STUDENT TEACHING EXPERIENTIAL PARTNERS

NETWORK:  EFFECTS OF PARTICIPATION

ON HOME ECONOMICS STUDENT

TEACHERS

By

VELMA MCGUFFEE BUTLER
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Bachelor of Science
Northeast Louisiana University
Monroe, Louisiana
1971

Master of Education
Northeast Louisiana University
Monroe, Louisiana
1986

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Graduate College of the
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Thesis Approved:

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Thesis Adviser

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_____

_____

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_____
Dean of the Graduate College

## ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

The experience of student teaching serves a transitional

function.  In the present atmosphere of reform in teacher education,

student teaching can be identified as a transition which takes place

in an age of transition (A Nation Prepared, 1986; Holmes Group, 1986).

Americans are demanding an "education renaissance", and teachers are

the key to achieving this renaissance (A Nation Prepared, 1986, p.2).

Ideally, a college student enters the student teaching experience and

a teacher emerges.  The student teaching experience is often cited as

being the most important aspect of professional training, however

studies have shown that at times this experience promotes the

development of undesirable attitudes (Austin-Martin, 1979; Dispoto,

1980; Willbur & Gooding, 1977).

Need

Various forces act upon the student to facilitate the

metamorphosis of student to teacher.  The student teacher is first the

product of an undergraduate education.  He or she has had the

prerequisite experiences to prepare for the transition - the

professional courses, preprofessional experiences, and the subject

matter background.  Within the crucible of the classroom, this

professional preparation combines with the influence of the

cooperating teacher, the college supervisor, and the pupils to bring

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about the transformation from student to teacher. This is a critical

time for the aspiring teacher, a time when effective teaching

qualities are nurtured or a time when defensive mechanisms come into

play. Will these weeks of student teaching set the tone for a

lifetime of effective teaching, convince the student that the wrong

profession has been chosen or initiate patterns of behavior which

contribute to ineffective teaching?

The problem to be considered is what factors contribute to a

successful student teaching experience? How can the potential of a

prospective teacher be maximized?

> Much is at stake, for American students' performance will
> not improve much if the quality of teaching is not much
> improved. And teaching will not improve much without
> dramatic improvements in teacher education  (Holmes Group,
> p.1, 1986).

It is a well-acknowledged fact that a student does not

automatically become a teacher by earning a diploma, completing

student teaching or by passing a test. The process of becoming a

teacher is rather a complex series of developmental steps which extend

over a period of years and ideally over an entire teaching career

(Witherell & Erickson, 1978). The effective teacher is constantly

experimenting to improve teaching techniques and enrolling in courses

and other continuing education experiences. In order for the student

to become a teacher and for the experienced teacher to continue to

develop, four factors need to be present. They are autonomy,

collaboration  ("A Nation Prepared", 1986; Wildman and Niles, 1987),

time (Wildman & Niles, 1987), and information (Decker & Krajewsky,

1985).

The presence or absence of autonomy for the teacher is largely

related to the administrative style of the institution. In recent
years with increasing pressure on the educational system for reform,
many teachers have lost autonomy because their administration feels
that the key to teacher improvement is increased restriction on the
teacher (Wildman & Niles, 1987). This action has resulted in the loss
of many intelligent and motivated teachers who cannot endure the
frustration of a restrictive environment and who move on to other
professions (Sykes, 1983).

The student teaching program in home economics at Oklahoma State
University provides a measure of autonomy for its student teachers by
assigning them to separate schools which are widely spaced
geographically. In most cases, the student teachers are encouraged to
live in the community in which they do their student teaching.
Student teaching centers are located in urban, suburban, and rural
areas.

In rural areas especially, the home economics teacher is often
isolated from others in her profession. This condition makes it
difficult for the teacher to collaborate with her colleagues (Baugher
and Kellett, 1983). In the case of the student teacher, the
cooperating teacher is there daily to provide encouragement and
advice, but the university personnel, those with whom the student
teacher has developed a working relationship, are separated from the
student except for three visits to the student teaching center by the
university supervisor. The student's peer group, a source of support
and collaboration, has also dissolved. The student has to form new
relationships in addition to gaining the complex knowledge necessary
to become a teacher. Many teacher education programs attempt to

extend the support of peers and the university throughout the student teaching experience through seminars, letters, or telephone calls (Dispoto, 1980; Waytt, 1984). There is need to provide the means for student teachers to collaborate with their peers and the university faculty.

Skinner (1968) has emphasized the importance of positive reinforcement in the learning process. Brandt (1972, p. 59) has stated that "the more frequently and extensively a given behavior is reinforced positively, the more it tends to recur, even to the point where it generalizes to situations other than those in which it was first learned." By definition, the student teacher is learning to be a teacher. There is a need to provide positive reinforcement during the student teaching experience.

Home economics student teachers at Oklahoma State University are placed at schools which are separated from each other and from the university. This practice means that the college supervisor spends a great deal of time in travel. Kirman and Golberg (1979) and Smith (1969) have demonstrated the effectiveness of telephone conferencing as a supervision tool. Communication technology has provided educators with the ability to be in daily contact, to provide support when it is necessary, to guide the learning process, and to maintain the reinforcing qualities of the peer group which have developed through years of undergraduate study. This communication technology provides positive reinforcement for the student teacher and is proposed to be more effective and manageable than telephone conferencing or face to face supervision.

Witherell and Erickson (1978, p. 237) stated that

> Along with skills and practice, teachers need the
> opportunity to share and discuss that they learn -
> colleagueship. Teaching can no longer afford to be a
> function of an isolated individual professional, but
> rather has to take place within a cooperative team network
> where people talk to one another and learn from one
> another.

Chapman and Lowther (1982) find that many teachers experience a type

of psychological isolation from other adults which can be overcome

through development of support systems. This feeling of isolation is

often cited as a contributing factor to teacher burnout and to the

loss of teachers from the profession (Varah, Theune, & Parker, 1986).

Joyce (Brandt, 1987) in his work with peer coaching, has found that

teachers benefit from interaction with their peers.

The third factor needed for teacher development is time.

Efficient use of technology can results in savings of time. Teachers

spend between 10 percent and 50 percent of their time on non-

instructional duties (Holmes Group, 1986). Computers and other modern

technology are used to perform routine tasks as well as providing a

convenient, efficient method of communication. Successful use of

technology depends, however, on an initial investment of time and

money. There is a need to utilize available technology to free the

teacher for those tasks for which he/she is best suited (Skinner,

1968).

The fourth factor needed for teacher development is information.

With the advent of modern communication technology, society is

experiencing an explosion of information (Naisbitt, 1984).

Information is the dominant resource in the United States today

(Cleveland, 1986). Scientific and technical information doubles every

5.5 years (Naisbitt, 1984). Teachers deal with information. Some

means need to be provided for teachers to keep abreast of the latest information in their fields.

Modern communication technology provides the answer for rapid transfer of knowledge as well as interaction between professionals; yet, there has been no widespread application of telecommunications to train or assist teachers (Stowitschek, Mangus, & Rule, 1986). There is a need to utili_e available technology for improvement of instruction and development of peer alliances in schools (Baugher & Kellett, 1983; Nytes & Musegades, 1985).

Home economics student teachers need opportunities to interact with their peers and develop autonomy as well as sufficient time and information for professional development. College supervisors of student teachers need to use the most efficient and effective methods of supervision which make optimum use of their time and expertise, and provide maximum support and guidance for the student teacher.

Naisbitt (1982) predicts that networking is a trend of the future. Networking provides for interaction between professionals with similar interests who are in similar stages of career progress. This relationship is called a peer alliance by Baugher and Kellett (1983). This type of alliance provides mutual support for the members of the network and a readily available source of timely information. There are many types of networks, but according to Valee (1982) the best kind is a computer network.

A computer network provides for interaction between any two or more persons who have the necessary computer equipment and a telephone. It "permits interactive communication between a number of people who are not in the same place at the same time" (Stowitschek,

Mangus, & Rule, 1983, p. 28). Computer networks are also be used to transmit data such as lesson plans. Harasim and Johnson (1986) state that computer conferencing and networks have tremendous potential for education, but emphasize that "answers can only be obtained through the actual experience gained from designing, implementing, and evaluating activity in practice" (p. xi).

> Since the areas of computer conferencing and networks are very new, little is known about their innovative educational applications. Furthermore, much of the research literature which is available concentrates on business or scientific communities or is primarily anecdotal. There is a dreath of empirical evidence upon which to base definitive conclusions (Harasim & Johnson, 1986, p. viii).

This study focuses on the development of a team consisting of home economics student teachers, cooperating teachers, university supervisors, and a university coordinator. This team is to be formed for the purpose of providing opportunities for student teachers to communicate through a computer network with each other and with the university supervisors during the student teaching experience. Specific goals of the network are as follow.

1. To provide an opportunity for student teachers at separate geographical locations to interact by sharing teaching ideas, experiences, and concerns.

2. To provide a forum for discussion of topics of concern to student teachers such as discipline, lesson plan preparation, student motivation, and time management.

3. To facilitate peer group support from individuals in similar situations.

4.  To allow for continuous interaction with and support from the university supervisors and coordinator.

5.  To facilitate the transfer of written material such as lesson plans.

The name of this team is Student Teachers Experiential Partners (STEP) Network.

## Purpose and Objectives

The purpose of this study is to evaluate the effectiveness of the STEP Network as defined by the goals of that network and to assess the effect of participation in computer networking on the attitudes and the professional development of home economics student teachers. The specific objectives of the study are as follow.

1. To assess if participation in the STEP Network affects attitudes toward faith in people on the part of student teachers.

2. To assess if participation in the STEP Network affects self-esteem of the participating student teachers.

3.  To assess if participation in the STEP Network affects the degree of dogmatism of the participating student teachers.

4.  To assess if participation in the STEP Network affects attitudes toward education of the participating student teachers.

5.  To assess if participation in the STEP Network affects attitudes toward teaching as a career of the participating student teachers.

## Hypothesis

The following null hypothesis are formulated for this study.

$H_1$: There is no significant difference in the attitude toward faith in people of student teachers who participated in the STEP Network and student teachers and methods students who did not participate in the STEP Network.

$H_2$: There is no significant difference in the self-esteem ofstudent teachers who participated in the STEP Network and student teachers and methods students who did not participate in the step network.

$H_3$: There is no significant difference in the degree of dogmatism of student teachers who participated in the STEP network and student teachers and methods students who did not participate in the STEP Network.

$H_4$: There is no significant difference in the attitudes toward education of student teachers who participated in the STEP Network and of student teachers and methods students who did not participate in the STEP Network.

$H_5$: There is no significant difference in the attitudes toward teaching as a career of student teachers who participated in the STEP Network and student teachers and methods students who did not participate in the STEP Network.

## Assumptions

The following assumptions are made for this study.

1. Supervision is a service for teachers that has improvement of instruction as one of its major goals (Neagly & Evans, 1980).

2. Four factors which need to be present for teacher development are autonomy, collaboration. ("A Nation Prepared", 1986;

Wildman & Niles, 1987), time (Wildman & Niles, 1987), and information (Decker & Krajewsky, 1985).

3. "Behavior tends to recur if it is reinforced and tends not to recur if it is not reinforced" (Brandt, 1972, p. 58).

4. The student teachers participating in the study are committed to the process of becoming effective teachers.

## Limitations

The information used in the analysis of this study is limited because of the small size of the sample. Only student teachers who have some basic computer knowledge can be used as subjects in the experimental group. The subjects must voluntarily agree to participate. There is a possibility of bias due to the reactive effects of the experimental arrangements. Because of the nature of the experiment, the subjects know they are involved in a experiment. The study is also limited in generalizability due to the use of non-equivalent control groups.

The researcher is to act as both program planner and program evaluator because of the nature of the program. This creates a conflict in roles as they relate to the classic organization of the Discrepancy Evaluation Model (DEM) (Provus, 1971).

## Definition of Terms

The following terms are defined as they are used in this study.

Attitudes are learned predispositions to respond to an object or a class of objects in a favorable way (Fishbein, 1967).

