty Questions about Mathematical Reasoning,” in *Developing Mathematical Reasoning in Grades K-12*, (1999 Yearbook). Lee Stiff, Editor. Reston, Va: National Council of Teachers of Mathematics, 1999, pp. 270-285.
- “Mathematics for Work and Life,” (with Susan L. Forman), in *Seventy-Five Years of Progress: Prospects for School Mathematics*, Iris Carl, Editor. Reston, Va: National Council of Teachers of Mathematics, 1995, pp. 219-241.
- “Algebra for All: Dumbing Down or Summing Up?” in *The Algebra Initiative Colloquium*, Carol Lacampagne, et al., Editors. U.S. Department of Education, 1995, pp. 121-140.
- “Will Everybody Ever Count?” in *Developments of School Mathematics Education Around the World, Volume 3*. National Council of Teachers of Mathematics, 1992.
- “Why Johnny Can’t Compute,” *Washington Post*, Op-Ed Page Sunday, March 5, 1989, p. C7. (Also appeared in many other newspapers.)
- “Who Still Does Math with Paper and Pencil?” *The Chronicle of Higher Education*, October 14, 1987, p. A48.
- “Smokestack Classrooms,” *Op-Ed Series*, National Research Council, National Academy of Sciences, February 1987. (Appeared in over 50 newspapers across the United States, and in *Focus*, March 1987, p. 1, 4.)

. . . on Undergraduate Mathematics

- “Twenty Questions About Precalculus.” *A Fresh Start for Collegiate Mathematics: Rethinking the Courses Below Calculus*. Nancy Baxter Hastings, editor. Washington, DC: Mathematical Association of America, 2006, pp. 8-12.
- “Asking the Right Questions.” *Supporting Assessment in Undergraduate Mathematics*, Mathematical Association of America, 2006, pp. 11-18.
- “Mathematics Education in Universities.” *Proceedings of the Ninth International Congress on Mathematical Education*, Hiroshi Fujita, et al., editors. Kluwer Academic Publishers, 2004, pp. 243-247.

- “The Four A’s: Accountability, Accreditation, Assessment, and Articulation.” (Co-authored with Peter Ewell.) *Focus* May 2003, pp., 6-8.
- “Refractions, Reflections, Recombinations: Democratizing Maths for Mass Education.” *New Zealand Journal of Mathematics*, 32 (Nov. 2003) 195-205.
- “Revolution by Stealth: Redefining University Mathematics.” In *Teaching and Learning of Mathematics at the University Level*, Proceedings of the ICMI Study Conference, Singapore, 1998. Derek Holton, Editor. Dordrecht: Kluwer Academic Publishers, 2001.
- “Core Curriculum in Context: History, Goals, Models, Challenges,” in *Confronting the Core Curriculum: Considering Change in the Undergraduate Mathematics Major*, John A. Dossey, Editor. Washington, DC: Mathematical Association of America, 1998, pp. 3-13.
- “Twenty Questions about Research on Undergraduate Mathematics Education,” in *Research in Collegiate Mathematics Education*, Ed Dubinsky, et al., Editors. Conference Board of the Mathematical Sciences, *Issues in Mathematics Education*, Vol. 4. American Mathematical Society, 1994, pp. 225-229.
- “Twenty Questions that Deans Should Ask Their Mathematics Departments,” *Bulletin of the American Association of Higher Education*, 44:9 (May 1992) 3-6.
- “Twenty Questions for Calculus Reformers,” *Toward a Lean and Lively Calculus*. Report of the Tulane Calculus Conference. Ronald G. Douglas, Editor. Mathematical Association of America, 1986, pp. 157-165.

. . . Policy, Culture, Reviews

- “Assessing Assessment,” a Preface to *Assessment Practices in Undergraduate Mathematics*, Bonnie Gold et al., Editors. Mathematical Association of America, 1999, pp. 1-6.
- “Mathematics Education: A Predictor of Scientific Competitiveness,” *Science* 237 (17 July 1987) 251-252, 302. (Response to Letters, *ibid*, 238 (23 October 1987) 447-448.)
- “Living with a New Mathematical Species,” in *The Influence of Computers on Informatics and Its Teaching*, A.G. Howson and J.-P. Kahane (Editors), Cambridge University Press, 1986, pp. 52-60.
- “Is Progress an Illusion?” *Focus*, 23:8 (November, 2003) 10-12.
- “Facing the Future: Mathematics for Everyone,” *Proceedings of ICMI-China Regional Conference on Mathematical Education*, Beijing, 1991.
- “Reaching for Science Literacy,” *Change*, 23:4 (July-Aug, 1991) 10-19.
- “ $1 + 1 = 0$: New Math for a New Age,” (editorial) *Science*, 2000 (28 August 1984) 537.
- “Mathematical News That’s Fit to Print,” in *The Popularization of Mathematics*, A.G. Howson and J.-P. Kahane (Editors), Cambridge University Press, 1990, pp. 176-193.
- Review of *Damned Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists* by Joel Best. *Notices of the American Mathematical Society*, 50:2 (February 2003) 228-231.
- “A Mind for Math,” a review of *The Math Gene: How Mathematical Thinking Evolved and Why Numbers are Like Gossip* by Keith Devlin, *American Scientist*, 88 (Nov.-Dec. 2000) 555-556.
- “A Joyful Passion for Proofs: The Pied Piper of Mathematics,” a review of *The Man Who Loved Only Numbers: The Story of Paul Erdős and the Search for Mathematical Truth* by Paul Hoffman, Hyperion Press, 1998. *American Journal of Psychology*, 113:1 (Fall 2000) 478-483.
- Review of *A Mathematical Mystery Tour: Discovering the Truth and Beauty of the Cosmos* by A. K. Dewdney, *Notices of the American Mathematical Society*, 47:2 (February 2000) 221-224.
- “Theories that Gyre and Gimble in the Wabe,” a review of *Mathematics Education as a Research Domain: A Search for Identity* by Anna Sierpiska and Jeremy Kilpatrick (Editors). *Journal for Research in Mathematics Education*, March 1999, pp. 235-241.