

Shortage of Qualified Teachers: A *Fixture* in American Education Landscape!

A few weeks ago, at the suggestion of a friend, I read the article entitled, "A' Is for Answer" by William Symons in the September **2001** issue of the Reader's Digest. In the article, Symons pointed out "*the appalling shortage of qualified educators*" [1, p.100] and admitted that "more pay and training will cost big bucks," then, he quoted the following warning given by the National Alliance of Business [1, p.101]:

“without high quality teachers, our efforts to improve student achievement are destined to fail.” It’s a question of paying now or paying later.

In the following pages I have *scanned quotations directly* from the professional publications of the 20th century, to show that the problem of *the shortage of qualified teachers is a chronic problem*, a problem which *has persisted in spite of numerous education reforms and enormous education budgets*. Undoubtedly, it has contributed to what is known as "out-of-field" teaching. Two quotations from 19th century publications are included to show the antiquity of the problem. The first quotation came from [Henry Barnard](#), the founder of the Teacher Institute and one of the leaders in the common school movement and the normal school movement. When [the National Bureau of Education](#) was created in **1867** he became its first Commissioner. The second quotation is taken from the famous [Committee of Ten](#) headed by [Charles W. Eliot](#), then president of the Harvard University, a leading critic of public schools who *knowingly or unknowingly* set the wheel of education reform in motion.

As early as **1839**, **Henry Barnard** had already pointed out *the shortage of the qualified teachers* in his *First Annual Report as Secretary to the Board of Commissioners of Common Schools in Connecticut* as seen below [2]:

How ineffectual will be the wisest system of common school instruction and management, school houses built on the best models, and with the most convenient internal arrangement, a uniform and adequate supply of books of the highest excellence, if teachers, who are to be the agents of carrying this machinery into operation, are not qualified for the task? On the contrary, defects in almost every other department could be in some measure supplied, if we but had good teachers. All admit that there is far from being a competent supply of such teachers. The deficiency is felt extensively, and a remedy loudly called for. . . .

. . . At any rate, I would urgently but respectfully repeat, let something be done to provide an adequate supply of well qualified teachers for our common schools. Without them I have no expectation that there will be any material improvement in the *quality* and *amount* of education given in them.

In **1894**, that famous [Committee of Ten](#), appointed by [the National Education Association](#) [NEA], published a report, in which the Committee called for *the need of better-trained teachers* [3]:

Persons who read all the appended reports will observe the frequent occurrence of the statement that, in order to introduce the changes recommended, teachers more highly trained will be needed in both the elementary and the secondary schools. There are frequent expressions to the effect that a higher grade of scholarship is needed in teachers of the lower classes, . . .

In 1923, The Mathematical Association of America [MAA] published recommendations offered by *The National Committee on Mathematical Requirement*. The Committee called attention to the problem of "out-of-field" teaching with these words [4]:

In the meantime everything possible should be done to improve the present situation. One of the most vicious and widespread practices consists in assigning a class in mathematics to a teacher who has had no special training in the subject and whose interests lie elsewhere because in the construction of the time schedule he or she happens to have a vacant period at the time. This is done on the principle, apparently, that "anybody can teach mathematics" by simply following a textbook . . .

In 1929, the National Council of Teachers of Mathematics [NCTM] devoted its Yearbook to the International reports on the progress in math education, a follow-up of the First International Congress on Mathematics held in Rome in 1908. In the U.S. report, the NCTM admitted that U.S. was behind Europeans in math education/curricula, and the problem lay with an *unqualified teaching force* [5]:

Poorly Prepared Teachers. One thing that has impeded progress is the fact that many teachers of mathematics are not properly prepared.

Almost anyone can teach mathematics in the United States. We now have teachers in some schools trying to teach trigonometry in the ninth year who have never studied the subject previously. The result is obvious. It is an old story that the athletic coach is often given a class in mathematics to justify his employment in the school.

In 1958, *humiliated* by the launch of *Sputnik by Russia in October of 1957*, U.S. launched a unprecedented nationwide *math and science education reform*, which gave an impetus to the so-called *the New Math reform* movement because mathematics was considered to be the cornerstone to scientific/technical advancement. Looking back at that historical event ten years later [1967], Francis J. Mueller said, in his opening address to the 45th Annual Meeting of the NCTM, that *Sputnik* [6]...

. . . became something of a touchstone that unleashed torrents of money for the purpose of bringing about reforms in science and mathematics instruction.