Computer Conferencing is defined as the use of computers and software to link people across time and space for communications and sharing of resources (Harasim & Johnson, 1986).

Computer Network is defined as a communications system which uses computers to transmit data over the public telephone lines.

Electronic Bulletin Board is similar to electronic mail, but instead of private communication, messages can be read by all users (Harasim & Johnson, 1986).

Electronic Mail is the use of computers and specialized software for the exchange of individual or group-specified communications. Messages are sent by one person and only specified recipients can read them (Harasim & Johnson, 1986).

Effectiveness in a program is determined by "the extent that it accomplishes its stated goals" (Baugher, 1981, p. 5).

Evaluation is "the collection and use of information to make decisions about an educational program. Its chief aim is to ascertain what effects the course has - that is what changes it produces in pupils" (Cronback, 1986,p. 103). Evaluation is a means of understanding a program and improving it (Tyler, 1986).

Input evaluation "is aimed at helping management make sure these resources are available when necessary" (Steinmetz, 1986, p. 93).

A log is a continuous record of performance which is kept over a period of time (Cross, 1973).

Offline is a situation in which a computer is not connected with another computer through the telephone lines. Although the equipment for that connection is installed, it is not operating.

Online is a situation in which a computer is connected with

another computer through the telephone lines and is able to receive and transmit information.

Outcome evaluation "refers to determining the extent to which planned outcomes are achieved" (Steinmetz, 1986,p. 93).

Peer alliance is a relationship between two or more persons in similar stages of career progress who provide mutual support (Baugher & Kellett, 1983).

Process evaluation "involves determining whether they are of the quality expected. Because of the complex interaction between standards and action, thorough process evaluation overlaps with action research" (Steinmetz, 1986, p. 93).

Program is "anything you try because you think it will have an effect" (Morris & Fitz-Gibbon, 1978, p. 6).

CHAPTER II

REVIEW OF LITERATURE

The review of literature was divided into three major sections.
The first section considered network applications in education.  The
types of networks, computer network systems in education, computer
networking as a tool for professional development, and factors in the
acceptance of computer networks were components of this section.  There
was little research in this field due to the innovative nature of this
technology.

The second section of the review of literature was concerned with
teacher education.  Reform in teacher education, the student teaching
experience, effects of student teaching on attitudes, and collegiality
were addressed in this section.

The third section dealt with program evaluation.  The Discrepancy
Evaluation Model (DEM) was described.

## Network Applications in Education

According to Naisbitt (1984, p. 24), "the failure of hierarchies
to solve society's problems forced people to talk to one another and
that was the beginning of networks". Networking was found by Vallee
(1982) to be a means of controlling the explosion in technology and
information in the modern world.

## Types of Networks

Vallee (1982, p.5) called networks "the gateways to other minds, windows to unsuspected vistas, bridges across loneliness and (the key) to precious understanding". Networks were simply people talking to one another, sharing with one another, and striving to understand one another (Naisbitt, 1984).

Greenan (1984) reported on various types of networks and their perceived usefulness to vocational and special education teachers and their administrators. Conferences, newsletters, and computer linkages were identified as types of networks used by the subjects. Vallee (1982) also identified CB radios and mimeographed sheets of addresses and names as networks.

## Computer Network Systems in Education

Bloom and Rabinowitz (1985) used a computer network called the Electronic Information Exchange System (EIES) with secondary science teachers. The purposes of this study were:

1. To determine if secondary science teachers would use an electronic communications system to discuss instructional and curriculum issues;

2. To identify how secondary science teachers used the electronic communications system; and

3. To measure the effect of an electronic communications system on classroom instruction.

The AgriData network was used successfully by rural agricultural teachers in Wyoming. After six months, the users of this network reported a "new enthusiasm in vocational agriculture classes" (Reynolds, 1986, p. 3). An immediate result of the network was increased interest in the agricultural programs by adults in the community resulting in expansion of adult class offerings utilizing the information and lesson plans available from the network (Reynolds, 1986).

Marynet and the Maryland Educational Microcomputer Network (MEMN) provided opportunities for exchange of information between persons interested in curriculum applications of microcomputer technology (Heidelbach, 1984). A variety of people used the network to exchange information informally. Although several networkers were responsible for the organization and administration, the members determined the amount and type of information exchanged (Heidelbach, 1984).

Research with Marynet took the form of inductive content analysis of the communications and path tracing of communications to determine effect upon curriculum. Teachers were found to have made effective use of computer networking technology (Heidelbach, 1984).

Computer Networking as a Tool
For Professional Development

Rogers (1988, p.2) called telecommunications "a tool in search of a task". He felt that teachers were slow to use telecommunications technology because of its unfamiliarity and restricted access to

telephones in the classroom. Heidelbach (1984), in her investigation of
Marynet, found that although telecommunications activity was just
beginning, teachers were making profitable use of it. A possibility of
application to professional development was identified.

> Because of the roles they assume and the settings in which
> they work, teachers are in many ways isolated from a great
> deal of the information that they need in order to make
> judgments as they implement a new technology in their
> classrooms (Heidelbach, 1984, p. 4).

Advantages of the computer network over traditional inservice
education were that the users chatted about a topic of their choice, at
a time of their choice, with a person of their choice, and stored
information for retrieval at a later time, if desired (Heidelbach,
1984). Bloom and Rabinowitz (1985) also found the computer network to
be an effective professional development tool for those teachers who
were willing to use it.

Teachers in Bloom and Rabinowitz's (1985) study reported a
positive impact of network application on individual classroom teaching
performance. Teachers used the "private message" system first and were
slow to initiate conferences with multiple participants. Thirty to 45
days experience with the system, coupled with face to face meetings,
were required before success with conferences was experienced. All
teachers participating indicated that the opportunity to interact with
peers had a positive impact on their individual professional
development. A problem encountered in this project was, however, lack
of use of the system by some participants. Rogers, (1988, p. 2) also
stated that "telecommunications is a tool for communication. It can

effectively communicate ideas and information between and among teachers, students, classes, and schools in productive, instructionally useful ways".

Use of computer networks by home economics professionals to communicate with their peers required a change in thinking for some teachers. Benson (1984) stated

> We as educators must think beyond the edge of our desks, the confines of our office walls, the parameters of our programs, and the boundaries of our school districts and states. We must broaden our perspective because telecommunications epitomizes technological transcendence beyond those educational superficial limitations (p. 76).

This new outlook was difficult for some to accept, insulated as they were in their individual classrooms, but it provided opportunities for development within the profession which had no equal in recent history.

Harasim and Johnson (1986) investigated existing knowledge of computer use. They found that this technology had potential for professional development of teachers and that it was feasible to implement in Ontario (Harasim and Johnson, 1986). They stated that "recent technological advances in the area of computer networks offer innovative potential for applications of computer-mediated communication to the field of education" (p. vii).

Meeks (1987, p. 67) identified three effects of computer technology. They were the planned technical effects which justify the initial expense, transient effects such as organizational changes, and unintended effects in social exchange. According to Meeks, "it is important to recognize that computers need not be isolating in the way that is often feared. They offer considerable potential to enhance human communications at all stages of human development".

Fact^rs in the Acceptance of

Computer Networks

The nature of schools themselves affected the acceptance of computer networks (Benson, 1984; Heidelbach, 1984). Schools tended to be "tradition bound" and slow to change (Benson, 1984). Guba (cited in Benson, 1984) indicated that a quality educational innovation required 30 years before it was accepted (cited in Benson, 1984). Bloom and Rabinowitz (1985) found that the less experienced teachers were more willing to participate in computer networks and thus expressed a more positive attitude toward the process. These teachers probably were not as "set in their ways" as more experienced teachers making it easier for them to accept a new technology. Administrators were also more accepting of computer networking than teachers in Greenan's (1984) study. Heidelbach (1984) found that the individuals who used Marynet were "highly motivated, future oriented persons" (p. 12).

The expense of equipment needed for telecommunications was also a factor in its acceptance by schools. The Report of the Task Force on Teaching as a Profession stated that

Americans care more about providing adequate support staff and services to those who design the appliances we use, make television programs for our evening entertainment and engineer our roads than to those who educate our children (A Nation Prepared, 1986, p. 41).

Adequate inservice training was a factor in the success of the networks (Bloom & Rabinowitz, 1985; Heidelbach, 1984; Reynolds, 1986). Reynolds (1986) asserted that the success of AgriData was due to the "close contact maintained by the project staff and the intensive, individualized inservice provided" (p. 4). The most often stated

criticism of the Electronic Information Exchange System (EIES) was insufficient inservice training (Bloom & Rabinowitz, 1985). Harasim and Johnson (1986) found that some software was difficult to use and had poor documentation which resulted in limited use of the technology.

An additional factor in degree of use of the networks was computer accessibility. Heidelbach (1984) found that much of the activity originated in the homes of teachers and students. Those who had computers available at home had more opportunities to use and to experiment with the network.

## Distance Supervision Using
## a Computer Network

No related literature specifically dealing with distance supervision of student teachers utilizing a computer network was available. Some research dealing with related techniques was found.

Telephone conferencing was used by Golberg and Kirman (1979) and Smith (1969). Smith (1969) used a pretest-posttest control group design with three groups of student teachers, two experimental and one control. Golberg and Kirman (1979) used a posttest only design with two groups of student teachers.

Golberg and Kirman (1979) and Smith (1969) concluded that distance supervision was feasible. Results indicated that it was equally effective and in some cases more effective than face-to-face supervision.

Harasim and Johnson (1986) conducted interviews with key informants to determine the feasibility of using computer conferencing

in Quebec schools. They identified many possible applications of computer conferencing. Among these applications were delivery of distance education, support of collegial interaction, facilitation of the change process, and improved efficiency of supervisor's use of time.

## Teacher Education

The education of teachers was found to be critical to the educational system.

> The entire formal and informal curriculum of the school is filtered through the minds and hearts of classroom teachers, making the quality of school learning dependent on the quality of teachers (Holmes Group, 1986, p. 23).

A Nation Prepared: Teachers For the 21st Century (1986) urged educators to rebuild the educational system rather than repair it. Rigorous teacher preparation was identified by Galen and Kardon (1986) as a component in improvement of teacher training models. They further advised that teacher preparation include more on site synthesis of research, theory, and practice. Skinner (1968) stated that "no enterprise can improve itself to the fullest without examining its basic processes" (p. 35).

In "Tomorrow's Teachers: A Report of the Holmes Group" (1986), the following goals for the reform of teacher education were stated.

1. To make the education of teachers intellectually more solid.

2. To recognize differences in teacher's knowledge, skill, and commitment in their education, certification, and work.

3. To create standards of entry to the profession - examinations and educational requirements - that are professionally relevant and intellectually defensible.

4. To connect teacher education institutions of schools.

5. To make schools better places for teachers to work and to learn.

A Nation Prepared: Teachers For the 21st Century (1986) challenged higher education leaders to "seize the initiative and play their part in strengthening schools" (p. 75). They further urged researchers to develop a solid foundation of knowledge and research. This foundation was the basis for the framework that teacher educators used to "develop the kinds of teachers the nation needs" (p.73).

## The Student Teaching Experience

In 1904, Dewey stated that "adequate professional instruction of teachers is not exclusively theoretical, but involves a certain amount of practical work" (p.9). Eighty-two years later, the student teaching experience and the first year of teaching were identified as major contributors to a successful teaching career by the Holmes Group (1986). The Holmes Report (Holmes Group, 1986) stated that the student teaching experience should build upon the principles and theories which were emphasized in university study. Student teaching should provide an opportunity for those theories and principles to be converted into practice by the student teacher with guidance from the university. Callahan (1980) found that

> the student teaching experience is a highly influential aspect of a teacher training program and as such serves a valuable role in crystallizing teacher candidate attitudes toward the role and characteristics of the effective teacher, their personal effectiveness as a teacher, and the respective worth of the training received in their educational program (p.175).

