

An Analysis of the Implementation of the North Carolina
Cooperative Extension Service's Performance Planning,
Counseling, and Evaluation Program Using the Probability
of Adoption of Change Model

by

Larry G. Jahn

Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University in
partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

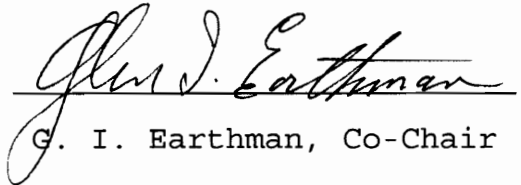
IN

HIGHER EDUCATION ADMINISTRATION

APPROVED:



D. G. Creamer, Co-Chair

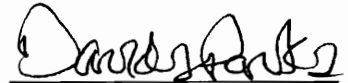


G. I. Earthman, Co-Chair



W. G. Camp

S. D. Morgan



D. J. Parks

January 1996

Blacksburg, Virginia

Key words: Planned Change, Organizational Development,
Change Models, Cooperative Extension Service

AN ANALYSIS OF THE IMPLEMENTATION OF THE NORTH CAROLINA
COOPERATIVE EXTENSION SERVICE'S PERFORMANCE PLANNING,
COUNSELING, AND EVALUATION PROGRAM USING THE PROBABILITY
OF ADOPTION OF CHANGE MODEL

by

Larry G. Jahn

Don G. Creamer, Co-Chair

Student Personnel Services and Counselor Education

Glen I. Earthman, Co-Chair

Educational Administration

(ABSTRACT)

The purpose of the study was to explain the proportion of the variance in the level of implementation of the Performance Planning, Counseling, and Evaluation (PPC&E) program that could be attributed to the nine Probability of Adoption of Change (PAC) model constructs. Level of implementation was operationally defined as the degree to which county directors implemented the many elements of the PPC&E program. The nine PAC model constructs included: advantage probability, championship, circumstances, idea comprehensibility, opposition, practicality, strategies, superintendency, and value compatibility.

Cronbach's alpha was calculated to assess the inter-item consistency or homogeneity of the items related to each of the nine constructs. Additionally, reliability coefficients with each item deleted from the respective construct were estimated. Overall, eight out of the nine constructs had reliability coefficients which were strong. Values ranged from .72 for circumstances to .87 for advantage probability. The only construct below .70 was championship with a value of .68.

Multiple regression was used to explain the proportion of the variance in the level of implementation (dependent variable) of the PPC&E program that could be attributed to the nine PAC model constructs (independent variables). The level of implementation was regressed on the PAC model constructs. All independent variables were entered into the regression equation simultaneously. The R-square value (.20) was significant which indicated a linear relationship between the level of implementation and the PAC model constructs. This meant 20 percent of the variance in the level of implementation can be explained by the PAC model constructs.

Acknowledgments

I would like to acknowledge the following people for their support and encouragement.

Ellen for her patience, understanding, sacrifice, confidence, and encouragement.

Dr. Bill Camp, Dr. Don Creamer, Dr. Glen Earthman, Dr. Sam Morgan, and Dr. Dave Parks for their contribution to this dissertation as well as guidance and support throughout my term as a graduate student at Virginia Tech.

My mother, father, brother, and sister for their support throughout my entire educational career.

Finally, my colleagues and friends at North Carolina State University who had confidence in my abilities to complete this program.

Table of Contents

Abstract.....	ii
Acknowledgments.....	iv
List of Tables.....	ix
Chapter 1.....	1
Introduction.....	1
Research Question.....	3
PAC Model Theoretical Background.....	3
Description of the PPC&E Program.....	6
Performance planning.....	6
Performance counseling.....	8
Performance evaluation.....	9
Limitations.....	11
Definitions.....	11
Chapter 2.....	13
Review of Literature.....	13
History of the Cooperative Extension Service.....	14
Approaches to Organizational Development.....	17
A brief history of OD.....	17
OD literature.....	19
The Probability of Adoption of Change (PAC) Model...	30
Summary.....	42
Chapter 3.....	45
Methodology.....	45

