Germany Boosts Research Funds

Bonn

The West German government has decided to increase its spending on space research by 11.8% in 1989 to a total of 1.33 billion marks ($711 million) in order to meet its commitments to new European space projects. These include the new launcher Ariane V, the mini-spaceplane Hermès, and participation in the U.S. space station, all of which were approved at a joint ministerial meeting in The Hague last November.

Heinz Riesenhuber, the West German Minister for Research and Technology, said in Bonn last week that the government was also planning to increase spending by 5.8% on health research, and by 4.5% for large-scale research institutes, such as the Fraunhofer Society, in order to guarantee funding for areas of basic research neglected by industry.

Riesenhuber says his Ministry's budget plan for 1989 reflects a continued "change in profile" away from "market-oriented" research toward the support of basic research. According to Riesenhuber, the West Germany government has decreased funding of market-oriented technologies by 50% since 1982, and nongovernment research funding has become increasingly important for scientific research over this period.

Because of the long-term nature of space projects and their importance for developing new technologies, Riesenhuber called West Germany's interest in space "sensible and necessary." Europe "has taken on the challenge of international technological competition," Riesenhuber says, and consequently one-fifth of West Germany's total research budget will soon be devoted to space research.

At the same time Riesenhuber noted that the European Space Agency—at West Germany's insistence—is preparing a new budget plan for the European Space program which is to lower the costs compared with the existing plan.

Riesenhuber notes that basic research, which makes up 38% of overall research funding of 7.6 billion marks, will increase by about 4%. Its share of total R&D funds has grown from 26% in 1982. Areas of basic research strengthened by next year's budget include biotechnology (4.2%), polar research, and the Deutches Electron Synchrotron (DESY) and the heavy ion synchrotron SIS. After increasing the budget of the Max Planck Society last year by 5%, a more modest additional increase of 3.3% is called for in next year's budget.

Overall, federal funding for research and development will only grow by 2.9%, however. This is considerably below the increase in total government spending of 4.9%, partly accounted for by a significant growth in the defense budget.

Riesenhuber says he hopes regional governments in West German states will also increase funding for research. "The high quality of German research and the attractiveness of Germany as a center of research, depends on the regional government support." Universities in West Germany depend on regional governments for their funding. ■ DON KIRK

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Math Education: A Mixed Picture

A study involving some 28,000 students in the public schools of Montgomery County, Maryland, documents in sobering detail how black and Hispanic students on average fall behind their white and Asian counterparts in mathematics. But the study provides no firm answers to the question of why the disparities occur.

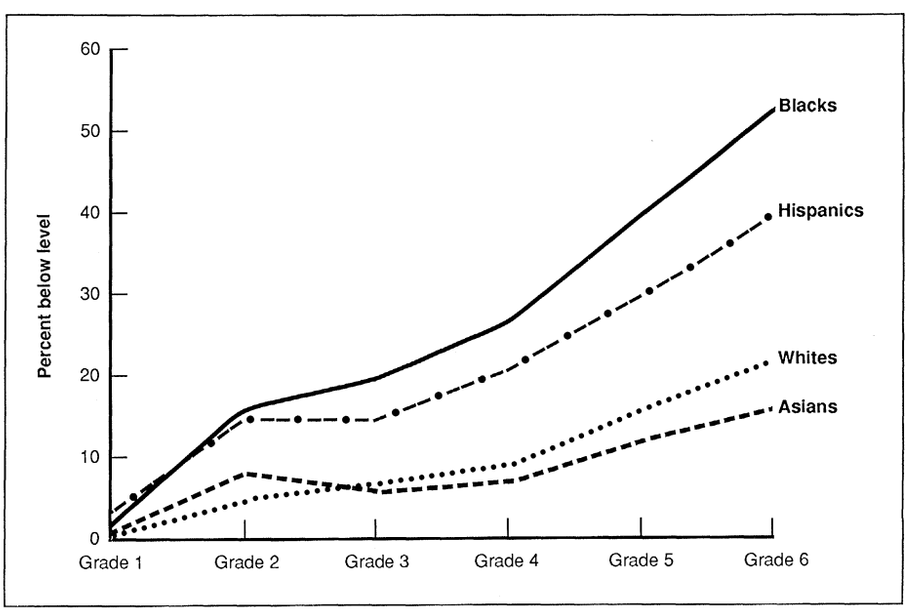
The study, which was sponsored by the National Science Foundation, also confirms findings from other surveys concerning gender differences in achievement in mathematics. Boys and girls perform equally well through the first years of high school, but in the final years, fewer girls than boys opt for more advanced mathematics courses and male students tend to score higher than females on the mathematics sections of the Scholastic Aptitude Test (SAT).

Racial and ethnic differences begin to show up as early as the first or second grade, and become more pronounced throughout the school years, the study found. By the eighth grade, almost half the black and Hispanic students in Montgomery County schools are performing below grade level. Moreover, "the evidence suggests that once a student falls below the standard level of performance in the curriculum for his/her grade level, he/she is not likely ever to catch up again."

These findings are particularly striking because Montgomery County, which is a mixed suburban and rural area bordering on Washington, D.C., is relatively affluent and puts substantial resources into education. "Montgomery County has one of the best school systems in the country, and when you find these differences there, it makes you wonder just how bad it is in other parts of the country," says William Schmidt, an NSF official who oversaw the project. Indeed, the report repeatedly notes that Montgomery County students perform above the national average in mathematics.

The study attempted to get a bearing on why students perform well or poorly by surveying the attitudes of parents, teachers, school counselors, and students themselves. What it found, not surprisingly, is that parental attitudes and encouragement have perhaps the strongest influence on a student's performance, followed closely by encouragement from teachers. A student's own liking for the subject is also an important factor in achievement.

Although the study found few differences



Falling behind. *Percentage of students in Montgomery County schools by racial/ethnic group and grade level who are working below the standard of performance for mathematics at each grade.*