Because of its importance to the development of teachers, the student teaching experience was found to present some of the most serious problems with teacher education (Holmes Group, 1986). It was also found to provide an excellent opportunity to integrate professional practice, pedagogical knowledge, and research in the education of teachers (Holmes Group, 1986).

## Effect of Student Teaching on Attitudes

The student teaching experience was found to change attitudes of student teachers toward themselves, their students, and the teaching profession. Negative changes identified were as follow.

1. Student teachers became less favorable toward students (Dispoto, 1980).

2. Student teachers became more dogmatic, controlling, and authoritarian (Austin-Martin, 1979; Dispoto, 1980; Willbur & Gooding, 1977).

3. Student teachers became less self-revealing (Willbur & Gooding, 1977).

4. Student teachers exhibited an increase in conventional morality and a decrease in principled morality.

Hickner (1977) found that students could be guided toward more positive attitudes. Callahan (1980) observed positive shifts in the attributes of friendliness, poise, firm control, and democratic procedure.

Collegiality and Collabor..ion

in Teacher Education

Many successful teacher education programs were based on a team

approach (Joyce & Showers, 1982; Marwood, McCullen, & Murray, 1986;

Wildman & Niles, 1987).  Zaharian and Frew (1987) found that

> much of the learning that takes place during the induction
> phase of a teacher's career results from sustained
> interaction with cohorts and more experienced teachers.
> They need to know that assistance is readily available if
> they encounter problems or unexpected difficulties (p. 51).

For over 20 years, teachers taught other teachers a classroom

management approach called "Learnball" (Marwood, McCullen, & Murray,

1986).  Joyce and Showers (1982) successfully used the concept of peer

coaching for staff development.  "Teachers' lack of interpersonal

support and close contact with other teachers is a tragedy" (Joyce &

Showers, 1982, p. 7).  Peer coaching used practice, observation, and

peer support (Brandt, 1987).

Wildman and Niles (1987) found that teacher collaboration provided

emotional support and encouragement, a source of intellectual

provocation and new ideas, and a forum to test new ideas.  The National

Networking conference (1985) recommended expansion of resource networks

so teachers shared successes and lessons learned.  The report of the

Task Force on Teaching as a Profession ("A Nation Prepared," 1986) found

that while an atmosphere of cooperation and mutual interchange was

desirable, it was not the common atmosphere in public schools.

The student teaching experience was also found to benefit from a

team approach.  Johnson, Cox, and Wood (1982) found that paired student

teachers used more teaching techniques and were rated higher by

pupils. Willbur and Gooding (1977) found that student teachers who worked in teams developed less negative attitudes toward teaching. Wyatt (1984) included seminars for student teachers in her teacher education model as did Dispoto (1980).

The mentor relationship was found to provide encouragement and collegiality as well as specific suggestions for improving teaching (Huffman & Leake, 1986). Schmidt and Wolf (1980) defined mentors as colleagues and supervisors who actively provide guidance, support, and opportunities for the protege. Huffman and Leake (1986) stated that more effective mentors taught the same grade level and subject as their protege. Home economists were urged to form mentor-protege relationships by Baugher and Kellett (1983).

## Program Evaluation

Researchers who dealt with data obtained through field experiments found that many factors contribute to results.

> Phemomena often operate differently within the vastly more complex matrix of a real-life setting than within the narrow confines of the laboratory where many important forces may not be permitted to vary (Brandt, 1972, p. 16.)

When summative evaluation alone was used, the significance and generalizability of results were reduced.

Program evaluation provided guidelines for planning procedures which took as many factors as possible into account. It provided repeated measures and observations which were more precise over a period of time (Brandt, 1972) and the opportunity to compare program performance with agreed upon standards (Provus, 1971). Provus (1971) identified four factors needed for an effective program evaluation

They were as follow.

1. A statement of goals

2. A plan of operation

3. Identification of support systems

4. A system for monitoring with provision for feedback

## Discrepancy Evaluation Model

There were many models of program evaluation which could be used by evaluators (S ufflebeam & Webster, 1986). "The Discrepancy Evaluation Model (DEM) offers a pragmatic, systematic approach to a wide variety of education needs. DEM can be utilized to structure the gathering of information essential for well-informed decision making" (Steinmetiz, 1986, p. 98). The DEM model was first presented at the annual meeting of the American Research Association in Los Angeles, California in 1969 (Provus's book stated that this model

> fills a serious gap in the techniques of educational
> research and development and will be of interest and value
> to anyone concerned with the problem of introducing new
> educational programs to attack significant educational
> problems (p. 3).

The four stages of the DEM were identified by Steinmetz (1986) as follow.

1. Design

2. Input

3. Process

4. Outcome
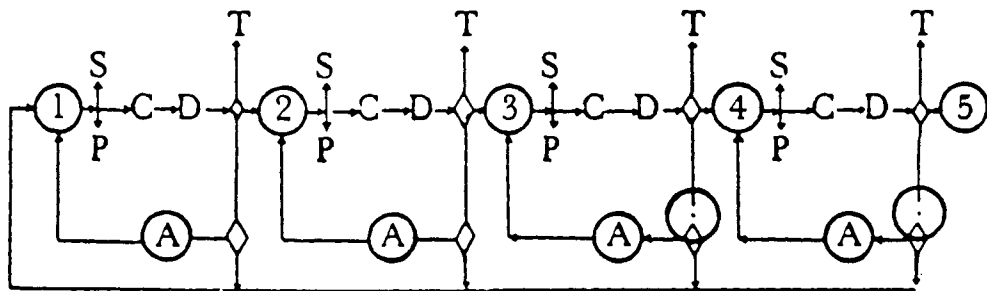
**Legend**

| | | |
|---|---|---|
| S - Standard | C - Comparison | T - Terminate |
| P - Program | D - Discrepancy | A - Adjustment |

Source: Provus. <u>Discrepancy Evaluation</u>, 1971.

Figure 1. A Flow Chart Representing
the DEM

These four stages represented evaluation of a single program. Provus (1971) identified a fifth optional stage which he called cost. This stage was used to compare programs.

At each stage of the DEM a comparison was made between a standard and a reality. The difference was called a discrepancy. These discrepancies were used as a basis for comparison and for making adjustments to the program (Provus, 1971).

The stages in the DEM were represented in a flow chart reproduced in Figure 1. In the flow chart S represented standards as they were defined by the implementor and the participants. P represented program performance. S was compared to P to yield D, the discrepancy information. At this point adjustments to P or S were made if needed. Adjustments were represented by A. If no adjustments were made or if adjustments were completed so that the discrepancy was satisfactory, that stage of the DEM was terminated (T) (Provus, 1971). The model was excellent for a new program because it provided several points for feedback. This feedback was then used to make adjustments which contributed to the success of the program.

CHAPTER III

PROCEDURES

The principal emphasis of this study was to develop an interactive computer network consisting of a team of home economics student teachers, cooperating teachers, the university supervisors, and a university coordinator. The communication capabilities of the network were used to provide the interaction necessary for the formation of peer alliances and to facilitate supervision of the student teachers. The team worked on solutions to problems which all student in the team had in common. The name of the team was Student Teaching Experiential Partners (STEP) Network.

Evaluation research was used to assess the effect of participation in the STEP Network on the attitudes of the student teachers and to assess the effectiveness of the STEP Network in accomplishing the objectives of the network. The Discrepancy Evaluation Model (DEM) provided a systematic approach for planning the project, gathering essential information, and evaluating that information. The four major components of this model were design evaluation, input evaluation, process evaluation, and outcome evaluation (Steinmetz, 1986). The research design, techniques used in sampling, instrumentation, and data analysis were described in this chapter.

Research Design

The project utilized an adapted DEM for the purpose of assessing the effect of participation in the STEP Network on home economics student teachers. The design, input, process, and outcome evaluation involved quantitative and qualitative measures. A quasi-experimental design based on Campbell and Stanley's (1963) separate sample pretest-posttest design was chosen for this study. This design utilizes equivalent subgroups. The design was modified to utilize three groups in order to strengthen the inherently weak design (Campbell and Stanley, 1963) and provide a basis for determining the effect of student teaching without participation in the STEP Network on the attitudes of subjects. In the design which is presented in Figure 2, $\underline{O}$ represents an observation and $\underline{X}$ represents the treatment of participation in the STEP Network while student teaching. The parenthetical $\underline{(X)}$ represents student teaching without participation in the STEP Network.

Groups one and three were the control or comparison groups (Fitz-Gibbon & Morris, 1978). Because of the effect of pretesting on attitude (Fritz-Gibbon & Morris, 1978; Kerlinger, 1964) and the need for a baseline for comparison (Cronbach, 1986; Fitz-Gibbon & Morris, 1978), the pretest was administered to control group one and the posttest was administered to control group two. The treatment group consisted of the student teachers who participated in the STEP Network. The treatment group received the treatment and posttest only.

|  | Pretest | | Posttest |
|---|---|---|---|
| Control Group 1 | $O_1$ | | |
| Control Group 2 | | (X) | $O_2$ |
| Treatment Group | | X | $O_3$ |

Figure 2. Graphic Representation of the Three Group Quasi-Experimental Design.

The DEM was used as a guide for evaluation of program effective-
ness as delineated by the STEP Network objectives.  The design evalua-
tion section of the DEM was the review of literature.  This informa-
tion was used to determine the purpose, objectives, and hypotheses of
the study.  The design was analyzed and critiqued by a panel of
experts prior to implementation of the program.

Input evaluation consisted of a list of additional resources
needed and monitoring the deployment of these resources.  This was
accomplished through interviews with the student teachers following
their first visit to the student teaching site and through interviews
with experts in the computer and telecommunications fields.  Each
teaching site was visited, the equipment set up, and the student
teacher trained to operate the equipment.  Additional trips to the
teaching centers were required in two cases to complete training
satisfactorily.  Student teachers were also given a "Call Me" number
which enabled them to call the coordinator free of charge to them and
to ask for assistance if needed.

Process evaluation was accomplished through daily communication
through the STEP Network, a personal log kept by the student teachers
in the treatment group, and informal contacts with other persons
involved in the network.  The results of process evaluation were used
to refine operation of the network and to determine possibilities for
educational applications of computer technology.  Because a variety of
equipment was used, technological problems were addressed on an
individual basis during this phase of the evaluation through visits by

the coordinator, telephone calls, and messages sent over the STEP Network.

Outcome evaluation included posttests, structured interviews, and analysis of personal logs. The experimental and one of the control groups received posttests. Structured interviews were conducted with student teachers, cooperating teachers, university supervisors, and state department supervisors.

## Population and Sample

Control groups one and two were composed of eight and 11 students respectively. The treatment group was composed of eight students. Control group one consisted of the home economics methods students at a Big Eight land grant institution. These students were scheduled to student teach during the spring semester of 1989. Control group two consisted of the home economics student teachers for the fall semester of 1988 at a Big Eight land grant institution. The treatment group consisted of the home economics student teachers at Oklahoma State University. The intact group at each university was used. This resulted in a total of 27 subjects.

All subjects who used the STEP Network participated in interviews. Additional interviews were conducted with volunteers from the college supervisors, cooperating teachers, and state department supervisors.

Instrumentation

The first part of the purpose required an evaluation of the effectiveness of the STEP Network as defined by the goals of that network. This evaluation followed the DEM model as previously outlined and included the collection of both qualitative and quantitative data.

Quantitative data for the evaluation of effectiveness of the network were collected through use of logs. Each student teacher who participated in the STEP Network was given a log book consisting of a checklist for each call to the network and space for comments and observations. The checklist provided quantitative data.

Qualitative data were gathered from several sources. The log books contained comments by the students which formed part of these data. The students' messages to the coordinator were also analyzed. Each student participant was interviewed at the close of the project as were some of the cooperating teachers, supervisors, and state department personnel. These interviews comprised the remainder of the qualitative data.

The second part of the research purpose required an analysis of the effect of participation in computer networking on the attitudes and the professional development of home economics student teachers. This analysis was guided by the research objectives.