Indeed, the statistics below taken from the book entitled, The Department of Education substantiates Mueller's statement [7]:

In 1920, the bureau's budget exceeded \$500,000.... [p. 38]

By 1945, the Office of Education administered more than 81 million in grant... [p. 43]

In 1958, in response to *Sputnik*,... congress enacted **the National Defense Education Act**. This law mandated federal aid to education in *mathematics*, *science*, and *foreign languages*.... By 1960, new programs had increased... with a budget of more than \$400 million.... [p. 47]

In 1964, (With) the Elementary and Secondary Education Act and the Higher Education Act, etc., ... its budget skyrocketed from \$1.5 billion in 1965 to \$3.4 billion in 1966,... [p. 47]

In 1961, in order to orient school administrators and teachers to *the New Math reform* initiated by mathematicians, the National Council of Teachers of Mathematics [NCTM] published a booklet entitled, *The Revolution in School Mathematics*. From the words addressed to the school administrators quoted below, the reformers seemed to think, *naively*, that the New Math reform *would eliminate* the problem of "out-of-field" teaching. Unfortunately, the practice remained [8]:

Superintendents and principals should now realize that the day has passed when any teacher who happens to have an otherwise free period can be assigned to teach mathematics.

In 1967, the International Project for the Evaluation of Educational Achievement (IEA) published the results of math achievement of the 8th and 12th graders of 12 industrial countries. The study found Japan at the top and *the U.S. students ranked near the bottom*. Displeased by the study result, the IEA was denounced by many Americans. In explaining the IEA project to the educators, George S. Carnett, Bureau of Research, U.S. Office of Education, admitted [9]:

In the United States, mathematics is an area of perennial teacher shortage at all levels of instruction. . . . Every year it is a major problem of elementary and secondary schools nationwide.

Schools that couldn't find qualified teachers took what they could get, which usually meant persons trained in other fields and frequently deficient in mathematics preparation.

In 1981, *annoyed by Japan's buying America and the expansion of its auto industry*, coupled with *the alleged academic decline in student achievement during the 70s*, the National Commission on Excellence in Education was created to investigate the state of public education. In April 1983, the Commission delivered a startling report, *a wake-up call*, to the nation entitled, ***A Nation At Risk, The Imperative For Educational Reform***. The Commission found, among other things, *a severe shortage of math and science teachers* [10]:

The shortage of teachers in mathematics and science is particularly severe. A 1981 survey of 45 States revealed shortages of mathematics teachers in 43 States, critical shortages of earth sciences teachers in 33 States, and of physics teachers everywhere.

Half of the newly employed mathematics, science, and English teachers are not qualified to teach these subjects; fewer than one-third of U.S. high schools offer physics taught by qualified teachers.

In **1983**, five months after the release of *A Nation At Risk*, the National Science Board Commission on Precollege Education in Mathematics, Science and Technology, one of the two commissions appointed then, also published a two-volume-report entitled, *Educating Americans For The 21st Century*. Unlike all other reports, the Commission spelled out the objective they set out to accomplish in 12 years and printed it right on the cover page in bold letters as seen below [11]:

*A plan of action for improving
mathematics, science and
technology education for all
American elementary and
secondary students so that
their achievement is the best in
the world by 1995*

Once again, the Commission called for *math and science education reform*, and pointed out a severe shortage of qualified teachers in those fields [11]:

There was general agreement at the conference that the most pressing immediate problem is the need for more, and better qualified, teachers in the classrooms. No curriculum, no matter how well-founded, can possibly succeed without dedicated and competent teachers to teach it.

Despite this critical need, all available evidence suggests that there are currently severe shortages of qualified mathematics, science and technology teachers in many parts of the Nation.

It was a matter of *urgency to retrain teachers in math and science* and the Commission proposed a total budget of **\$1.75 billion** [11]:

Steps must be taken immediately to ensure that the Nation has a sufficient number of qualified mathematics, science and technology teachers available to accomplish the objectives set forth in this Report by 1995.

Top priority must be placed on retraining, obtaining and retaining teachers of high quality in mathematics, science and technology, . . .

In-service and summer training programs should be established with Federal support. The Commission estimates the cost to the Federal government of initiatives for retraining mathematics, science and technology teachers to be \$349 million per year for five years.

The Report estimates the costs to the Federal government of the new programs we suggest it should adopt. The Federal cost recommended is \$1.51 billion for the first year the Commission's recommendations are in effect (but Federal disbursement would not exceed \$956 million in any year).

In 1989, six years later, the National Council of Teachers of Mathematics [NCTM] *launched a nationwide math education reform* with the use of calculators in classrooms from K-12. Many voiced their opposition to the NCTM reform. Nine years later in 1998, The Notices of AMS [American Mathematics Society] published an interview with **Gail Burrill**, then president of the NCTM. In the interview, the reporter asked Burrill about the teacher qualification [12]:

Notices: *I'd like to ask you about teacher background and qualifications. Many people worry that teachers don't have enough background to teach in the traditional way or in the reform way. Do you think that these worries are justified?*

Burrill: I think these worries are very much justified. It's a matter of very much concern to me that we're placing demands on teachers for which we have not prepared them. We have many teachers who are not certified in mathematics. About 37 percent of mathematics teachers in our high schools do not have minors in mathematics or mathematics education, and about 89 percent of teachers in grades 5-8 do not. And that means that these teachers have a minimal background in mathematics. . . .

