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**AUTHOR** Phelps, Margaret S.  
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**ABSTRACT**

During 1986-87, the Tennessee Technological University Rural Education Research and Service Consortium continued to facilitate research and service activities of the College of Education faculty in selected rural schools, provide assistance to faculty desiring to engage in such research/service, and provide documentation of school improvement strategies that work in rural schools consistent with provisions of the Comprehensive Education Reform Act of 1984 and the national emphasis on effective schools and teaching. This third annual report reveals that the Consortium added 12 member and 2 associate schools to its 7 initial member schools. Primary activity focused on studies of school effectiveness, enhancement of teacher effectiveness, school improvement service projects with related research components, university faculty development, rural school advocacy, and grantsmanship. Activities enhancing teaching effectiveness included graduate courses/programs, video-taping for self-analysis, release time for professional growth, teacher workshops, and demonstration teaching. School improvement service projects of 20 faculty members are summarized. Teacher education faculty development activities described include five luncheon programs for the Community of Rural Scholars, representation at professional meetings, and involvement in public schools. Plans for grants from the Tennessee Technical University College of Education Foundation, Tennessee Arts Commission, Tennessee Valley Authority, and Appalachian Regional Commission are described.

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TENNESSEE TECHNOLOGICAL UNIVERSITY

RURAL EDUCATION RESEARCH AND SERVICE CONSORTIUM

ANNUAL REPORT

1986-87

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Margaret S. Phelps, Director  
Box 5-12, TTU  
Cookeville, TN 38505  
(615) 372-3791

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# Rural Education Research and Service Consortium

Annual Report for 1986-87

## Introduction

The Tennessee Technological University (TTU) Rural Education Project was established in 1984 to facilitate research and service activities of the TTU teacher education faculty in selected rural schools. The Rural Education Research and Service Consortium (RERSC) seeks to increase the effectiveness of these rural schools and to provide documentation of school improvement strategies that work in rural schools. This major research thrust is consistent with the provisions of the Comprehensive Education Reform Act of 1984 (CERA) and the national emphasis on effective schools and effective teaching. Rural Education is funded by TTU through the College of Education.

Initiated with seven schools (three in White County, three in Jackson County, and York Institute), the Rural Education Consortium has included twelve member schools and two associate schools during the current year. The Governance Board continues to function as a clearinghouse for project implementation, goal setting and evaluation.

## Status of Rural Education

As the Rural Education Project has evolved since its inception, its focus has sharpened into six primary areas of activity. These are Studies of School Effectiveness, Enhancement of Teacher Effectiveness, School Improvement Service Projects with Related Research Components, University Faculty Development, Rural School Advocacy, and Grantmanship. These are each described below.

### Studies of School Effectiveness

The bulk of the national school effectiveness research has been conducted in urban and/or suburban settings. Little is documented about the effectiveness of rural schools in general or southern/Appalachian rural schools in particular. The Rural Education Project began in 1984 to establish a major data base which could be used in the analysis of individual and collective rural school effectiveness in the Upper Cumberland.

Forty Rural Schools. Although first conceptualized as a study of One Hundred Rural Schools to parallel the Kappa Delta Pi Good Schools Study, computer analysis of the data being collected revealed that the trends established by data from the first ten schools were only re-emphasized by the addition of more schools. Consequently, the findings from the study of thirty-nine schools for which data were complete in early 1987 were compiled and reported by Drs. Talbert, Fletcher, and

Phelps. The research report has been well accepted in both research and rural education circles and forms the basis for the rural education school improvement agenda for the future.

The Edmonds' Paradigm. According to the Edmonds' paradigm, the national yardstick for school effectiveness studies, a school's effectiveness is determined by a comparison of percentages of children from various socio-economic groups achieving minimal mastery on standardized measures of basic skills. Using that paradigm, the rural elementary schools of the Upper Cumberland which have been studied are 80 to 92 percent effective. This is extremely high in comparison to schools in urban settings.