Objective one in the research required an instrument that

measured attitudes toward faith in people. The Faith in People Scale
was chosen to measure this attitude. This short, five item scale was
intended to relate attitudes toward people to career choice (Robinson
& Shaver, 1973). The coefficient of reproducibility for this scale
was established by comparing scores on the scale with career choice of
college students. Those in the helping professions had higher scores
than those in other professions (Robinson & Shaver, 1973).

Objective two required an instrument that measured self-esteem.
A self-esteem scale developed by Rosenberg (1965) was chosen. Al-
though this scale was originally developed for use with high school
juniors and seniors, it had been used with a variety of groups (Robin-
son & Shaver, 1973). Silber and Tippett (cited by Robinson & Shaver,
1973) found a test-retest correlation of .85 to .83. They also found
that the scale correlated from .56 to .83 with similar instruments.
Robinson and Shaver (1973) reported a correlation of .60 with Cooper-
smith's Self-Esteem Inventory.

Objective three required a measure of dogmatism. The Rokeach
Dogmatism Scale was a 40-item scale developed to measure individual
differences in openness or closeness of belief systems (Rokeach,
1960). Reliability studies utilizing students at Michigan State
University, Ohio State University, and English workers yielded scores
which ranged from 0.68 to 0.93. The scale was validated through pilot
testing with known groups (Rokeach, 1960). The scale differentiated
between two groups who had previously been identified by their peers
as high and low dogmatic individuals.

Objective four required a measure of attitude toward education. The Education Scale was developed to measure attitudes toward progressive education versus attitudes toward traditional education. A high score on this scale represents a progressive attitude toward education practices and a low score on this test represents a traditional attitude toward education practices. Test-retest reliabilities of .70 to .76 were obtained with this scale with a group of education students. Education students showed more progressive attitudes than non-education students in validity studies conducted (Shaw & Wright, 1967).

Objective five required a measure of attitude toward teaching as a career. A scale developed by Merwin and DiVesta (1960) was chosen. Split-half reliability of .71 and test-retest reliability of .79 was established with groups of college freshmen. The test was shown to differentiate between a group of students who had chosen teaching as a career and a group of students who had not chosen teaching as a career, thus establishing validity (Shaw & Wright, 1967).

The five scales chosen were combined in the Student Teacher Attitude Survey (STAS). Five additional items were added to the questionnaire to assess the professional development of the subjects who had completed their student teaching as required by the purpose of the study. The operational summary of key variables is included in Appendix B. The first version of this questionnaire was pilot tested with a group of secondary home economics teachers who were enrolled in

a supervision class during the summer of 1988 at Oklahoma State
University. These teachers were asked to respond to the items and to
make recommendations as to wording of the questions, style of the
responses and any other comments which they felt were germane.

Following this test, the researcher analyzed the comments and
made some changes including the development of a separate answer
sheet, the elimination of some items, and the rewording of other
items. Respondents to the first pilot test felt that some items were
inappropriate and that the instrument was too long. The researcher
analyzed the items and omitted those which had been rated as less
discriminatory and those which were inappropriate. Items identified
as unclear were reworded. The second version thus contained only
portions of the original scales. Although elimination of some items
was a possible threat to the established reliability of the scales,
the researcher chose to follow the suggestions of the pilot group.

The revised survey was tested for face validity with a group of
students enrolled in a strategies for teaching class at Oklahoma State
University during the fall of 1988. The major recommendations made by
this group were rewording of some items to make them clearer, grouping
of the items on the answer sheet, and larger print for readability.
After the recommendations of this group were analyzed, the question-
naire was revised and a final version was printed.

Analysis of Data

The student log books were analyzed to determine frequency of

use of the various parts of the STEP Network. These frequencies were then coded and entered into the SYSTAT computer program. Range, mean, and standard deviation were computed for the entire group. Frequency of use of participants was compared based on observed differences between the computer systems used by the individual participants.

Responses to the items on the STAS were coded and entered into the SYSTAT computer program. Range, mean, and standard deviation were computed for the entire group and for the sub-groups. Analysis of variance was selected to test for differences in attitude scores on the Faith in People, Self-Esteem, Rokeach Dogmatism, Attitudes Toward Education, and Attitudes Toward Teaching as a Career scales. The $t$-test was used to test for differences in mean scores on the items created to assess professional development through the student teaching process (items 51-55) between the treatment group and control group two, the groups of subjects who had completed student teaching.

Data from the interviews, comments in logs, and messages provided additional qualitative information. This information was used for evaluation of the effectiveness of the STEP Network and for interpretation and recommendations.

CHAPTER IV

FINDINGS

The purpose of this research was to evaluate the effectiveness
of the STEP Network as defined by the goals of that network and to
assess the effect of participation in computer networking on the
attitudes and the professional development of home economics student
teachers. The goals of the network were: (1) to provide an oppor-
tunity for student teachers at separate geographical locations to
interact by sharing teaching ideas, experiences, and concerns; (2) to
provide a forum for discussion of topics of concern to student teach-
ers such as discipline, lesson plan preparation, student motivation,
and time management; (3) to facilitate peer group support from indi-
viduals in similar situations; (4) to allow for continuous interaction
with and support from the university supervisors and coordinator; and
(5) to facilitate the transfer of written material such as lesson
plans. The research objectives were: (1) to assess if participation
in the STEP Network affects attitudes toward faith in people on the
part of student teachers; (2) to assess if participation in the STEP
Network affects self-esteem of the participating student teachers; 3)
to assess if participation in the STEP Network affects the degree of
dogmatism of the participating student teachers; 4) to assess if
participation in the STEP Network affects attitudes toward education

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of the participating student teachers; (5) to assess if participation in the STEP Network affects attitudes toward teaching as a career of the participating student teachers.

The evaluation of the program followed a modified DEM model. The four parts of that model are design evaluation, the planning of the program which was discussed in Chapter III, input evaluation or implementation of the program, process evaluation, and outcome evaluation. Input evaluation, process evaluation, and outcome evaluation were covered in this chapter.

The presentation and analysis of the findings in the outcome evaluation were divided into two sections which corresponded to the two parts of the purpose. Section one was the evaluation of the effectiveness of the STEP Network and section two was the assessment of the effect of participation in computer networking on the attitudes and professional development of home economics student teachers.

## Sample

Control group one (C1) consisted of eight methods class students at a land grant university in the midwest. All of these students completed the instrumentation for the research at the end of the 1988 Fall Semester and were scheduled to do their student teaching during the spring, 1989 semester. All members of this group were female home economics education majors. Their ages ranged from 21 to 31 years with a mean age of 23 years.

Control group two (C2) consisted of 11 student teachers at a land grant university in the midwest. All of these students completed

the instrumentation for the research at the end of the 1988 Fall

Semester following the completion of their student teaching experi-

ence. All members of this group were female home economics education

majors. Their ages ranged from 22 to 44 years with a mean age of 30

years. The treatment group (T) consisted of eight student teachers at

Oklahoma State University. All of these students completed the

instrumentation for the research at the end of the 1988 Fall Semester

following the completion of their student teaching experience. All

members of this group were female home economics education majors.

Their ages ranged from 22 to 23 years with a mean age of 22 years.

Each member of the treatment group had completed a computer literacy

course and an educational media course. They had volunteered to

participate in the STEP Network while student teaching. No eligible

students refused to participate.

Interview subjects were volunteers from the university super-

visors, cooperating teachers, and state department personnel who were

involved in the student teaching experience or in the administration

of home economics programs during the 1988 Fall Semester. They were

interviewed at various times following the completion of the 1988 Fall

Semester.

## Program Implementation

Implementation of the program began during the spring of 1988.

Six of the eight students at Oklahoma State University, who were

scheduled to student teach during the 1988 Fall Semester, were en-

rolled in a methods class taught by the researcher. They had an opportunity to see telecommunications demonstrated and to work with it on a limited basis. Since a computer with a modem was not available on campus, these students visited the researcher's home to see the demonstration and to send a message using the modem.

All eight students visited in their student teaching centers for three days during the spring. The researcher interviewed each of them on their return to ascertain the equipment available in the individual schools and/or student homes.

A variety of conditions existed. Each student teacher had to be dealt with individually. After consultation with various computer experts, a list of equipment needed was developed. Two student teachers had their own computers, one had access to a computer at the home where she planned to stay while student teaching. One student teacher had access to a computer with a modem in the computer laboratory which was located across the hall from the home economics classroom. One student teacher had access to a telephone line and a computer in the home economics classroom. The remaining three students required both computers and communications equipment. The researcher was able to loan computers to two of these students, and a computer was rented for the remaining student. The types of hardware used were summarized in Table I.

Three additional computers were required to complete the network. The researcher needed a computer at home which was used to communicate, the supervisors needed a computer at the university which was used for communication, and a computer was needed to act as the

TABLE I

COMPUTER HARDWARE USED BY
THE TREATMENT GROUP

| Subject | Type computer | Communications device |
|---------|---------------|-----------------------|
| 1 | IBM Compatible | 1200 baud internal modem |
| 2 | IBM Compatible | 1200 baud internal modem |
| 3 | IBM Compatible | 1200 baud internal modem |
| 4 | IBM Compatible | 1200 baud internal modem |
| 5 | Kaypro (CPM) | 1200 baud external modem |
| 6 | IBM Compatible | Thermal Access Unit |
| 7 | Apple | 1200 baud internal modem |
| 8 | IBM Compatible | 1200 baud internal modem |

center of the network. The researcher used her personal computer, an IBM and equipped it with a 2400 baud external modem at her home.

Although Home Economics Education and Community Services (HEECS) at Oklahoma State University (OSU) had several computers, none of them was equipped to communicate. This need was further complicated by the fact that a new telephone system was being installed on campus. This system failed to support the use of modems since it was a digital rather than an analog system. A thermal access unit (TAU) was needed to communicate using this system. A faculty member volunteered the use of her IBM computer by the supervisors but access to the network was delayed due to a lag in the supply of TAU's to on-campus users. This also delayed participation of the student who lived on-campus. Until on-campus communication became feasible, all messages had to originate off-campus or at a mainframe terminal.

The researcher originally planned to use a computer which was located out-of-state as the center of the network. This limited access to the network because all of the participants had to pay long distance charges. This seemed to be the only solution because funds were not available for the purchase of a micro computer which could be dedicated to the network exclusively. The out-of-state computer was dedicated as the center of a network and the owner had agreed to allow the researcher to use it.

An alternative to this plan became possible when the researcher learned that Caucus, a conferencing program was to be set up on the mainframe computer at OSU as part of a Kellogg Grant. This project

had as its initial goals those of providing a relevant higher educa-
tion opportunity to everyone, everywhere, everyday in Oklahoma, and
integrating continuing higher education into the academic mainstream.
It was called Oklahoma Network of Collaborating Systems (ONCS).

The researcher attended an organizational meeting for ONCS, and
was accepted as a participant. The VMS mainframe on the campus of OSU
thus became the center for the network of home economics student
teachers. This made it possible for some participants to access the
network with a local telephone call and for all participants to have
24 hour access to the network.

Participants in the network also needed some type of communica-
tions software. Procomm, a shareware program, was used with the IBM
and IBM compatible computers. The Kaypro computer used Mite, and the
Apple computer used Smartcomm. Procomm and Smartcomm both supported
Kermit protocol for uploading and downloading of documents. This was
desirable since Kermit protocol was also supported by the Caucus
software on the mainframe computer. Although Mite did not support
Kermit protocol, it was used to upload and download through the use of
a more complicated procedure. The uploading and downloading capabil-
ities of the software were important because these were necessary for
the transmission of lesson plans.

Prices for hardware and software were found to vary according to
the source. The researcher decided to use a local dealer for most of
the hardware and software needed because this dealer provided critical
support during the implementation procedure. The one piece of hard-
ware that was ordered from an outside source because of the sign

ificantly lower price had to be reordered through the local dealer because of excessive delays in filling the order.