In 1998, Phi Delta Kappa International, an educational publication, published an article entitled, *The Problem of Out-of-Field Teaching*, by Richard M. Ingersoll. And, at the end of the century, Ingersoll wrote [13]:

And out-of-field teaching is not an aberration; it happens in well over half of the secondary schools in the U.S. in any given year -- both rural and urban, affluent and low-income.

In 2001, the beginning of another century, high school teachers *are still* assigned to teach subjects like math, physics, or chemistry *for which they are not prepared*.

So, we have come a full circle! We have seen reform after reform and endless training and retraining of teachers, with hundred of billions of tax dollars spent, and yet *the shortage of qualified teachers* has persisted throughout the century. **Will more money and more training or retraining solve the problem? Our approach to the problem has been too simplistic and superficial.** The problem of *the shortage of qualified teachers* has been a part of our educational landscape since the colonial days. **It is a complex problem!** The article, *A Profile of Our School Teachers from the Colonial Days Down*, will show that.

In conclusion, we need to hear the teachers' side of the story too. For example, in 1960, PHI DELTA KAPPAN published an article entitled, *A Survey of Teacher Opinion in California*. Questionnaires were mailed to 2,000 high-school and 1,000 junior college teachers representing all but two high schools and one junior college in the state of California. The response: 73% responses for the high school and 85% for the junior college. Here are three of the questions and answers [14]:

<i>Questions</i>	<i>Answers</i>	RESULTS			
		High school		Junior college	
		No.	Per cent	No.	Per cent
1. There has been considerable debate in recent years about the value of many of the education courses required of teachers. How important do you believe the education courses you took to obtain your credential were in making you an effective teacher?	Most important	84	6.0	38	4.6
	Some Importance	622	44.7	267	32.2
	Little importance	586	42.2	373	45.0
	No importance	99	7.1	151	18.2
4. Do you think it would be better for a prospective high school (junior college) teacher to take additional courses in his major or minor fields in place of some of the education courses?	Yes	1,333	93.6	799	94.4
	No	91	6.4	49	5.6
5. Or, on the other hand, do you believe it would be better for him to take additional education courses in place of some of the courses in his major or minor fields?	Yes	20	1.5	10	1.2
	No	1,352	98.5	809	98.8

Obviously, the teachers who participated in the survey understood what **Henry Barnard** said to the officers of school in his *Fifth Annual Report as Superintendent of Common Schools in Connecticut* in **1850** [2]:

The

officers of the school cannot encourage for a moment, the idea that a person who does not understand a subject thoroughly, can ever teach that subject well, . . .

A **1952** *School and Society* issue gives us a clue as to where the problem lies:

in 1950 a layman and writer for magazines, who did not wish to disclose his real identity and gave instead a fictitious name,⁵ wrote that not only were the teacher-education institutions not yet drawing the best students from the high schools, but the teachers of teachers in those institutions were not as superior as teachers in liberal arts colleges and universities but ranked "close to the bottom in academic prestige." He believed that so long as inferior students were taught by inferior teachers the promise of improving public education in this country was not bright. Disturbing also was the report of the Educational Testing Service in the summer of 1952 on the Selective Service College Qualification Tests, which showed that of the major fields of study registrants in "Education" were in the lowest rank, a fact that seemed bad for the future of public-school administration.

Ruth C. Sun, 12/2001

* All quotations were scanned directly from the texts which accounts for the lack of uniformity in format. And the underlines found in the scanned texts are mine.

Good teachers, the newest imports

Shortage here prompts recruiting trips abroad

BY MARY LORD

As a recruiter for the Newark, N.J., public school system, Ray Coleman has had to go farther and farther afield to find teachers each year. But though he has worn out shoes touting the city's cultural revival—and generous \$38,500 starting salaries—at dozens of job fairs across the Northeast, Newark remains one tough sell. So last month, Coleman dusted off his

measures have boosted demand. The result: 220,000 vacancies nationwide each year for the next decade. Chicago, for example, started the school year with more than 1,000 teaching slots still unfilled and had to tap substitute or retired teachers.

And then they went global. Indeed, in the past few months alone, recruiters from the Houston Independent School District scoured Russia for science and math teachers, the Salt Lake City School Board ap-

ease the cultural transition. Still, the process works: "I wouldn't fill these numbers in 100 job fairs," says Newark's Coleman, who interviewed 450 teachers in India and hopes to hire 24. Baltimore City Public Schools human resources chief Ted Thornton fared even better. Five hours and a \$250 long-distance bill were all it took to hire nine of the 10 Indian candidates he and a panel of experts interviewed by phone earlier this year.

