



North Carolina State University
Research Administration

Office of the Vice Chancellor
for Research

November 8, 1984

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President William C. Friday
University of North Carolina
General Administration
P. O. Box 2688
Chapel Hill, North Carolina

Re: Authorization to Plan a "Center for ^{Research} Quality in
Mathematics and Science Education"

Dear President Friday:

North Carolina State University seeks to form a new research center in the Department of Mathematics and Science Education in the School of Education. The development of this program is being approached with a view towards strengthening NCSU's overall responsibilities for research and development in math and science education. In accordance with Administrative Memorandum No. 145, we are requesting authorization to plan this Center. The following statements outline features of the proposed program.

MISSION:

The mission of the Center will be to serve the teachers and children of North Carolina by carrying out programs of research, development, and continuing education oriented toward the improvement of the quality of mathematics and science education in the public schools of the State. The Center will bring together existing faculty across the University to focus on theoretical and practical problems, will serve as a training site for students enrolled in graduate programs in mathematics and science education, and will provide opportunities for classroom teachers to participate in research directly related to their classrooms. As the Center becomes established, scholars and students from other institutions may participate in its work.

GOALS:

1. To establish a group of existing faculty to participate in the research and development programs of the Center. These faculty members will be drawn from mathematics, the various sciences, psychology, education and other areas.
2. To establish cooperative relationships between the Center and various segments of the public school system.

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3. To identify and attack significant problems in mathematics and science education. Some areas that may be the focus of attention are (a) analysis of the reasons for declining achievement, (b) continued professional development of teachers, (c) curriculum analysis, (d) concept development in mathematics and science, (e) uses of new technologies, including microcomputers.

4. To develop appropriate materials based on the results of research.

5. To attract a "critical mass" of graduate students of diverse backgrounds to receive training that will allow them to provide future leadership to the State and Nation.

ORGANIZATION:

The Center would be operated by the Department of Mathematics and Science Education. The administrative officer would be a director who would report to the head of the Department of Mathematics and Science Education who, in turn, reports to the Dean of the School of Education.

NEED FOR CENTER:

Widespread dissatisfaction with the quality of mathematics and science education currently offered in the public schools indicates the need for a thoughtful sustained approach to existing problems. Identification of the most pressing problems should be followed by research to seek solutions and development of new materials and policies to correct the problems. Such a systematic and sustained effort requires a stable structure that has continuity and direction. Individual faculty members can seldom marshal the resources necessary for this kind of effort, but the Center can provide a framework for faculty cooperation and joint initiatives in research, development, and teaching. Of particular importance is the opportunity that a collective effort provides to attract support from government and industry. Of equal importance is the opportunity to attract high quality graduate students, including mathematics and science teachers who can bring their classroom experience to bear on the study of problems.

SIMILAR UNITS ELSEWHERE IN THE UNIVERSITY:

The proposed Center will be unique in the University system. The University has recently established a Network of Mathematics and Science Education Centers whose effort will be focused primarily on teacher training. Within the Network, the only Center devoted to research and development Mathematics and Science Education will be established at North Carolina State University. The Center for Quality will be an umbrella that will include the Research and Development Center, but will go beyond it in scope and function since it will have a strong graduate education focus and will offer the opportunity for individual faculty members to initiate and conduct

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research in mathematics and science education that may fall outside the parameters of the charge given to the Network.

The only research and development program in mathematics and science education in the United States to which the proposed Center could be compared is the program at the Lawrence Hall of Science at the University of California in Berkeley. The work carried out at that institution has had a significant impact on theory and practice, and we would hope to have a similar influence.

SUPPORT:

Initial support will come from the UNC Network of Mathematics and Science Education Centers. Additional support will be sought from the National Science Foundation, now very active in supporting precollege mathematics and science education, from private foundations and from industry. The Carnegie Foundation, for example, has established a new program to link university scientists with elementary and secondary schools in order to improve education and is also interested in advancing the effective use of technology in the educational process. A report prepared for the American Association for the Advancement of Science in January, 1984 lists a great number of corporations, large and small, that are now making substantial contributions to the improvement of mathematics and science education, and we would hope to tap this source of support.

We are excited about the initiative that the formation of this Center represents in the School of Education. Please let us know if additional information is needed in response to this request.

Sincerely,



Franklin D. Hart
Vice Chancellor for Research

cc: Dean C. J. Dolce
Dr. Ann C. Howe