Once Caucus was set up on the mainframe, the researcher established a conference. This was a part of Caucus set aside for the use of home economics student teachers, cooperating teachers, and supervisors. The network conference functioned as follows: participants called the mainframe, signed on to Caucus, requested the STEP conference and sent and received private messages, participated in public discussions which were called items, and sent and picked up lesson plans and other documents. The commands used with the Caucus program were simple. If a participant forgot a command, "Help" was to be typed in at the prompt and a list of commands appeared. Each participant also had a quick reference copy of the basic commands needed.

Each subject was visited by the researcher and instructed in the use of the communications software and Caucus. At the time of the visit, the researcher installed communication equipment if necessary. Installation of the internal modems required that the computers be opened. The modem was installed in one of the slots inside the computer. If the computer already had a serial device, the researcher had to make adjustments to the communications program.

The training and installation period took much longer than was expected. This was due to several factors. Each case was unique and various technical problems had to be worked out at each setting. Participants had to learn to use the Caucus software and work through some initial problems. The first students online worked with the

researcher to solve these problems. Installation of some of the more distant units was delayed until all problems were worked out satisfactorily. Some equipment was delayed in delivery.

The new telephone system at OSU also created problems both in the availability of equipment on-campus and in access to the mainframe from off-campus. Due to the change in the systems, incoming calls to campus had to be routed through modems. These modems were not reliable and added to the problems present in learning to use a new technology. Sometimes they disconnected participants when they called in or failed to connect with the mainframe. Participants were then unsure of the origin of the problem since it was probably due to incorrect procedure on the part of the participant or to an equipment problem at OSU.

It was ironic that one of the last students online was the student who lived on-campus. Although the researcher loaned her a computer, she did not make an on-line connection until the new telephone system with a TAU was installed in her apartment. The first unit installed worked briefly and was finally replaced with a usable unit.

The on-campus computer that the supervisors had planned to use was also delayed in going online because of the new telephone system. When the equipment was installed on this computer, the researcher trained each of the supervisors to access the network.

Process Evaluation

Participants became familiar with electronic mail as they signed on to the system. The researcher encouraged them to experiment and to ask questions. Questions were answered using electronic mail whenever possible. Students who had to make long distance calls were provided with a telephone credit card number. As they became comfortable with the system, participants began to respond to items.

Five of the student teachers had the capability of sending their lesson plans electronically. The remaining three students had no printers attached to their computers so they were unable to use them to type lesson plans and were not able to send lesson plans electronically. Students were not required to use the communications system as part of their student teaching experience. Of the five students who could have sent lesson plans, only three actually did.

Use of the STEP Network by participating student teachers was summarized in Table II. The total number of calls placed by all participating student teachers was 130 with a average of 1.94 calls per week. The coordinator placed an average of 10 calls per week.

The basic functions available to participants were sending and receiving messages, participating in conferences, and sending and receiving documents. Participants could perform multiple operations during each call as reflected in Table III. All participants checked their personal messages each time they called the network. The numbers of new messages were printed on the screen when the participant signed in to the system. One student downloaded a document. The coordinator downloaded and printed all lesson plans which were sent

TABLE II

PARTICIPATION OF HOME ECONOMICS STUDENT
TEACHERS IN STEP NETWORK:   TOTAL
AND MEAN CALLS

| Student | Weeks online | Total calls | Mean calls |
|---------|--------------|-------------|------------|
| 1 | 12 | 57 | 4.75 |
| 2 | 10 | 14 | 1.40 |
| 3 | 10 | 8 | 0.80 |
| 4 | 12 | 41 | 3.42 |
| 5 | 10 | 14 | 1.40 |
| 6 | 6 | 21 | 3.50 |
| 7 | 7 | 3 | 0.43 |
| 8 | 12 | 29 | 2.42 |

TABLE III

USES OF THE STEP NETWORK BY
THE TREATMENT GROUP

| Student | Message [1] to OSU | Message [2] to student | Document [3] | Item [4] |
|---------|---------|---------|---------|------|
| 1 | 15 | 31 | 10 | 29 |
| 2 | 7 | 6 | 0 | 7 |
| 3 | 6 | 6 | 0 | 2 |
| 4 | 36 | 39 | 11 | 12 |
| 5 | 12 | 12 | 0 | 4 |
| 6 | 6 | 6 | 0 | 6 |
| 7 | 2 | 3 | 0 | 0 |
| 8 | 21 | 23 | 22 | 7 |

1  A message sent to OSU by a STEP Network participant

2  A message sent to another student by a STEP Network
   participant

3  A document, usually a lesson plan, sent to OSU by a STEP Network
   participant

4  A responses to an item.  Items were public discussions or
   conferences.

electronically, a total of 33 documents. Other uses of the network by students were summarized in Table III.

As students became comfortable with sending and receiving messages, the researcher added some conferences to the network. These conferences were called items. When participants called in, the numbers of the featured items were listed on the greeting screen. Participants then read the items and commented on them. Conferences were similar to group conversations. A partial example of a conference follows, blanks were substituted for names of persons to protect the confidentiality of the subjects.

```
Item 19   05-SEP-88   21:43   _____
Bulletin Board Ideas
I have seen some nice bulletin boards in the schools I
have visited.  I'm sure that you would enjoy sharing your
ideas with each other.  Enter your bulletin board ideas as
a response to this item.

19:1) _____             06-SEP-88   16:36
I did a bulletin board for the beginning of school en-
titled "Home Economics is the Key to Life!".  I cut out a
large key and made one for each subject area such as child
care, foods and nutrition, clothing, personal and family
development, careers, etc.  I labeled each key with the
area and used pictures out of magazines to make a collage
on the bulletin board.  It turned out rather nice!

19:2) _____             08-SEP-88   13:54
Here's a neat idea for a bulletin board....We've got the
FHA/HERO bug.....catch it!

19:3) _____             08-SEP-88   22:40
_____, you won't believe it! We just put up posters today
for our first FHA meeting with that slogan on it!  Small
world isn't it?

19:7) _____             09-OCT-88   23:36
I had a bulletin board up during a babysitting unit for my
eighth grade class that I thought was cute, and the stu-
dents enjoyed.  I put up a blown up version of the baby
and teddy bear that appears in the HEI curriculum guide.
I used the words I EXPECT MY BABYSITTER TO...Then, I put
several sheets of typing paper around the baby (cut out in
different shapes).  On each sheet I put a different sugges-
```

tion to finish the sentence. For example: Know where I am
at all times, Play with me, Know my regular schedule, etc.
It was very effective.

19:8) _____                        10-OCT-88   22:14
_____'s bulletin board could be used as a part of the
lesson. The class could be divided into small groups and
each group could prepare a completion to the sentence.

The method for transmitting lesson plans was worked out online
using the mail and items. Since the students were using different
computers and word processing programs, directions varied somewhat
from one case to another. Of the five students who had the capability
of transmitting lesson plans, three successfully completed trans-
mission. It was hoped that all student had the equipment to transmit
lesson plans electronically but this objective was modified due to
limitations in equipment.

<div align="center">Outcome Evaluation</div>

Outcome evaluation of the research was performed in two phases.
Phase one involved evaluation of the effectiveness of the STEP Network
as determined by the objectives of that network. Phase two involved
the testing of the research hypothesis through the use of a three-
group quasi-experimental design.

Effectiveness of the STEP Network

Objective one was to provide an opportunity for student teachers
at separate locations to interact by sharing teaching ideas, experi-
ences, and concerns. A total of 115 instances of messages exchanged
between students was recorded in the logs. One instance of exchange
usually represented more than one separate message. The minimum
number of individual exchanges was three, the maximum was 39 with a

mean message exchange rate between students of 18. Students reported in their interviews that the exchange of information with other students was the most important part of the network to them.

Objective two was to provide a forum for discussion of topics of concern to student teachers. This forum was provided in the form of items or conferences for group discussion. A total of eight items was entered for discussion. These items had 67 responses. The minimum number of responses entered by a student was zero while the maximum number of responses was 29. The mean number of responses was eight. Students who used this section of the network said that they enjoyed the discussions and found the information useful.

Objective three was to facilitate peer group support from individuals in similar situations. This objective was evaluated through interviews with the students and through item 55 on the questionnaire, "My fellow students were a source of support to me while I was student teaching." The mean response of STEP Network participants to this item was 5.25 on a six-point Likert scale with 6 representing "I agree very strongly". The mean response for control group two on this item was 4.64. Control group one did not respond to this item. Although the treatment group expressed stronger agreement with the statement, the difference between the two groups was not significant at the .05 alpha level (df=1, F=1.057, p=.318). Network participants when interviewed indicated that the network provided support. One student said that she "always felt better after reading the messages from the other students."

Objective four was to allow for continuous interaction with and support from the university supervisors and coordinator. As previously indicated, interaction with the university supervisors was limited due to technical problems. The researcher, who served as the coordinator, was in constant touch with the participants. She received and replied to 90 messages which originated with the students and sent 87 messages which received replies from the students. Item 52 on the STAS questionnaire, "I felt that I had the support of the university while I was student teaching", was used to evaluate this objective. Network participants responded favorably to this item with a mean response of 4.37 as compared with a mean response of 4.64 from the control group 2. There was no significant difference in these responses (df=1, F=.29, p=.59). Network participants indicated when interviewed that they wanted more direct communication with their supervisors although they found the communication with the coordinator to be useful.

Objective five was to facilitate the transfer of written material such as lesson plans. A total of 33 documents were successfully transmitted by three students. Students were required to send in lesson plans but they were not required to send them electronically. Of the five students who failed to send lesson plans electronically, three lacked the equipment to do so. The remaining two students felt that they lacked sufficient expertise with the system to use it for transmitting documents.

A difference was found between the mean times the network was used per week by students using computers located at home and stu

dents using computers located at school. All students who successfully transferred lesson plans electronically were using computers located at home. The two students who had the capability to transfer lesson plans electronically but failed to do so were using computers located in the school. One student, who was using a computer located in a classroom other than the home economics classroom, said that she "just kept making excuses not to go use the computer. I was always so busy at school and I didn't like going down to the other classroom."

## Testing of Research Hypotheses

The Student Teacher Attitude Survey (STAS) was used to test the research hypotheses. It included scales which measured attitudes toward education, dogmatism, faith in people, self-esteem, and attitudes toward teaching as a career.

The first null hypothesis was that there was no significant difference in the attitude toward people of student teachers who participated in the STEP Network and student teachers and methods students who did not participate in the STEP Network. The mean responses to the items from the Faith in People Scale for each of the three groups were presented in Table IV. An "R" before the item number as in "R11" indicated that the item was reversed when scored. A reversed item represented a negative attitude toward faith in people. When scored a response of one was scored as six, two was scored as five, three was scored as four, four was scored as three, five was scored as two, and six was scored as one. All negative items in STAS were scored using a reverse scale. Table V presented the

TABLE IV

MEAN RESPONSES TO ITEMS FROM
THE FAITH IN PEOPLE SCALE

| Item | C1 | C2 | T | Total |
|------|------|------|------|-------|
| 5 | 3.85 | 4.00 | 3.91 | 3.91 |
| R11 | 3.50 | 3.72 | 3.62 | 3.61 |
| R17 | 3.12 | 4.50 | 2.37 | 3.85 |
| R23 | 4.88 | 3.91 | 4.50 | 4.43 |
| 36 | 4.00 | 3.55 | 4.00 | 3.84 |

TABLE V

RANGE, MEAN, AND STANDARD DEVIATION
FOR THE FAITH IN PEOPLE SCALE

| | C1 | C2 | T | Total |
|------|------|------|------|-------|
| Number of Cases | 8 | 11 | 8 | 27 |
| Minimum | 14.00 | 14.91 | 14.37 | 14.89 |
| Maximum | 17.00 | 18.00 | 16.00 | 18.00 |
| Standard Deviation | 1.06 | 1.51 | 1.76 | 1.51 |

range, mean, and standard deviation for each of the three groups on the Faith in People scale. An analysis of variance found no significant difference (df=1, F=1.348, p=0.257) in the attitude toward people of Step Network participants and non-participants, therefore the researcher failed to reject the null hypothesis.