However, the rural poor do not differ from their more affluent peers in the same ways as do urban poor. The Rural Education Project is experimenting with other ways of looking at achievement data to determine school effectiveness. Comparisons of achievement test scores with other demographic factors such as family composition and place of residence are being conducted. Generally the findings indicate that mathematics achievement in rural schools is less related to demographics than is reading/language achievement and that rural schools are less discriminatory than urban schools.

Follow-up Studies. The indicators of schools effectiveness in each of the seven original RERSC member schools are being monitored. Each of the original measures will be repeated in 1987-88 in order to compare the progress made. Additional comparisons will be made with schools not in the project if appropriate data can be accessed.

Two school principals dis-satisfied with the results of their original school effectiveness study have conducted follow-ups to determine the results of improvement measures which they have implemented independently. These were in the areas of student achievement by socio-economic group and school climate (morale). In each case the principal was able to demonstrate the success of school improvement projects.

Additional schools continue to be added to the data base stored in the TTU Computer Center. As the data base enlarges, various other statistical studies will be conducted.

Faculty Self-studies. The study of a school by its faculty is a major mechanism for school improvement. Faculties at Lenoir City Middle School, Bowers Elementary in Harriman, Uffleman Elementary in Monterey, Monterey High School and Oak Ridge Schools are receiving assistance in self-studies.

#### Enhancement of Teacher Effectiveness

Graduate Courses/Programs for School Faculties. The engagement of a major portion of a school faculty in a graduate course addressing an identified school need is a viable school

improvement mechanism. Specialized courses in Higher Order Thinking (Smith County) and Improvement of Teaching (Sequatchie County) were provided during the Fall Quarter. A graduate cohort was formed in Monterey to serve M.A. and Ed.S. students. These teachers are moving through graduate programs together and using graduate course work to address significant issues of teaching and school improvement.

Video-taping for Self-Analysis. Each of the teachers in the Monterey cohort has been video-taped twice during this year. Each teacher in the Sequatchie County class was also video-taped. The teachers use their tapes for self-critiques and then the tapes are added to the collection in Bartoo Hall. These tapes are available to faculty and graduate students wishing to study teaching behaviors in rural settings.

Release Time for Professional Growth. Twelve teachers have taken a day from school to visit another school. In each case, The Rural Education Project either sent a faculty member to substitute or reimbursed the school for substitutes.

Teacher Workshops. The Rural Education Project in cooperation with the TVA sponsored Environmental/Energy/Science Center has provided two teacher workshops. The first was held at York Institute and attracted teachers, guidance personnel, administrators, and other university staff. Its topic was High School Courses Via Satellite. The second was a Saturday morning workshop at TTU for elementary teachers of science.

Demonstration Teaching. Several of the School Improvement Service Projects described below include a demonstration teaching component. Someone from The Rural Education Project goes into a classroom and models teaching behaviors with assistance from the classroom teacher. Teachers are able to see how the techniques work in their own classrooms with their students and supposedly can do similar teaching in the future. Demonstration teaching has been provided in art, children's literature, oral narration, and elementary science.

Pre-service Experiences. FOED 101 field trips have been made to rural schools including: York Institute, Wilson Elementary in Overton County, Dodons Branch Elementary in Jackson County, Algood School in Putnam County, and White County High School. Several student teachers and interns have been assigned to rural schools. These include one at Cassville, one at Pall Mall, one at Allardt, one at York Elementary, and three at York Institute which have been supervised through the Rural Education Project.

#### School Improvement Service Projects and Related Rural Education Research

All teacher education faculty at TTU are invited to submit proposals for funding of travel and operating expenses for school-based projects through The Rural Education Project.

Each proposal is to have both a research and a service component although the relative emphasis may vary. Proposals are reviewed and then submitted to appropriate member schools for review. No project is funded unless it is approved by the principal of the host school(s). The Dean of the College of Education grants released time to one proposal per quarter if such time is critical to the proposal. Each project has a research component and faculty are encouraged and assisted in developing the research into publication and presentation proposals. In many cases research findings are not yet available because data are collected late in the spring and analyzed the following summer or fall.