Variables.....	45
Population and Sample.....	46
Measurement of Variables.....	47
The county extension agent's questionnaire.....	47
The county extension director's questionnaire.....	48
Data Collection Procedures.....	51
Analysis of Data.....	54
Chapter 4.....	56
Analysis and Results.....	56
Response Rate and Demographics of Sample.....	56
County extension directors.....	56
County extension agents.....	57
Descriptive Statistics.....	60
Reliability.....	60
Multiple Regression.....	66
Correlation matrix.....	66
Appropriateness of regression analysis.....	66
Test of significance.....	68
A Revised Model Approach.....	70
Revised implementation scores.....	70
Descriptive statistics.....	72
Multiple Regression.....	72
Correlation matrix.....	72
Appropriateness of regression analysis.....	74
Test of significance.....	74

Summary.....	78
Chapter 5.....	80
Summary, Conclusions, Discussion, and Recommendations.....	80
Summary.....	80
Conclusions.....	83
Discussion.....	83
Implications.....	86
Recommendations.....	88
References.....	90
Appendix A. The County Extension Agent's Questionnaire.....	94
Appendix B. The County Extension Director's Questionnaire.....	99
Appendix C. Memorandum to Extension District Directors.....	112
Appendix D. Statements Related to the Nine Constructs.....	114
Appendix E. Initial Cover Letter to Accompany Questionnaires.....	120
Appendix F. Reminder Postcard.....	122
Appendix G. Second Cover Letter to Accompany Questionnaire.....	124
Appendix H. Construct Reliability--Items Not Deleted.....	126
Appendix I. Deleted Items and Their Impact on the Reliability Scores.....	129
Appendix J. Construct Reliability--Items Deleted.....	131

Vita.....139

List of Tables

Table 1.	PAC Model Constructs and Definitions.....	7
Table 2.	Original PAC Model Variables and Definitions.	32
Table 3.	PAC Model Key Conditions for Change.....	36
Table 4.	Items Per Construct Used to Calculate Composite Scores.....	53
Table 5.	Directors' Comments Concerning PPC&E Program.	58
Table 6.	Agents' Comments Concerning PPC&E Program....	60
Table 7.	Descriptive Statistics for the Variables in in the Study, N=84.....	62
Table 8.	Reported PAC Model Construct Reliabilities Across Three Different Measures.....	65
Table 9.	Correlations Between Level of Implementation and PAC Model Constructs and Among PAC Model Constructs.....	67
Table 10.	Analysis of Variance Information for Level of Implementation Regressed on PAC Model Constructs.....	69
Table 11.	Revised Model Correlations Between Level of Implementation and PAC Model Constructs and Among PAC Model Constructs.....	73
Table 12.	Revised Model Analysis of Variance Information for Level of Implementation Regressed on PAC Model Constructs.....	76

Table 13.	Statistics for Variables in the Equation.....	77
Table H1.	Reliabilities for Advantage Probability (Cronbach's Alpha).....	127
Table H2.	Reliabilities for Strategies (Cronbach's Alpha).....	128
Table I1.	Deleted Items and Their Impact on the Reliability Scores of the Scales to Which They Were Assigned (Cronbach's Alpha).....	130
Table J1.	Reliabilities for Championship (Cronbach's Alpha).....	132
Table J2.	Reliabilities for Circumstances (Cronbach's Alpha).....	133
Table J3.	Reliabilities for Idea Comprehensibility (Cronbach's Alpha).....	134
Table J4.	Reliabilities for Opposition (Cronbach's Alpha).....	135
Table J5.	Reliabilities for Practicality (Cronbach's Alpha).....	136
Table J6.	Reliabilities for Superintendency (Cronbach's Alpha).....	137
Table J7.	Reliabilities for Value Compatibility (Cronbach's Alpha).....	138

Chapter 1

Introduction

Change is an issue in the life of every vigorous organization, including higher education institutions. Organizational change is of two types--planned and unplanned. Planned change is purposive. It is an intentional effort to modify institutionalized policy, programs, curricula, processes or procedures, authority structures, technology, or culture toward the end of institutional renewal and improved organizational health (Creamer & Creamer, 1990).