The second null hypothesis stated that there was no significant difference in the self-esteem of student teachers who participated in the STEP Network and student teachers and methods students who did not participate in the STEP Network. The mean responses to the items from the Self-Esteem scale were presented in Table VI. Reversed items represented a negative attitude toward self-esteem. Table VII presented the range, mean, and standard deviation for each of the three groups on the Self-Esteem scale. An analysis of variance found no significant difference (df=1, F=.07, p=0.79) in self-esteem of STEP Network participants and non-participants, therefore the researcher failed to reject the null hypothesis.

The third null hypothesis stated that there was no significant difference in the degree of dogmatism of student teachers who participated in the STEP Network and student teachers and methods student who did not participate in the STEP Network. The mean responses to the items from the Rokeach Dogmatism Scale were presented in Table VIII. Reversed items were low dogmatic responses. Table IX presented the range, mean, and standard deviation for each of the groups on the Rokeach Dogmatism Scale. An analysis of variance found no significant difference (df=1, F=0.461, p=0.503) in the degree of dogmatism of STEP Network participants and non-participants so the researcher

TABLE VI

MEAN RESPONSES TO ITEMS FROM
THE SELF-ESTEEM SCALE

| Item | C1 | C2 | T | Total |
|------|------|------|------|-------|
| 3 | 4.75 | 5.45 | 5.38 | 5.19 |
| 15 | 5.15 | 5.45 | 5.00 | 5.15 |
| R29 | 5.25 | 5.45 | 5.25 | 5.32 |
| 34 | 4.75 | 5.36 | 4.50 | 4.87 |
| 43 | 4.75 | 5.00 | 4.82 | 4.86 |
| 45 | 4.63 | 4.82 | 4.75 | 4.73 |
| R50 | 4.50 | 4.09 | 4.25 | 4.28 |

TABLE VII

RANGE, MEAN, AND STANDARD DEVIATION
FOR THE SELF-ESTEEM SCALE

|  | C1 | C2 | T | Total |
|---|---|---|---|---|
| Number of Cases | 8 | 11 | 8 | 27 |
| Minimum | 24.00 | 27.00 | 29.00 | 24.00 |
| Maximum | 40.00 | 42.00 | 40.00 | 42.00 |
| Mean | 33.63 | 35.46 | 34.16 | 34.52 |
| Standard Deviation | 6.02 | 4.09 | 4.93 | 4.93 |

TABLE VIII

MEAN RESPONSES TO ITEMS FROM THE
ROKEACH DOCMATISM SCALE

| Item | C1 | C2 | T | Total |
|------|-----|-----|-----|-------|
| 9 | 3.5 | 3.1 | 3.6 | 3.6 |
| 21 | 3.5 | 3.5 | 3.1 | 3.5 |
| R30 | 1.5 | 2.5 | 1.8 | 2.1 |
| 38 | 2.9 | 4.1 | 3.3 | 3.1 |
| 41 | 4.1 | 4.4 | 4.1 | 4.8 |
| 44 | 3.5 | 2.9 | 2.6 | 3.2 |
| 46 | 3.8 | 3.4 | 3.8 | 3.4 |
| 48 | 3.3 | 3.5 | 3.5 | 3.3 |

TABLE IX

RANGE, MEAN, AND STANDARD DEVIATION
FOR THE ROKEACH DOGMATISM SCALE

|                      | C1    | C2    | T     | Total |
|----------------------|-------|-------|-------|-------|
| Number of Cases      | 8     | 11    | 8     | 27    |
| Minimum              | 23.00 | 24.00 | 18.00 | 18.00 |
| Maximum              | 29.00 | 33.00 | 31.00 | 33.00 |
| Mean                 | 26.00 | 25.75 | 27.27 | 26.44 |
| Standard Deviation   | 2.27  | 5.60  | 1.84  | 3.41  |

failed to reject the null hypothesis.

The fourth null hypothesis stated that there was no significant difference in the attitude toward education of student teachers who participated in the Step Network and student teachers and methods student who did not participate in the STEP Network. The mean responses to the items from the Education scale were presented in Table X. Reversed items were traditional attitudes toward education. Table XI presented the range, mean, and standard deviation for each of the groups on the Education scale. An analysis of variance found no significant difference (df=1, F=2.11, $p$=0.16) in the attitude toward education of STEP Network participants and non-participants so the researcher failed to reject the null hypothesis.

The fifth null hypothesis stated that there was no significant difference in the attitudes toward teaching as a career of student teachers who participated in the STEP Network and student teachers and methods students who did not participate in the STEP Network. The mean responses to the items from the career scale for each of the three groups were presented in Table XII. Reversed items were negative attitudes toward teaching as a career. Table XIII presented the range, mean, and standard deviation for each group on the career scale. An analysis of variance found no significant difference (df=1, F=0, $p$=0.428 ), therefore the researcher failed to reject the null hypothesis.

The five null hypotheses were not rejected. The STEP Network appeared to work for seven of the eight treatment subjects for sending and receiving messages and responding to items. Three of the eight

TABLE X

MEAN RESPONSES TO ITEMS FROM
THE EDUCATION SCALE

| Item | C1 | C2 | T | Total |
|------|-----|-----|-----|-------|
| 2 | 3.8 | 3.8 | 3.9 | 3.8 |
| 4 | 4.3 | 4.3 | 3.6 | 4.0 |
| R6 | 3.9 | 3.8 | 3.8 | 3.8 |
| R8 | 3.3 | 2.8 | 2.9 | 3.0 |
| R10 | 3.8 | 3.9 | 3.6 | 3.8 |
| R12 | 3.8 | 3.9 | 3.6 | 3.8 |
| 14 | 3.9 | 4.6 | 3.5 | 4.0 |
| 16 | 4.1 | 4.5 | 3.8 | 4.1 |
| 18 | 4.4 | 4.0 | 4.6 | 4.3 |
| R20 | 2.6 | 2.7 | 3.3 | 2.9 |
| 22 | 1.8 | 2.5 | 2.8 | 2.3 |
| 24 | 3.9 | 3.4 | 3.4 | 3.5 |
| 26 | 3.9 | 3.5 | 3.4 | 3.6 |
| 28 | 3.0 | 2.5 | 2.8 | 2.7 |
| 31 | 4.6 | 4.5 | 4.6 | 4.6 |
| 32 | 4.1 | 4.4 | 4.1 | 4.2 |
| 35 | 4.0 | 3.6 | 4.0 | 3.9 |
| 37 | 3.3 | 3.0 | 2.8 | 3.0 |
| 39 | 3.3 | 2.9 | 2.3 | 2.8 |

TABLE XI

RANGE, MEAN, AND STANDARD DEVIATION
FOR THE EDUCATION SCALE

|  | C1 | C2 | T | Total |
|---|---|---|---|---|
| Number of Cases | 8 | 11 | 8 | 27 |
| Minimum | 23.00 | 18.00 | 24.00 | 18.00 |
| Maximum | 29.00 | 33.00 | 31.00 | 33.00 |
| Mean | 26.00 | 27.27 | 25.75 | 26.44 |
| Standard Deviation | 2.27 | 1.84 | 5.60 | 3.41 |

TABLE XII

MEAN RESPONSES TO ITEMS
FROM THE CAREER SCALE

| Item | C1 | C2 | T | Total |
|------|-----|-----|-----|-------|
| 1 | 4.5 | 4.4 | 3.4 | 4.3 |
| 7 | 4.8 | 4.9 | 3.9 | 4.5 |
| 13 | 4.8 | 4.3 | 3.9 | 4.4 |
| R19 | 2.1 | 2.2 | 2.3 | 2.2 |
| 25 | 4.8 | 4.7 | 3.9 | 4.5 |
| R27 | 4.8 | 4.9 | 4.3 | 5.0 |
| 33 | 4.4 | 4.5 | 3.5 | 4.6 |
| 40 | 3.9 | 4.0 | 2.5 | 3.9 |
| 49 | 4.9 | 3.5 | 3.3 | 3.4 |

TABLE XIII

RANGE, MEAN, AND STANDARD DEVIATION
FOR THE CAREER SCALE

|  | C1 | C2 | T | Total |
|---|---|---|---|---|
| Number of Cases | 8 | 11 | 8 | 27 |
| Minimum | 30.00 | 31.00 | 33.00 | 30.00 |
| Maximum | 48.00 | 45.00 | 46.00 | 47.00 |
| Mean | 38.75 | 37.36 | 39.63 | 38.44 |
| Standard Deviation | 5.90 | 5.02 | 3.89 | 4.90 |

treatment subjects utilized the full capability of the system by

electronically transmitting lesson plans.

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS,

AND IMPLICATIONS

The purpose of this research was to evaluate the effectiveness
of the STEP Network as defined by the goals of that network and to
assess the effect of participation in computer networking on the
attitudes and professional development of home economics student
teachers.  A modified Discrepancy Evaluation Model (DEM) was used to
evaluate the effectiveness of the network.  A three-group quasi-
experimental design  was used to test the effect of computer network-
ing on the attitudes and professional development of home economics
student teachers.

Findings and Conclusions

Effectiveness of the Network

The STEP Network was found to be a useful communications tool by
the members of the treatment group based on their responses to the
interview and their logs.  The total number of calls placed by members
of the treatment group ranged from three to 57.   Subjects used the
mail system first and then began to respond to items.  Bloom and
Rabinowitz (1985) reported that 30 to 45 days experience with their
system was required before participants began to participate in
conferences with multiple participants.  In the STEP Network, five of

the subjects participated in conferences regularly. The first con-
ference participation occurred during the first week of use. This
difference may have been due to the fact that STEP Network partici-
pants knew each other very well or that they were younger and more
experienced with computers than the subjects in Bloom and Rabinowitz's
(1985) study. Factors which affected the number of calls placed were
location of the computer used for communicating, degree of expertise
in using the computer, and previous training in the use of tele-
communications.

Six members of the treatment group were exposed to the use of
telecommunications during the Spring 1988 semester at a demonstration
in the researcher's home. These subjects expressed more initial
confidence in their ability to use the network than the two students
who did not attend the demonstration. All members of the treatment
group felt that additional training and experiences with tele-
communication before the student teaching experience was needed.

It was found that the subjects who participated in the network
using computers located in their homes used the network more often and
more comprehensively than subjects using computers in other locations.
From the log data, students working from their homes had more flexi-
bility in choice of times to place calls, were more comfortable with
the computers, and more willing to experiment. Only two of the five
students working from their homes owned the computer so ownership of
the computer did not appear to be a factor in frequency of use. Of
the three students who successfully sent lesson plans, two of these
students owned the computers which were used. All three students were

using computers located in their homes. These students successfully

integrated the computer into their personal working style and viewed

it as a tool rather than an additional task to master.

The subjects who regularly responded to the items for discussion

posted in the STEP Network felt that these were useful to them. One

subject expressed a wish for more such items. Subjects also used

electronic mail to discuss topics related to their student teaching.

Examples of student messages to the researcher follow. Names were

replaced with blanks to protect the privacy of the subjects.

```
SUBJECT:  HOWDY
MESSAGE from  _____                          18-SEP-88 21:46
_____, how are you?  I could be doing better.  My sore
throat and everything else has caught up with me.  I have
been sick this week-end.  I have been trying to work on my
lesson plans, but I haven't gotten the whole week done.  I
left Dr. _____  a message also.  I hope I can make it
tomorrow teaching 3 hours.  Saturday was the Cherokee
Strip Celebration.  It was fun but tiring.  This next week
is HOMECOMING!!  I can hardly wait.  Talk to you later.


SUBJECT:  HELLO
MESSAGE from  _____                          31-AUG-88 15:59
Hi there!  Isn't this teaching stuff fun? (I may live to
regret that statement) It is a full time job, I never get
home before 5.  _____ is the best!  School started 8-23-
88.  I will make lesson plans next week and then teach!  I
love hearing what everyone is doing.  I have lots of bul-
letin board ideas to share.  I still have computer prob-
lems.  I need a new modem.  _____ and I are doing great or
better than ever!  Could be serious!!  Have a good labor
day week-end.  Smile   Love _____ bye!


SUBJECT:  Lesson Plan Questions
MESSAGE from  _____                          27-AUG-88  19:01
_____, I have some questions about lesson plans!  First, do we
have to put our name, date, school, title, and class every
single day?  Oh, and the Unit Objective?  To me that is
wasted paper and time.  Also, Is the "Approach" supposed
to be our introduction to the day's lesson?  I have one
day done and would like some suggestions from you before I
type the rest of them in.  Send me the directions for
transferring them please!  I'm an anxious little twerp
(sic), aren't I!
```

The computer network was found to be a source of support to the participating student teachers as Marynet was found to be a source of support to participating teachers by Heidelbach (1984). The following exchange of messages between the researcher and a subject illustrated this finding.

