IEA 1981-1982 Second International Math Study [SIMS] Participated by 15 Countries

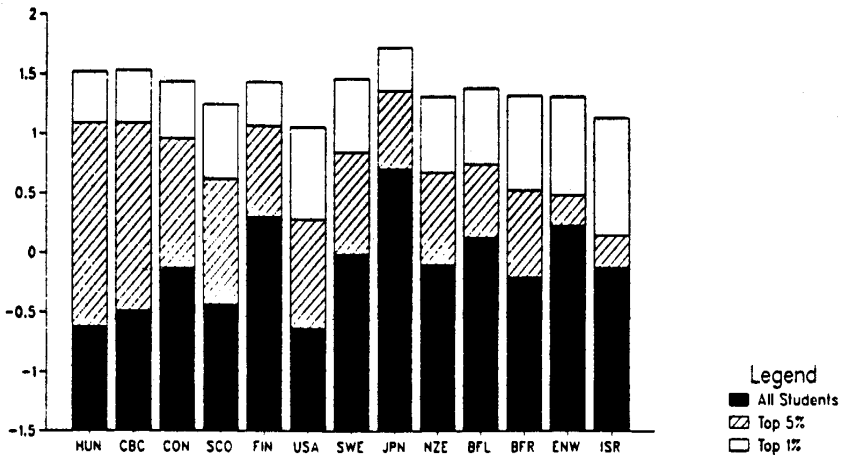

FIG 7.12 Mean achievement in algebra for all Population B students, for the top 5%, and for the top 1%. (Systems listed in order of retention rate.)

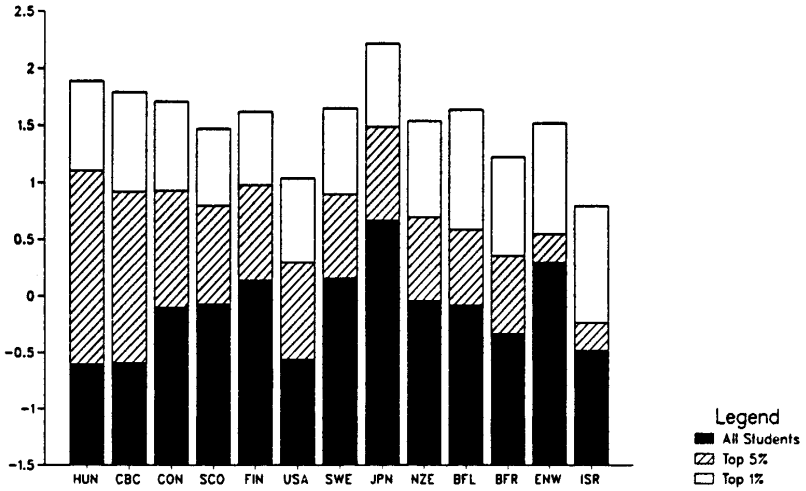

FIG 7.13 Mean achievement in geometry for all Population B students, for the top 5%, and for the top 1%. (Systems listed in order of retention rate.)

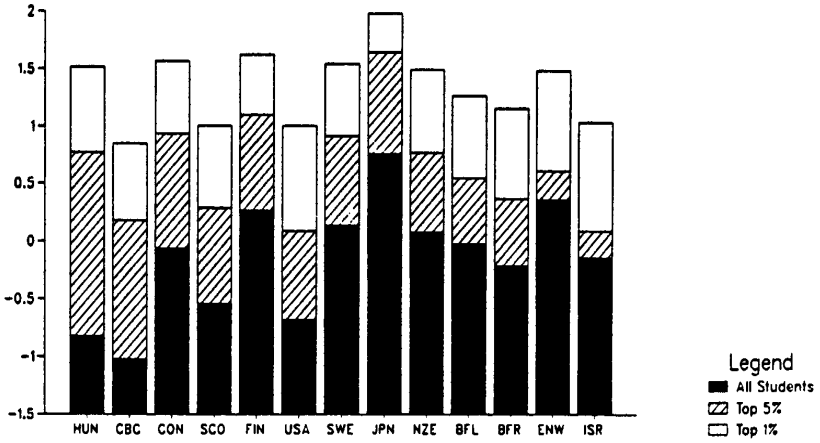

FIG 7.14 Mean achievement in elementary functions and calculus for all Population B students, for the top 5%, and for the top 1%. (Systems listed in order of retention rate.)