The North Carolina Cooperative Extension Service (NCCES) is part of North Carolina State University. This organization has five major goals. These goals are: (a) deliver programs that adequately address the relevant issues and needs of a diverse clientele, (b) employ and support a staff of diverse and competent personnel, (c) foster an environment that will enable staff members and volunteers to achieve their full potential, (d) obtain and manage resources to insure an effective and efficient organization, and (e) broaden public understanding of Extension's mission, goals, programs, and accomplishments

(North Carolina Cooperative Extension Service, 1993a).

A planned change effort was recently instituted within the NCCES. This change effort dealt with the implementation of a new program called Performance Planning, Counseling and Evaluation (PPC&E). The objectives of the PPC&E program were to establish how NCCES goals translate to plan-of-work objectives and to the employee's performance plan. The PPC&E program was also implemented to develop employee potential, to help determine merit pay, and when necessary, to decide when an employee should be separated from the NCCES.

The number of theoretical models available to explain planned change in higher education is limited (Huse, 1975). However, one model that deals with planned change in institutions of higher education is the Probability of Adoption of Change (PAC) model (Creamer, Creamer, & Ford, 1991). The PAC model consists of nine constructs which define conditions within an organization that influence the success of planned change projects. These constructs are: advantage probability, championship, circumstances, idea comprehensibility, opposition, practicality, strategies, superintendency, and value compatibility.

The design of strategies to implement change should exhibit a conscious awareness of the factors that increase the likelihood of successful adoption of planned change

efforts. The PAC model is one tool for strategic planning to weigh the factors in the environment that support and those that inhibit change. This study was designed to enhance the understanding of a planned change effort in higher education, specifically as it relates to the relationship of the PAC model constructs on the level of implementation of the Performance Planning, Counseling, and Evaluation program.

Research Question

The specific research question to be answered by this study was: What proportion of the variance in the level of implementation of the Performance Planning, Counseling and Evaluation program can be attributed to the nine PAC model constructs?

PAC Model Theoretical Background

The PAC model was offered first in 1986 (Creamer & Creamer, 1986a) as a theoretical paradigm for explaining the likelihood of successful adoption of planned change initiatives in student affairs. Development of the PAC model was based on the AVICTORY model which was attributed to the work of Davis and Salasin (1980). The factors

determining the success of a planned change are contained in the acronym AVICTORY formed from the first letters of the following: ability, values, information, circumstances, timing, obligation, resistances, and yield.

Data collected during an in-depth case study regarding an institution-wide planned change project caused Creamer and Creamer (1986a) to make suggested changes in the AVICTORY model. The suggestions, more emphasis on leadership and advocacy and less emphasis on resistance, were incorporated into a new planned change model which they named the Probability of Adoption of Change (PAC) model. This model consisted of eight variables which included advantage probability, championship, circumstances, idea comprehensibility, leadership, practicality, strategies, and value compatibility.

In a subsequent study, Creamer and Creamer (1988) added top-level support to the previously existing eight variables. The revised model now had three variables dealing with different levels of leadership--top-level support, leadership, and championship. In this examination, the authors suggested that opposition, an element of the AVICTORY model (Davis & Salasin, 1980) that had been previously eliminated from the PAC model would be worthy of further study and should be reconsidered for

inclusion in the PAC model.

In 1989, Creamer and Creamer reported results of a study in which a Likert-type scale was used to assess the role of the nine variables in the PAC model across four student affairs planned change projects and three curriculum reform planned change projects. This was the first effort to apply the PAC model to curriculum change projects. The curriculum reform case studies used in the analysis were taken from Lindquist (1978). Opposition had not been added to the PAC model as a separate variable at that time. However, the authors did note that the role of opposition was more pronounced in curriculum reform projects than in student affairs programs (Creamer & Creamer, 1989) due to multiple and often conflicting values related to the planned change.