Money talks. Despite the low numbers—primary and secondary school teachers accounted for just 1,350 of the special visas last year, a fraction of the 195,000 granted annually for high-tech and other specialty workers—the importation trend worries some observers. "Businesses go overseas for two reasons: because they can't find qualified people domestically, or the qualified people who are there won't work for the [low] wages," says Segun Eubanks, a recruitment specialist at the National Education Association, the teachers union. "If teachers were paid \$100,000, there'd be plenty of takers," he adds. "We've just not done enough to make the job attractive in terms of salary, working conditions, and reputation."

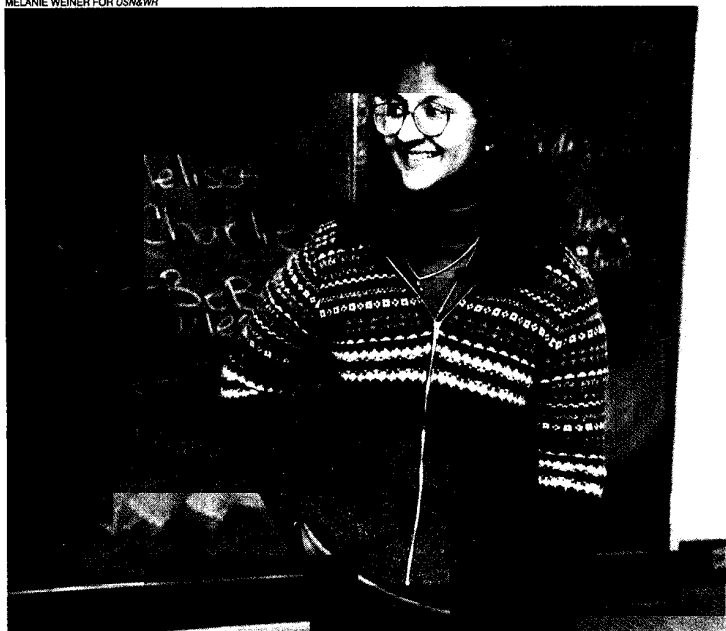
But try telling that to Karen Jason. As a teacher at one of India's top schools, with two master's degrees and six years of experience, the 31-year-old Madras native enjoyed plenty of respect and income. But an ad in the local newspaper for U.S. teachers caught Jason's eye last year, and she leapt at the opportunity to fulfill a lifelong dream of earning a Ph.D. in America. "If someone had told me two years ago that I would be paid to work as a teacher in America, I probably would

Help wanted

America needs to hire about 2.2 million K-12 teachers over the next decade. Here are the jobs some school districts are scrambling to fill for September:

District	Number of vacancies
New York City	12,000
Los Angeles	4,000
Miami-Dade	3,200
Chicago	3,000
Clark County, Nev.	1,600
Houston	1,000
Baltimore	900
Philadelphia	800
Newark, N.J.	600
Boston	500

MELANIE WEINER FOR US&WR



Karen Jason, an experienced teacher from Madras, India, in her classroom at Chester (Pa.) High School

● "If someone had told me two years ago . . . I probably would have said they were joking."

passport, choked down an antimalaria pill, and—still sore from a round of inoculations—joined Cleveland and Philadelphia public school recruiters on a two-week, six-city headhunting trip to India.

Time was, school recruiters could find more than enough instructors at local teachers colleges and undergraduate education programs. Now, nearly a third of those students opt instead for the higher salaries and prestige of other professions. Meanwhile, experienced teachers are retiring or quitting in droves, even as record-high enrollments and class-size reduction

proved a mission to Madrid to find bilingual teachers, and two weeks ago New York City recruiters enlisted 100 Canadian teachers for next fall. "We're exploring every area we can," says Marj Adler, executive director of human resources for the Philadelphia public school system, which hoped to bag 30 teachers on the Indian foray before tapping Spain and the Philippines.

Besides bankrolling the trips, school districts sometimes have to pay finder's fees of up to \$5,000 per teacher. They also must sponsor them for special visas, help with housing, and hold orientations to

have said they were joking," says Jason, who began teaching English at Chester High School near Philadelphia in December. After the initial shock of seeing metal detectors at the front door, it took her two weeks to get used to the different level of classroom discipline, too; Indian students tend to be more orderly despite a larger average class size. As Jason puts it, in India, "it's easier for a teacher to get attention just by walking into the classroom." Once they've walked in, of course, districts are going to have to make sure their newest recruits want to stay. ●