for public policy as social science is generally able to provide."

But just as with child mortality, the mechanisms linking education to changes in desired and actual fertility are uncertain. Educated women may want to have smaller families in order to stretch the resources available for their own children's schooling, or their education may give them profitable alternative uses for their own time so that the cost of motherhood goes up. They may marry and begin bearing children later and have fewer children as a result, or they may be more effective users of family-planning methods and better protectors of their children's health. "People have not really tried to test which of those pathways is the main pathway, and there is some debate about which programs are the most effective," says Elizabeth King, a senior World Bank economist.

Indeed, high levels of female education do not always result in lower fertility. Martha Ainsworth, another World Bank economist who has recently completed a study of education, contraceptive use, and fertility in 14 countries in sub-Saharan Africa, found that although 60% of women in Ghana are educated—half of them at the secondary level—the effect on fertility there is no greater than in Senegal, Togo, Mali, Niger, and other countries where women have much less schooling. It is often difficult to measure any effect in regions where so few women overall have schooling, Ainsworth says. "Sometimes I can't disentangle how much of what I'm measuring is the effect of selectivity," that is, the fact that females who seek education are more likely ahead of time to want smaller families and to use contraception, she says.

In spite of these uncertainties, most population researchers believe that if the Cairo plan is implemented, it may gradually shift desired family size downward. "Cairo is a good thing even if it's not being guided by the scientific evidence," concludes Yale's Schultz. "This is merely a linking of various lobby groups that have an interest and a confluence of logic. It's not necessarily empirically documented, but it's plausible in certain parts of the world."

Michael Teitelbaum, a demographer at the Alfred P. Sloan Foundation, adds that he has "never run into a single policy issue that has unanimous scientific support." The important point, he says, is that U.S. policymakers have "re-established a leadership position" on population issues and that, through Wirth's new Global Affairs office at the State Department, they are "trying their best to make the connections" between foreign policy and demographic trends.

As the delegates gather in Cairo next week they would do well to bear in mind one fact: During the 9 days they will spend debating the plan of action, the world's population will grow by some 2.1 million.

–Wade Roush

Wade Roush is a science writer in Boston.

EDUCATION

Science and Math Scores Rebound

Students in elementary and secondary schools are pulling their math and science test scores out of the slump that hit in the mid-1970s, according to a report released 2 weeks ago. The latest National Assessment of Educational Progress (NAEP) report—a biennial spot-check that gives achievement tests to thousands of students—says that average 1992 scores in science and math are just about where they were in the early 1970s, before the slide began. All the students of the ages studied—9, 13, and 17—"made gains in average proficiency between 1982 and 1992," the report says.

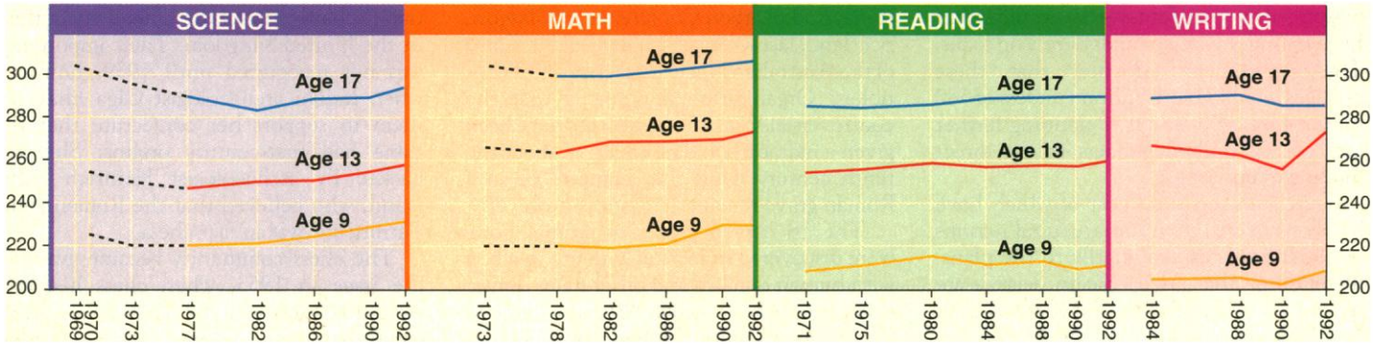
The U.S. Department of Education, which funds the NAEP, hailed the findings in a press release as a "strong step forward." But at the same time, survey officials and education specialists all acknowledged that mere recovery after a disastrous educational interval isn't enough. "We are retrieving a bit of lost ground," says education policy expert Chester Finn, an NAEP adviser and a member of The Edison Project, a privately sponsored school reform initiative based in Washington, D.C. Social scientist Bruno Manno, a senior fellow at the Hudson Institute in Washington, D.C., agrees, saying "I think the gains reported are really insignificant."

The NAEP has given students tests in selected subjects every other year since 1969 and characterizes scores according to five "proficiency levels" (see charts). The 1992 rebound effect, officials says, can be traced to an added emphasis on math and science in the schools. The percentage of 17-year-olds who had studied biology in 1992 was 92%, the NAEP found, up from 88% in 1986. The figures for physics were up from 10% to 14% and for those completing 2 years of algebra from 37% to 45%.

The good news has limits, however. For one thing, the report finds that for African American and Hispanic students, "progress in closing the gaps [relative to whites] has stalled." The black-white gap in math, for example, stopped narrowing in 1986. In science, the proficiency of black 17-year-olds was no different from the 1969 levels. In addition, students are not becoming any more literate. "With the exception of [an] improvement in writing at grade 8," the report notes, "there have been no significant improvements in reading or writing performance since 1984."

Finn believes that, ironically, this can partly be laid at the door of the renewed emphasis on science and math. The number of science courses has increased during the past decade, he points out, while the number of English courses has not. But the heart of the problem, he says, is "the fact that most people don't do much reading." The survey found, for example, that 51% of 13-year-olds—up from 39% in 1981—watched 3 to 5 hours of television a day. As NAEP director Ina Mullis says, "There's still a huge discrepancy between where we are and where we need to be."

–Constance Holden



Ups and downs. Science and math scores have come back after a dip. (Dotted lines indicate scores extrapolated from earlier NAEP surveys.)