From left to right: **HUN** (Hungary), **CBC** [Canada (British Columbia)], **CON** [Canada (Ontario)], **SCO** (Scotland), **FIN** (Finland), **USA**, **SWE** (Sweden), **JPN** (Japan), **NZE** (New Zealand), **BFL** [Belgium (Flemish)], **BFR** [Belgium (French)], **ENW** (England & Wales), **ISR** (Israel)

1981-1982 Second International Math Study [SIMS]

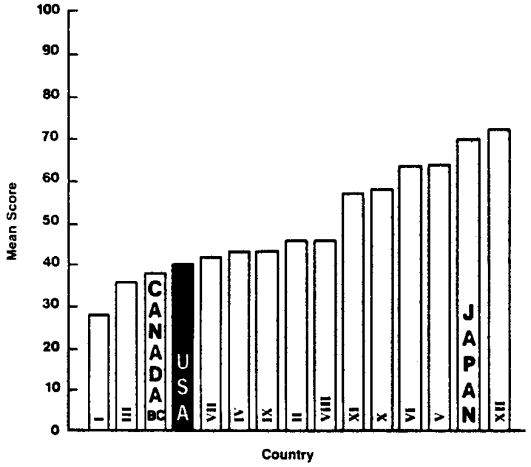

Figure 9.64 Mean Achievement in PROBABILITY AND STATISTICS for Population B (Twelfth Grade in U.S.) for 15 Countries

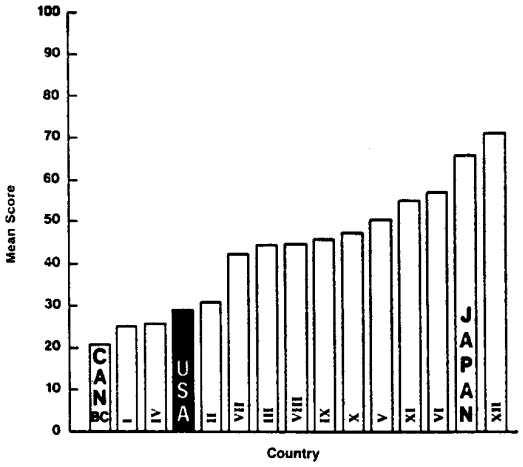

Figure 9.65 Mean Achievement in ELEMENTARY FUNCTIONS/ CALCULUS for Population B (Twelfth Grade in U.S.) for 15 Countries

Table 9.14
Comparative Post-test Achievement Percentages for United States, British Columbia, Japan, and International on Population B Subtopics

Subtopic	U.S.A. ALL*	U.S.A. PC	U.S.A. C	CBC	JPN ALL	INT
Sets/Relations	59	54	64	48	79	62
Number Systems	45	38	49	43	68	50
Algebra	48	40	57	47	79	57
Geometry	37	30	38	30	60	42
Elementary Functions and Calculus	36	25	49	21	66	44
Probability & Statistics	45	39	48	38	70	50
Finite Mathematics	36	29	38	21	--	44**

*U.S.A. ALL -- Total U.S. Population B Sample
U.S.A. PC -- U.S. Precalculus Classes
U.S.A. C -- U.S. Calculus Classes
CBC -- British Columbia Classes
JPN ALL -- Japanese Classes
INT -- International Subtopic Mean
**Estimated International Subtest Median Score

The data in the table is presented in several forms to allow for a variety of comparisons. First the mean class percentages are presented for the entire U.S. sample, the Precalculus and Calculus classes contained in the U.S. sample, the British Columbia Population B sample, and the Japanese Population B sample. The last column in the table shows the international mean performance for the 15 countries participating in the Second International Mathematics Study at the Population B level.

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There were substantial differences among systems as regards average class sizes: a range from 19 to 43 at the Population A level, and from 14 to 43 at Population B. Some of the largest class sizes were found in systems where performance levels of students were among the highest in the study, and particularly in Hong Kong and Japan. Students in Hong Kong were not only in some of the largest classes found in the study, but they were also among the youngest participants and they were among the most likely to have teachers who were less than fully qualified to teach mathematics. The performance levels attained by Hong Kong students given these kinds of handicaps were outstanding, and they underscore the important role played by motivation and parental or societal encouragement.

Second International Math Study [**SIM**]

The teachers were also asked to rate the importance of nine possible reasons that would help account for students who were not making satisfactory progress in the sampled class. The top rated three reasons (the only ones rated very important by more than 25 percent of the teachers) all focused on obstacles within the students--student indifference or lack of motivation, student lack of ability, and student absenteeism. Table 4.5 reports these ratings. By contrast, Japanese teachers tended to give reasons that focused on their own competencies, or lack thereof, as reasons for poor achievement of these students.

Table 4.5
Reasons for Lack of Satisfactory Progress by Students in the Sampled Class as Rated by Eighth Grade Teachers: U.S., 1981-82
(Percent of Teachers; All Class Types Pooled)

Reason	A Very Important Reason	Not An Important Reason
Student indifference or lack of motivation	51	9
Student lack of ability	45	12
Student absenteeism	39	29
Student misbehavior	12	44
Debilitating fear of mathematics	11	45
Too many students	10	51
Limited resources and materials	7	75
Insufficient school time allocated to mathematics	5	69
Insufficient proficiency on my part in dealing with students having the kinds of difficulties found in the target class	3	64