During 1986-87 the major thrust has been in the area of higher order thinking skills. The Forty Rural Schools study has demonstrated that rural teachers are primarily concerned with the acquisition of facts and that little emphasis or time is devoted to higher order thinking. Consequently The Rural Education Project has facilitated the establishment of graduate courses for teachers in higher order thinking, the purchase and field testing of commercial materials, and faculty projects which are designed to demonstrate teaching techniques appropriate for student acquisition of the desired skills and attitudes.

Akenson, Jim. A course in higher order thinking skills was taught in Smith County during the Fall Quarter in which the teachers implemented various teaching strategies in their classrooms. This course resulted in the placement of the Roe and Ross projects at Gordonsville School in Winter Quarter. Dr. Akenson continues to work with the Smith County supervisor of instruction in designing additional opportunities for those teachers.

Bailey, Sue. A survey of the self-care instructional units available for use with EMR students in the high schools of three rural counties was conducted. An analysis of the results of the survey and implications for future work with rural special education teachers is nearing completion.

Brahmstedt, Patricia. A four concert series presented by the TTU music faculty was directed at York Institute and White County Middle School. Prior instruction was provided for students who would attend so that they would have some familiarity with the instruments and music. The concerts were open to the public and some were filmed by WCTE for future broadcast. Funds were provided by the Rural Education Project and the Tennessee Arts Commission. Pre- and post-surveys of student attitudes toward music were administered. Ms. Brahmstedt is also conducting the research for the Jackson County elementary music project.

Campton, Bill. Undergraduate students enrolled in art methods courses traveled to selected elementary schools to provide art instruction in classrooms. The schools provided

the supplies; the Rural Education Project provided transportation. Informal assessments of student, teacher, and teacher education student attitudes toward the teaching of art in elementary classrooms were collected.

Coortz, Gerald. Consultative services have been provided to York Institute in their development of a horticultural greenhouse program. This is an extension of a grounds beautification program conducted during the past two years. Travel support was provided by the Rural Education Project. This project has not developed to a research stage yet.

Davidson, Phyllis and Liz Self. A project to improve home/community relationships through parental involvement is in its third year. Parent education programs are being designed using data collected in an earlier needs assessment. Travel and expense support are provided by the Rural Education Project.

Derryberry, Alice and Marvin Lamb. Music instruction was provided in each elementary school in Jackson County through a cooperative effort of Jackson County Schools, TTU Laboratory Experiences, the Rural Education Project, and the Tennessee Arts Commission. The program extended for the entire school year and concluded with public programs in two of the schools. Extensive research comparing the changes in student attitudes and music knowledge with achievement test results for students who have been in the program for three years is underway.

Fletcher, R. K.. Computer data analysis for rural education projects is accomplished under Dr. Fletcher's direction. His assistance has been invaluable.

Madison, Marion. Students at Jackson County High School and Fox Elementary School in Gainesboro have received instruction in study skills during a ten week project. Travel and supplies have been provided by the Rural Education Project. Pre- and post-assessments were administered and student achievement scores were collected. This year's project has served as a pilot for a more extensive effort with middle grade students for next year.

Massengill, Catherine. Project SPRITES, an elementary science project emphasizing a hands-on approach to teaching scientific processes through rural issues and technology, was initiated at Cassville and Central View Schools in White County. Funded by the Environmental/Energy/Science Center, the project will yield a set of science curriculum materials for use in rural schools. Standardized science inventories were administered to the students prior to and at the end of the project. Results are being analyzed.

Phelps, Margaret. High school physics instruction is being provided at York Institute via satellite transmission from Oklahoma State University. This is a demonstration

project funded by TVA through the Environmental/Energy/Science Center in cooperation with Rural Education and the York Institute Center for Rural Education. At the end of the year, students in the class at York (experimental) and students in the physics class at Jackson County High School (control) were administered the Sequential Test of Educational Progress End-of-Course Physics Test. Eleventh grade achievement test scores will be used to equalize the groups for comparison.