SUBJECT: What to do?
MESSAGE from _____                    02-OCT-88 22:17
_____, I am so tired I could drop and at least tonight, so discouraged. I have been staying up late (or early de-pending on the way you look at it) trying to get my lesson plans ready but have no time. We do so many things after school and on the week-ends that I am ready to drop. I just can't go into a class unprepared and I feel like that is what I am doing. What do I do?

SUBJECT: ACTIVITIES
MESSAGE from _____                    02-OCT-88 23:22
_____, I talked to Dr._____. She is as concerned as I am. We both think that you have the potential to be a very good teacher, but it is often the best of teachers who burn themselves out because they try to do too much. Dr. _____ would like for Ms._____ to call her tomorrow between 1:30 and 3:30. They can discuss things and work out a reasonable amount of time for you to devote to extra-curricular activities. Teaching should take precedence over the other activities. You do not have to do every-thing and be everywhere. In fact, I advise from my own experience that you need to occasionally take an evening off and just relax - talk to your husband, cook, paint, do something you enjoy. Don't feel guilty about wasting time. You will be energized and will be able to accom-plish twice as much the next day. The best principal I ever had advised his teachers to take a day off once a year to do something for themselves. He was right, it gives you a new perspective on things. We are all think-ing of you and wishing you the best possible student teaching experience. Tell _____ to give you a hug for me.

As the program was implemented, several subjects expressed concern that dialogue transmitted through the network was impersonal. They did not know if they could express feelings with a computer message. The following message illustrates the personal nature of

some communications and the way in which the personality of the sender was expressed.

```
SUBJECT: NEWS
MESSAGE FROM _____                    14-SEP-88 14:25
I have a very important announcement, so sit down (that
way you can jump up!)....._____asked me to marry
him!!!...I said YES!!! (real loud).  He is so wonderful,
we were outside his cabin last week-end when he popped the
big question.  My ring is just beautiful.  I am sorry that
this message is late, but my computer is still having
problems.  I am still in _____, so send me messages.  We
are looking at July 29th for our wedding.  It's HARD to
keep my mind on lesson plans when there are wedding plans
to attend to !!  I can't wait to see and hear from all of
you.  Bye for now.
```

This message was also an example of an instance when one message was typed in and sent to several people. As is seen in this example, participants frequently used capital letters and multiple exclamation marks to express emotion and to emphasize a point.

## Research Hypothesis

The researcher failed to reject any of the five research hypothesis. Participation in the STEP Network appeared to have no negative effect on the attitudes or professional development of the participating subjects. Unlike previous studies (Austin-Martin, 1979; Dispoto, 1980; Wilbur & Gooding, 1977), student teaching also appeared to have no negative effect on the attitudes or professional development of the participating subjects. Table XIV which compared the mean scores of each group on each of the five scales showed slight variation between groups. All subjects showed positive attitudes toward people, self-esteem, and education as a career. Subjects were not dogmatic in persuasion and were inclined toward progressive rather

TABLE XIV

MEAN SCORES ON THE FAITH IN PEOPLE,
SELF-ESTEEM, ROKEACH DOGMATISM,
EDUCATION, AND CAREER SCALES

|  | C1 | C2 | T |
|---|---|---|---|
| Faith in People | 15.38 | 14.91 | 14.38 |
| Self-Esteem | 33.63 | 35.46 | 34.16 |
| Rokeach Dogmatism | 26.00 | 25.72 | 25.75 |
| Education | 68.63 | 65.13 | 65.13 |
| Career | 38.75 | 37.36 | 39.63 |

than traditional views on education.

Subjects interviewed felt that the student teaching experience and participation in the STEP Network had been a positive experience for their personal professional development. Items 51, 53, and 54 on STAS indicated a positive attitude toward the student teaching experience. The mean responses of control group one (C1) and the treatment group (T) to these items were presented in Table XV. A response of six indicated strong agreement with the statement while a response of one indicated strong disagreement with the statement.

The slight variations in scores between the three groups on the scales indicated that the three groups were very similar in the attributes measured. For both control group 2 and the treatment group, student teaching was a positive experience.

## Conclusions

The STAS showed strong similarities between home economics education students in three universities. Since the STEP Network was successful at one of these universities, it could be successful at the other two institutions and possibly in other home economics education programs. The researcher identified the following conclusions based on the results of the study.

1. Training and experience were necessary for successful use of computer equipment. It was concluded that home economics education students needed additional computer experiences in order to incorporate computer use into their professional lives.

Table XV

MEAN RESPONSES TO ITEMS
51, 53, AND 54

| Item | Cl | T |
|---|---|---|
| 51. My student teaching experience helped prepare me for teaching. | 5.09 | 5.38 |
| 53. Student teaching is a realistic experience | 4.64 | 4.38 |
| 54. I enjoyed my student teaching experience. | 4.91 | 5.25 |

2. It was desirable for home economics education students to own or have free access to computers in their homes.

3. The STEP Network facilitated communication between the university and the student teachers and among the student teachers.

4. Computer messages were often personal and transmitted the feelings and personality of the sender.

5. The STEP Network was used to convert theory into practice during the student teaching experience through group conferences or items.

6. The STEP network provided peer group support and support from the university during student teaching.

7. Written materials which were composed on the computer were successfully transmitted by computer.

8. Further research was necessary to identify differences in attitude between network participants and non-participants.

9. It was possible to implement a computer network using existing computers and adding peripherals as needed.

10. The STEP Network successfully provided a communication link between home economics student teachers and the university.

11. The goals of the network were achieved.

12. Student teaching and participation in the STEP Network had a positive effect on the attitudes of the student teachers.

## Recommendations

The STEP Network was shown to be a workable tool for guiding the professional development of home economics student teachers at Oklahoma State University. Further research was needed to determine the

effectiveness of computer networking for other groups such as teachers and administrators. An expanded network with more participants, perhaps students from several universities was also a possible direction for further research. A larger group of subjects would increase the power of the tests and the likelihood of detecting effect of participation in the network if any existed. Recommendations of directions for future procedures for similar networks were detailed in the following paragraphs.

1. When another network is set up, it is recommended that home economics education students receive comprehensive training in the use of computers for teaching purposes which include but are not limited to word processing, data base, spreadsheet, and telecommunications.

2. It is recommended that this training begin early in the program and that computer applications be a required part of the education courses in order to prepare students for participation in a network while student teaching.

3. It is recommended that each student own, rent, or be loaned his/her own computer to be used during participation in professional education courses and set up in the student's home during the student teaching experience.

4. It is recommended that the network be continuously operated for the use of all students and faculty so that it will become an integral part of the program.

5. It is recommended that the network be set up on a micro computer in the college of home economics so that the coordinator and supervisors can have more control over the way in which it works.

Many of the implementation problems were due to the use of the main-

frame computer as the center of the network.

6. It is recommended that all college supervisors and cooperat-

ing teachers have convenient access to a computer with communication

capabilities.

7. It is recommended that all college supervisors and coopera-

tive teachers be trained to use telecommunications.

## Implications

STEP Network participants were enthusiastic in their acceptance

of computer networking as a tool for professional growth. Several

subjects mentioned how sad they felt as each participant signed off at

the completion of the student teaching experience. They expressed a

desire to continue communication as they began their professional

careers. There was an implication that the network could be used

throughout a professional career to provide support, communication,

and information.

A new telephone system, a variety of computer equipment, and

difficulties in obtaining needed equipment were problems encountered

during the input and process phases of the DEM. Despite these prob-

lems, a workable communications network was established. Since STEP

Network was an innovative project, problems were expected. The solu-

tions provided a basis for future networks. The success of the STEP

Network implied that other similar networks would be successful.

Our society became an information society (Naisbitt, 1984).

Home economics student teachers at OSU used networking technology to

share information, provide collegial support, and communicate ideas and feelings. STEP Network had implications for all educators who desired to become part of the information age because it showed that telecommunications could provide a means for educators to communicate.

STEP Network represented a small step on a long journey toward a new age of communication and cooperation among educators. The isolated classroom was becoming a relic of the past. With network technology, teachers could become contributing professionals working together toward professional and personal goals, sharing in the adventure of the educational process, and creating solutions to the problems of education.

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APPENDIXES

APPENDIX A

STUDENT TEACHING EXPERIENTIAL PARTNERS NETWORK

PROGRAM EVALUATION REVIEW TECHNIQUE

STEP Network

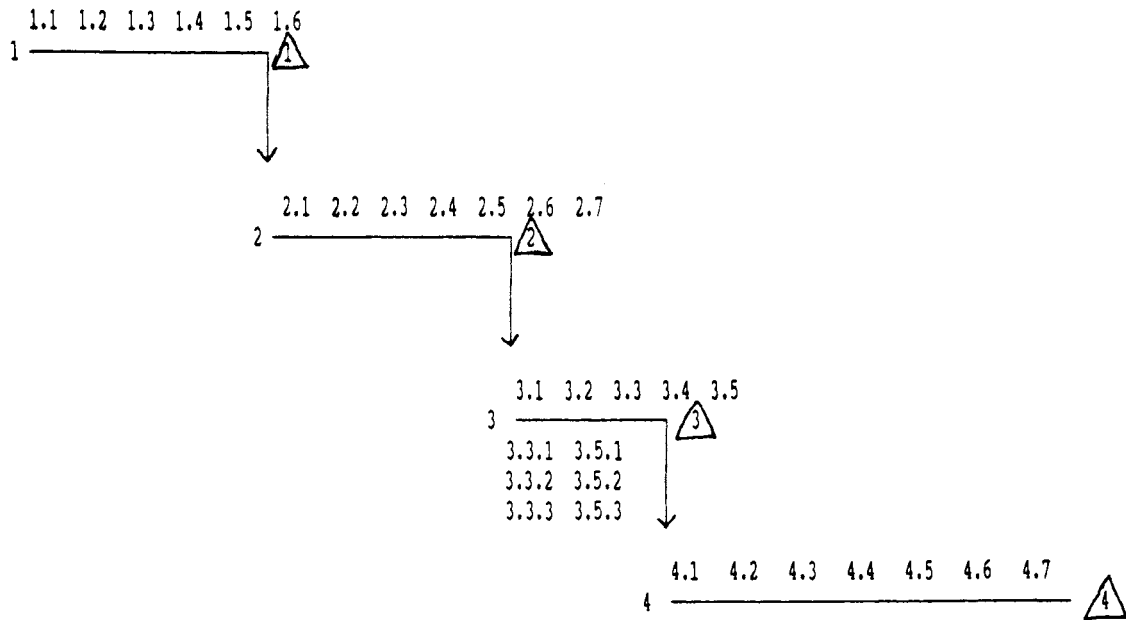Program Evaluation Review Technique

DEM Model

<u>Activities</u>

1. Program Planning - DESIGN Evaluation

    1.1  determine purposes and objectives
    1.2  complete review of literature
    1.3  select evaluation research design
    1.4  select or develop instruments
    1.5  initiate PERT
    1.6  secure approval for conducting research

2. Program Implementation - INPUT Evaluation

    2.1  develop list of equipment and software
    2.2  order equipment and software
    2.3  arrange for access to networks
    2.4  test equipment and software
    2.5  meet with experimental group and plan for site visit
    2.6  visit sites, test equipment
    2.7  train experimental group in the use of the equipment

