

1998 “Survey” of College Students About Their High School Math Education

A Word About The “Survey”...

Events Which Led To the Survey

The 1998 college students “survey” has its beginning in 1990 when I got myself involved as a volunteer in 2nd-8th grade math education, a subject that seemed to be ridden with problems. Driven by the desire to find the cause(s), I set out to study math education from various angles* including interviewing 2nd-12th-grade students of different economic, social, and racial background. I considered it essential to see the problems through the eyes of students and learn what “ails” them, like a good doctor would do with his/her patients. After all who knows better what’s going on in the classrooms and their lives than the students themselves? The interviews have shed invaluable light on problems, which would be hard for me to obtain otherwise.

The idea of surveying college students came as a direct result of two incidents related to TIMSS (the Third International Math & Science Study) reports. First, I believe quantitative technique applied to educational research is valuable, but it has its limitations. Statistical figures do not always tell the “whole” story, and at times they might be misleading, which I found to be the case with TIMSS reports on a couple of important matters. Then, one day, I was chatting with three students enrolled in post-secondary education and innocently I showed them the article bearing the title, “Riley Urges Students to Take Tougher Courses:...” [1]. I was utterly surprised by their *immediate* responses:

Student A said, “Blatant falsehood.”

Student B said, “Ignore him.”

Student C said, “The problem is he doesn’t know what he’s talking about.”

Their subsequent explanations revealed (betrayed) a deep-seated frustration with their high school math education. I agree with the students that our leaders have been too removed from schools, from classrooms, or *simply from reality*. These incidents and other factors combined finally led to the “survey” of college students.

The Reason Behind the Survey Format

Since Edward Lee Thorndike, a famous psychologist, introduced quantitative study into the arena of education in the first decade of the 20th century, “experts in education are becoming experimentalist and quantitative thinkers...” as he said [2]. And Harold Rugg, a progressive educationist, gives us a glimpse of what it means when he wrote of his work at the University of Illinois:

“We lived in one long orgy of tabulation. Mountains of facts were piled up, condensed, summarized and interpreted by the new quantitative technique. The air was full of normal curves, standard deviations, coefficients of correlation, regression equations” [3].

Let me reiterate here that quantitative study has a place in educational research; however, we must not forget that our children/students are more than statistical numbers. They are human beings with emotions and the will to resist. I must confess since my interviews of students a few years back, it has been my desire to put a “human face” on our educational problems. This

accounts for the nature and the format of this “survey.” It was never my intention to collect mass data for statistical information/study. One would find this survey closer to the one

described in James D. Koerner’s “Consumers’ Reports” [4]. Its sole purpose was for students to freely express their opinions and share their experiences and insights.

A Word about the Survey Text

On April 2, 1998, I asked Daniel Phillips for assistance in finding the information on TIMSS. He was not the least bit surprised to find out that the U.S. high school students were below average in math. I then asked him to a paragraph explaining why he was not surprised, which he did (see attached “Survey Text.”) A couple of weeks later, a random check with other college students showed that they were in favor of using Phillips’ paragraph as a prompt for the survey, even though they did not know who wrote it. With Phillips’ consent, the paragraph became the primary tool for eliciting student responses.

A personal note. Two observations in Phillips’ paragraph really interested me: *Dependence on the calculator* and *the pace of the curriculum*. I was especially interested to see how college students responded to these matters.

I understand the potential for students to be influenced by Phillips’ statement. However, respondents were encouraged to agree or disagree with Phillips. Several students, in fact, were critical of part or all of Phillips’ commentary, but the overwhelming majority of students reported that Phillips’ experience/thought were not far from their own. I need to mention that there were at least 5 people who criticized the survey format.

The Scope and The Target Group of the Survey

This survey *has absolutely nothing to do with colleges, period*. And the participants understood it that way. I believe not more than 5 participants out of nearly 1400 mentioned the word “college.”

The survey is about “high school math education” in general. Perhaps we can benefit from the “*hindsight*” of college students since they have the perspective. After all, they are in a better position to evaluate their high school math education, for example, whether they feel they have been adequately prepared for college courses or what problems they see which they did not see before or what suggestions they would like to make, etc.

A total of 1400 students responded to the survey. They came from 28 campuses (ranging from big names universities to community colleges) representing 13 states: AL, CA, FL, IL, IN, MA, MD, MN, NC, NJ, OH, SC, VA. It was a “random” survey with no particular “target group” of students in mind. Our goal was to have a sample of 50 participants from each campus if possible, and from as many states as we could reach.

Students welcomed the survey and were very willing to take the time to respond. Some believed that this survey should go nationwide and **some engineering students even offered to create a website for the project**, while others wished that I had brought a video camera or a tape recorder to capture and record students’ frustrations. They felt being cheated by their high school math study. **I believe strongly that we need to pay more attention to the students who are studying to be engineers.**

The Plan for the Release of the Survey Results

The survey results will be transcribed, classified topically, and released under the headings listed below and in that order.

- Part I: Learning “The Effects Of Calculators” From Students’ Experiences
- Part II: Seeing The U.S. Math Education From International Perspective(s)
- Part III: Seeing Math Education Problems Through The Eyes of Students
- Part IV: Listening To Those Who Disagree With Phillips

The survey results will include the participants’ last names and the year of their high school graduation. We omitted the school affiliations in order to protect the interests of students. The survey was conducted between May and October of 1998.

The Uniqueness of This Survey

This survey was conducted by *volunteers*. I would like to express my deep appreciation for the cooperation of the following people, especially the effort on the part of Dr. Tina Chen. They *donated* their valuable time and *paid* the postage to mail the survey results to me. This survey project would have been impossible without their assistance.

Ms. Jo Ann Boone Mr. Steve Brooks Dr. Jim Caldwell Dr. RoDen Chang Ms. Angela Chen
Mr. Joe Chen Mr. Jonathan Chen Dr. Tina Chen Ms. Suzanne Jarrell Ms. Jill Gambrell Ms.
Ali Hare Dr. Caleb Huang Mr. Norm Kruthof Ms. Barb Lane Ms. Amy Lewis Mr. Chris
Lim Ms. Joyce Lin Dr. Shang Lin Dr. Stephen Lin Dr. Frank Liu Dr. Daniel Su Ms. Ruth
Sun Dr. Carl Than Dr. Jimmy Turner Dr. Anh Tran Dr. Enoch Wei

We would also like to thank the 1400 college students who participated in this one-of-a-kind-survey by sharing their experiences, insights, and opinions.

Prepared by Ruth C. Sun

I would like to express my sincere appreciation to David Schaberg for editing the paper.

1. <http://nces.ed.gov/presslease/timss298.html>
2. The Liberal and Technical In Teacher Education, A Historical Survey of American Thought, Merle L. Borrowman, 1956, p.167.
3. That Man May Understand, An American In The Long Armistice, Harold Rugg, 1941, p.182. Also quoted by Lawrance A. Cremin in Transformation of The School, Progressivism in American Education 1876-1957, 1964, p.181, and by Charles E. Silberman in Crisis In The Classroom, The Remaking of American Education, 1970, p.428.
4. The Miseducation of American Teachers, Chapter IV “Consumers’ Reports,” James D. Koerner, 1963, pp.97-117.