Dr. Phelps serves as a member of the York Institute Advisory Council and assisted in the development of and lobbying for the Center of Excellence in Rural Education funded at York by the Tennessee General Assembly in 1986. TTU and York Institute cooperate under the terms of a Letter of Agreement between the Board of Regents and the State Department of Education.

Gifted classes at Fox Elementary are using commercial higher order thinking materials provided by Rural Education and the College of Education Foundation. These materials and others have been made available to teachers in White County and York Institute for review for possible future use. Achievement test scores of the students in the class are being monitored as plans are made for the program next year.

Roe, Betty. The teaching of higher order thinking skills to primary (Grades K-2) students through the use of oral narration has been demonstrated in classrooms at Gordonsville School. The project uses classroom materials developed by Dr. Roe during an earlier Rural Education project. Each student was tested before and after instruction using a story similar to those used in the research. One class that did not receive instruction was also tested to use as a control. Results are not yet available.

Ross, Elinor and Kathy Stephens. The teaching of higher order thinking skills to intermediate (Grades 3-6) students through children's literature has been demonstrated in classrooms at Gordonsville School. Travel to the school was provided by the Rural Education Project. Each student was pre- and post-tested and a fifth grade class at Fox School in Jackson County was used as a control. Students in the experimental groups were found to make significant gains in comparison and contrast in grades four through six and in analysis of story structure in grade six. No differences were found in imagery.

Simrell, Patti and Micki Akenson. A twenty-week movement education program for all children in grades K-2 was provided at Allardt School through a cooperative project of the school, Rural Education, and the Tennessee Arts Commission. Free after-school ballet classes were available for all students who could arrange transportation and purchase shoes. An eleven-item attitude inventory was administered to the students at the end of the project but has not yet been analyzed.



Smith, Harry. A prototype elementary science storage/demonstration cart was built and demonstrated to a group of elementary teachers of science. Materials were purchased through the Environmental/Energy/Science Education Center. Studies will be made of the use of the cart once it is placed in a school.

Talbert, Gene. The Forty Rural Schools project has been directed by Dr. Talbert. He serves informally as associate director to the Rural Education Project. Many of the projects in progress were initiated by him.

### Teacher Education Faculty Development

Rural Education has assisted faculty in the development, implementation and evaluation of research/service proposals, travel to professional meetings directly related to rural education, and regularly scheduled Rural Scholars Meetings.

Community of Rural Scholars. This dutch treat luncheon group meets two or three times a quarter to share ideas informally, to have an update on Rural Education happenings, and to hear a presentation related to rural education. Jim Akenson chairs the group while Liz Self is secretary and Elinor Ross is program chair.

October 23, 1986--Jim Akenson described the National Rural Education Conference which he attended in Little Rock.

November 26, 1986--Phyllis Davidson shared the findings of a research study into the fears of middle grade children in rural schools and discussed the implications of the findings for educators.

January 16, 1987--Patricia Brahmstedt presented findings of her research into the effects of music education on the cognitive and affective growth of rural elementary students.

February 27, 1987--Margaret Phelps discussed the implementation and research findings from a mediated peer coaching project sponsored by Rural Education in 1985-86.

April 6, 1987--Steve Coble and Brenda Green shared information regarding the TTU Upward Bound Project and its activities with students from rural secondary schools.

May 14, 1987--Gene Talbert reviewed the Forty Rural Schools study and discussed implications for University/school projects for rural school improvement.

Professional Meetings. The TTU Rural Education Project was represented at the National Rural Education Association in Little Rock, AK by Jim Akenson; Southern Rural Education Association in Charleston, SC by Harvey Neufeldt and Margaret

Phelps; and American Educational Research Association Rural Education Special Interest Group by Gene Talbert.

Release Time. One faculty member received release time from the College of Education to conduct research/service projects. Betty Roe used her time to conduct a study of the impact of oral narration in primary classrooms on the acquisition of higher order thinking skills.