3. PROCESS Evaluation

    3.1  begin conference
    3.2  begin keeping logs
    3.3  monitor conference

        3.3.1  change format if needed
        3.3.2  initiate discussion and exchange of ideas
        3.3.3  reinforce good teaching practices

    3.4  begin transmission of lesson plans

        3.6.1  make suggestiond for improvement
        3.6.2  encourage use of a variety of techniques
        3.6.3  encourage sharing of ideas

4. OUTCOME Evaluation

    4.1  posttest all groups
    4.2  follow-up interviews
    4.3  analyze posttests
    4.4  analyze logs
    4.5  analyze interviews
    4.6  complete research evaluation report

## Events

△1 - Complete DESIGN Evaluation

△2 - Complete INPUT Evaluation

△3 - Complete PROCESS Evaluation

△4 - Complete OUTCOME Evaluation

PERT Chart

Discrepancy Evaluation Model for STEP Network

| 1988 | | | | | | | | | | 1989 | | | | |
|------|-----|-----|------|------|-----|------|-----|-----|-----|------|-----|-----|-----|-----|
| Mar  | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan  | Feb | Mar | Apr | May |

1.1  1.2  1.3  1.4  1.5  1.6

1 ——————————————

2.1  2.2  2.3  2.4  2.5  2.6  2.7

2 ——————————————

3.1  3.2  3.3  3.4  3.5

3 ——————————————
3.3.1  3.5.1
3.3.2  3.5.2
3.3.3  3.5.3

4.1  4.2  4.3  4.4  4.5  4.6  4.7

4 ——————————————

APPENDIX B

STAS, VARIABLES, AND ANOVAS

# STAS

## STUDENT TEACHER ATTITUDE SURVEY

STAS

The following statements represent some beliefs, opinions, and attitudes with which you may or may not agree. There are no "right" or "wrong" answers. This scale is an attempt to allow you to express your beliefs and opinions. Respond by circling the number on the answer sheet which most closely corresponds to your own feelings. For example:

I like responding to questionnaires.     6  5  4  3  2  1

The responses are as follows:

6- I agree very strongly (AVS)        3- I disagree (D)
5- I agree strongly (AS)              2- I disagree strongly (DS)
4- I agree (A)                        1- I disagree very strongly (DVS)

Proceed rapidly but carefully. Do not spend too much time on any one statement. BE SURE TO RECORD ALL ANSWERS ON THE ANSWER SHEET.

1. Teaching is about the best job that I can think of as a career.
2. The goals of education should be dictated by children's interests.
3. I feel that I am a person of worth, at least on an equal basis with others.
4. No subject is more important than the personalities of the pupils.
5. Most people can be trusted.
6. Schools of today are neglecting the three R's.
7. There are a lot of advantages to teaching as a career.
8. The pupil-teacher relationship is composed of a child who needs direction, guidance, and support and a teacher who is an expert in supplying direction, guidance, and control.
9. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
10. Teachers, like university professors, should have academic freedom-freedom to teach what they think is right and best.
11. Most people are inclined to look out for themselves rather than help others.
12. The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter.
13. I don't care for the work of a teacher.
14. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.
15. I feel that I have a number of good qualities.
16. Traditional moral standards should not just be accepted, they should be examined and tested in solving the present problems of students.
17. If you don't watch yourself, people will take advantage of you.
18. Learning is experimental; the child should be taught to test alternatives before accepting any of them.
19. Teaching would be a wonderful occupation for anyone.
20. The curriculum consists of subject matter to be learned and skills to be acquired.

21. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
22. The true view of education is to arrange learning so that the student gradually builds up a storehouse of knowledge that can be used in the future.
23. No one is going to care much about what happens to you, when you get right down to it.
24. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.
25. Teaching may be all right for some people but not for me.
26. The curriculum should contain an orderly arrangement of subjects that represent the best of our culture.
27. I am not convinced of the importance of teaching as a career.
28. Discipline should be governed by long-range interests and well-established standards.
29. All in all, I am inclined to feel that I am a failure.
30. Human beings on their own are helpless and miserable creatures.
31. Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction.
32. Right from the very first grade, teachers must teach their students at their own levels and not at the grade level to which they are assigned.
33. I am sure that I will enjoy teaching.
34. I am able to do things as well as most other people.
35. Children should be allowed more freedom than they usually get in the execution of learning activities.
36. Human nature is fundamentally cooperative.
37. Children need and should have more supervision and discipline than they usually get.
38. I'd like it if I could find someone to solve my personal problems.
39. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.
40. Teaching is as good a job as any.
41. It is only natural for a person to be rather fearful of the future.
42. In a democracy, teachers should help students understand not only the meaning of democracy but also in the meaning of the ideologies of other political systems.
43. I take a positive attitude toward myself.
44. In a heated discussion, I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
45. On the whole, I am satisfied with myself.
46. My blood boils whenever a person stubbornly refuses to admit being wrong.
47. There are more advantages than disadvantages to teaching as a career.
48. A group which tolerates too much difference of opinion among its own members cannot exist for long.
49. I would be willing to take any job related to teaching.
50. At times I think I am no good at all.

Please respond to the following only if you have completed student teaching.

51. My student teaching experience helped prepare me for teaching.
52. I felt that I had the support of the university while I was student teaching.
53. Student teaching is a realistic experience.
54. I enjoyed my student teaching experience.
55. My fellow students were a source of support to me while I was student teaching.

Operational Summary of Key Variables
Used in Testing Hypothesis

| Scale | Items | Range | Measurment Level | Conceptual Definition |
|---|---|---|---|---|
| Dogmatism Scale | 9, 21, 30, 38, 41, 44, 46, 48 | 8 - 48 | interval | "extent to which a person can receive, evaluate, and act on information received from outside on its own merits" (Rokeach, 1960, p.57) |
| Faith in People Scale | 5, 11, 17, 23, 36 | 6 - 30 | interval | "degree of confidence in the trustworthiness, goodness, and brotherliness of people in general" (Robinson & Shaver, 1973, p. 612) |
| Self-Esteem Scale | 3, 15, 29, 34 43, 45, 50 | 7 - 42 | interval | "self-acceptance aspect of self-esteem" (Robinson & Shaver, 1973, p.81) |
| Education Scale | 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 31, 32, 35, 37, 39 | 19 - 96 | interval | Positive total score indicates progessive attitudes toward teaching, negative total score indicates traditional attitudes toward teaching (Shaw & Wright, 1967) |
| Attitude Toward Teaching as a Career | 1, 7, 13, 19, 25, 27, 33, 40, 48 | 9 - 54 | interval | Measure of favorable or unfavorable attitudes toward teaching as a career (Shaw & Wright, 1967) |

Analysis of Variance

Career Scale

DEP VAR: CAREER      N:   27    MULTIPLE R:  .159    SQUARED MULTIPLE R:  .025

ANALYSIS OF VARIANCE

| SOURCE | SUM-OF-SQUARES | DF | MEAN-SQUARE | F-RATIO | P |
|--------|----------------|-----|-------------|---------|-----|
| STEP   | 15.844         | 1   | 15.844      | 0.648   | 0.428 |
| ERROR  | 610.822        | 25  | 24.433      |         |     |

Analysis of Variance

Self-Esteem Scale


DEP VAR:     SELF      N:   27     MULTIPLE R:   .053     SQUARED MULTIPLE R:   .003

ANALYSIS OF VARIANCE

| SOURCE | SUM-OF-SQUARES | DF | MEAN-SQUARE | F-RATIO | P |
|--------|----------------|-----|-------------|---------|-----|
| STEP   | 1.760          | 1   | 1.760       | 0.070   | 0.794 |
| ERROR  | 628.980        | 25  | 25.159      |         |     |

Analysis of Variance

Education Scale

DEP VAR:     EDU      N:   27     MULTIPLE R:   .279     SQUARED MULTIPLE R:   .078

ANALYSIS OF VARIANCE

| SOURCE | SUM-OF-SQUARES | DF | MEAN-SQUARE | F-RATIO | P |
|---|---|---|---|---|---|
| STEP | 48.252 | 1 | 48.252 | 2.110 | 0.159 |
| ERROR | 571.822 | 25 | 22.873 | | |

Analysis of Variance

Rokeach Dogmatism Scale

DEP VAR:     DOG      N:   27     MULTIPLE R:   .135     SQUARED MULTIPLE R:   .018

ANALYSIS OF VARIANCE

| SOURCE | SUM-OF-SQUARES | DF | MEAN-SQUARE | F-RATIO | P |
|---|---|---|---|---|---|
| STEP | 5.482 | 1 | 5.482 | 0.461 | 0.503 |
| ERROR | 297.184 | 25 | 11.887 | | |

Analysis of Variance

Faith in People Scale

DEP VAR:    FAITH       N:   27    MULTIPLE R:  .226    SQUARED MULTIPLE R:  .051

ANALYSIS OF VARIANCE

| SOURCE | SUM-OF-SQUARES | DF | MEAN-SQUARE | F-RATIO | P |
|--------|----------------|-----|-------------|---------|-----|
| STEP   | 3.002          | 1   | 3.002       | 1.348   | 0.257 |
| ERROR  | 55.664         | 25  | 2.227       |         |     |

APPENDIX C

QUALITATIVE INTERVIEW QUESTIONS AND LOG

OPEN-END INTERVIEW

STEP NETWORK PARTICIPANTS

1. When did you use the STEP Network? Why?

2. What were the advantages of using the STEP Network?

3. What were the disadvantages of using the STEP Netwrok?

4. If you had the necessary equipment, would you use this or similar networks on a regular basis?

5. Would you recommend this type of communication to friends or associates?

6. What suggestions can you give for improving the STEP Network?

# STEP

# NETWORK COMMUNICATION LOG

DATE_____          TIME_____ AM  PM      PLACE_____

REASON(S) FOR USING THE NETWORK   (Check all that apply)

_____ Send message to OSU              _____ Participate in conference

_____ Send message to other student    _____ Other (please explain)

_____ Send document to OSU              _____

_____ Send document to other student   _____

COMMENTS   (Record any special events, feelings you have, successes,
           failures)

VITA

Velma M. Butler

Candidate for the Degree of

Doctor of Philosophy

Thesis: STUDENT TEACHING EXPERIENTIAL PARTNERS: EFFECTS
OF PARTICIPATION ON HOME ECONOMICS STUDENT
TEACHERS

Major Field: Home Economics Education

Biographical:

Personal Data: Born in Columbia, Louisiana, August 23, 1950,
the daughter of Cecil C. and Irene W.McGuffee.

Education: Graduated from Enterprise High School, Enterprise,
Louisiana in May, 1968; received Bachelor of Science
Degree in Vocational Home Economics Education from North-
east Louisiana University, Monroe, Louisiana in January,
1971; received Master of Education Degree in Supervision
from Northeast Louisiana University, Monroe, Louisiana in
December, 1986; completed requirements for the Doctor of
Philosophy Degree in Home Economics Education at Oklahoma
State University in May, 1989.

Professional Experience: Graduate Assistant, Department of Home
Economics, Northeast Louisiana University, Monroe, Louisi-
ana, January, 1971, to May, 1971; First Grade Teacher,
Enterprise High School, Enterprise, Louisiana, September,
1971, to May, 1972; Home Economics Teacher, Mize High
School, Mize, Mississippi, September, 1972 to January,
1973; Kindergarten Teacher, Sicily Island Elementary,
Sicily Island, Louisiana, September, 1973, to May, 1974;
Home Economics Teacher, Huntington High School, Ferriday,
Louisiana, September, 1974 to May, 1985; Kindergarten
Teacher, Panaga Kindergarten, Seria, Brunei, January,
1976, May, 1976; Head Teacher, Brunei Calvert School,
Kuala Belait, Brunei, August, 1976, May, 1978; Elementary
Math Teacher, Enterprise High School, September 1979, May,
1980; Home Economics Teacher, Enterprise High School,
September, 1980, May, 1986; Graduate Assistant, Northeast
Louisiana University, September, 1986, May, 1987; Graduate
Associate, Oklahoma State University, August, 1987, May,
1989.