Faculty Involvement in Public Schools. Five faculty members served as substitute teachers in rural schools to enable teachers to visit other schools. These were Jim Akenson, Doran Christenson, Harvey Neufeldt, Danny Higdon, and Joe Sharpe. Each of the research/service projects involved extensive time spent in meaningful interaction with rural teachers and/or students. The rural music performance program placed the brass quintet, three soloists and an accompanist/narrator in each of two rural schools.

### Rural School Advocacy

The TTU Rural Education Project is gaining regional and national visibility as a source of expertise in rural education.

National Rural and Small Schools Consortium. The TTU project joined the national consortium during this academic year. As a result, the TTU director is now on the editorial review board for the Journal of Rural and Small Schools and serves as a judge for the Exemplary Awards Program.

Rural School Advocacy Committee. Larry Peach directs and John Fox of Jackson County chairs a regional committee of rural school administrators which reviews state policy proposals and provides input into state decision-making bodies regarding the characteristics and needs of rural schools. Annually this committee provides input to the State Board of Education as it formulates its Master Plan. During the spring of 1987, TTU was invited to address the State Board of Education Advisory Committee on Teacher Education regarding the impact of the Nine Principles on rural schools. The director spoke at the public hearing in Chattanooga and the Advocacy Committee provided written information to the Advisory Committee.

Rural Knowledge Bowl. For the past two years Rural Education has sponsored the Rural Knowledge Bowl for high schools in the TTU service area. The competition is co-sponsored by the TTU College of Education Foundation and the Communicating for Agriculture Foundation in Minnesota. This year four schools (250 students) participated in Round One and three schools each brought three contestants to the regional finals. A luncheon for finalists and their sponsors was held in the Executive Dining Room. Winners from Sunbright and York Institute received cash prizes.

Appalachian Educational Laboratory. During the spring of 1987 the TTU Rural Education Director was invited to serve on a panel of five experts to review the AEL proposal for federal rural education funds.

Other. The TTU project is one of 150 programs selected to be described in the National Directory of School/College Partnerships, which is published by the American Association for Higher Education and a condensed version of the Directory which is being published by the National Association of Secondary School Principals.

The TTU Rural Education Project was invited to be presented at the conference on Programs and Activities to Overcome Barriers to Rural Adult Participation in Postsecondary Education at Virginia Tech.

### Grantsmanship

The tasks to be done in rural education in the Upper Cumberland exceed the resources currently available through the University. The seeking of outside funds is emerging as a major emphasis.

TTU College of Education Foundation. The Foundation has provided approximately \$1000 in support of the Rural Education Project during the current year. These funds have been used primarily to purchase higher order thinking instructional materials to use in schools and to co-sponsor the Rural Knowledge Bowl. These funds will not be available next year.

Tennessee Arts Commission. Two grants were funded by TAC for the 1986-87 academic year. One supported the concert series at York Institute and White County Middle School and was coordinated by Patricia Brahmstedt. The other helped support the Elementary School Music Program in three schools in Jackson County and the Movement Education and Ballet Program at Allardt School in Fentress County. Each grant has been re-submitted for 1987-88.

Tennessee Valley Authority. The TVA funded Environmental/Energy/Science Center was placed with the Rural Education Director in September of 1986. This has allowed the use of TVA funds to do rural education projects consistent with the mission of the Center. The Physics by Satellite project at York Institute was a supplemental TVA contract through the Center. Two supplemental contracts for 1987-88 are being proposed.

Appalachian Regional Commission. A \$20,000 grant was acquired by Jackson County to implement a drop-out prevention program at Fox Elementary. The proposal, written by the Fox principal and the Rural Education Project Director, includes TTU faculty time as a major source of the required matching

funds. Marion Madison, Margaret Phelps and several persons from the Department of Music and Art will be providing services to the project.

Consortium of Higher Education Rural Education Project Directors. Drs. Talbert and Phelps are members of this group which meets twice a year to compare perspectives and collaborate on various projects. Tennessee will host the meeting of the group this summer in Nashville.

Southern Rural Education Association. The TTU Rural Education Project was represented at the organizational meeting of this group which was formed in 1985. Dr. Phelps was recently elected as program chair for the 1989 SREA Annual Conference which will be held in Nashville.

### Weaknesses, Concerns, and/or Problems

The task at hand exceeds the available resources of time, personnel and money. The limitation of research/service projects to a few schools creates jealousy within the region, but is necessary if the project is to demonstrate that University intervention can increase rural school effectiveness. The faculty commitment to the project is exceptional particularly when one considers that the only support provided is for travel and supplies. However, they cannot increase their current load without negative impact on other responsibilities.

Communication with the various publics is the most critical task at present. This communication has to be one-to-one with school people and university faculty to prevent misunderstandings and to ensure that projects implemented in schools are an asset rather than an imposition. The Rural Education Project Director needs to spend more time in the schools but is caught with other University responsibilities and the time demands of seeking additional funds.

### Faculty

Descriptions of faculty activities are included in the other sections of this report. The Director's activities are included in the Annual Report of the Department of Curriculum and Instruction.

## Research and Publications

### Long Range Plans

The Rural Education Project will continue to work toward its original goals of rural school improvement, research, faculty development and rural school advocacy. It is envisioned that the thrust will shift gradually from year to

year as various milestones are reached and as new avenues of endeavor are opened. In particular higher order thinking skills which has been a focal point in 1986-87 will be subsumed into a broad thrust into literacy enhancement through rural schools.

Literacy Enhancement The preponderance of evidence collected thus far through both formal and informal means indicate that the potential for school improvement in rural communities is limited by the educational aspirations of the students, parents, and community leaders for rural youth. The low aspirations result in high drop-out levels, little parent involvement in schools, limited financial support for schools and a defeatist attitude toward setting and attaining goals.

Consequently, the TTU Rural Education Project is attempting to initiate a major thrust in Literacy Enhancement Through Rural Schools. We propose to work with rural schools in the Upper Cumberland in the establishment of community education, drop-out prevention, and parent/community involvement programs which will impact the literacy level of students and parents. The approach is broad based and goes beyond the adult basic education and basic literacy programs now in place.

On May 15, a meeting was held in the TTU President's Conference Room to bring together representatives of TTU, area schools, THEC, State Board of Education, TVA, and local literacy leaders to discuss possible courses of action. The response was most encouraging. Congressman Jim Cooper attended and is making contacts on behalf of the project.

Subsequent to the meeting, a campus group has formed and is at work on a two dimensional model of University/School literacy partnerships. One dimension is theoretical; faculty with expertise and interests in anthropology, philosophy, sociology, etc. will develop a theoretical basis for cooperative rural literacy programs. At the operational level, the Rural Education Project will work with schools in identification of successful literacy projects within the three defined areas, program design, linkages among agencies, funding, implementation, evaluation, and dissemination. Possible sites and funding sources are being explored.

Consortium Membership. As projects prove successful in the original member schools, they will gradually be transplanted into other schools. Gordonsville School has been used this way during the current year and wishes to do so in the future. When a project needs to be initiated on a pilot basis in a carefully controlled situation, non-member schools may be used. Crossville Elementary has been used this way in the past and has offered to pilot another project next year. Allardt School wishes to continue the movement education program if funding is available.

Doyle School in White County is asked to join the Consortium and will do so under the aegis of White County Schools. Two schools (West and East) in White County are being consolidated to form Woodland Park Elementary which will become a member school. Overton County and Clay County have expressed interest in involvement and a single project may be tried in each of those school systems next year.

The Rural Education Project is willing to work with any rural school on specified projects within the limitations of time, distance and cost. Distance may be the major limiting factor.

Identification and Recognition of Exemplary Rural Programs. A structured program of identifying, recognizing and rewarding existing programs in rural schools of the Upper Cumberland will be initiated during 1987-88. The process is now being formulated with notification of schools scheduled for September 1987.

Studies of Rural School Effectiveness. The data base on rural schools will be enlarged and made available to additional schools for needs assessment purposes. The research potential is difficult to comprehend as is the potential for school improvement initiatives.