Creamer, Creamer, and Ford (1991) reported scale reliability coefficients for the nine constructs in the PAC model and suggested two refinements to the model. Previous to this paper, the authors had referred to the components of the PAC model as variables. With this paper, they referred to the components of the model as constructs.

Opposition, a construct which had been examined in previous research studies (Creamer & Creamer, 1988, 1989) but not as yet added to the model, was added to the model

as a separate construct. Additionally, top-level support and leadership were combined into one construct which was named superintendency. Internal-consistency reliability, namely alpha coefficients, ranged from .41 for circumstances to .77 for idea comprehensibility and advantage probability.

The original PAC model consisted of eight variables which included advantage probability, championship, circumstances, idea comprehensibility, leadership, practicality, strategies, and value compatibility. The discussion of the model presented in this section has briefly described the refinements made to the model based on the developers' research. The current PAC model, which was used in this study, consists of nine constructs. The constructs and their definitions are provided in Table 1.

Description of the PPC&E Program

Performance planning. The PPC&E program begins with a performance plan for each employee. The performance plan should be developed jointly between the County Agent and County Director. This plan should be developed within 30 days of the last performance evaluation.

The performance plan should include a description of major job responsibilities with specific statements of the

Table 1

PAC Model Constructs and Definitions

Advantage probability refers to the perception of demonstrable gains, the likelihood of achievement of stated goals, and the probability of solving vexing problems many people feel.

Championship refers to the advocacy by influential persons, other than the leader(s) who are empowered to assume responsibility for implementing the change.

Circumstances refers to the source of impetus for change, whether internal or external; the nature of the environment, whether integrative and supportive of change; and the degree of felt need among constituents.

Idea comprehensibility refers to the degree of clarity, simplicity, and timing of the idea.

Opposition refers to the actions of influential persons or groups who resist implementing the change.

Practicality refers to the availability of resources, both fiscal and human, including appropriate skills, knowledge, and attitudes.

Strategies refers to the interventions or actions taken to implement the idea, including the enhancement of integration among units of the institution toward common purposes, and intensity and forms of communication to inform constituents of the idea, plans proposed and undertaken, progress achieved, and evaluation of results.

Superintendency refers to the strength and consistency of backing project goals and strategies by top level leaders and to the actions of "prime movers" or "changemasters" who focus energy and resources within the organization toward the implementation or adoption of the idea on a continuing basis, including the processing and action on new information gained through feedback and monitoring systems.

Value Compatibility refers to the level of agreement between the values of the proposed project and those of the normative culture; includes harmony of procedures and facilities.

results expected. Whenever possible, these task results should contain phrases that refer to quantifiable objectives such as quality, quantity, and timeliness as well as how these responsibilities will be measured. The major responsibilities include the employee's contribution to (a) extension programs, (b) positioning of the extension organization in the county and state, and (c) professional competency (North Carolina Cooperative Extension Service, 1993b). The important point is that employees have a good understanding of key responsibilities and results expected of them.

Performance counseling. Periodic progress reviews should take place every three to six months, or more frequently when an employee is in a new position or is experiencing difficulty. This frequently will help employees insure open communication and avoid surprises during the formal evaluation. The review should focus on task-related performance as well as on the impact of continuing responsibilities. Continuing responsibilities include the following items: adaptability/flexibility, communication, interpersonal-participatory skills, ability to learn-apply, dependability, and appreciation for diversity.

Satisfaction surveys clearly show that employees who do not have an opportunity to review their performance

plans during the performance plan period are less satisfied with the PPC&E program (North Carolina Cooperative Extension Service, 1993b). Employee satisfaction with the program increases directly with the frequency of reviews. The reason for this is simple: periodic counseling eliminates surprises and misunderstandings. In actually conducting sessions, county directors are urged to adopt the following procedure in order to increase the likelihood of success: (a) listen to employees' views, (b) give views on accomplishments and areas for improvement, (c) determine specific actions required, and (d) set a follow-up date for next counseling session.

Performance evaluation. Performance evaluation is the final step in the PPC&E program. It measures results achieved in major job responsibilities. Employees should be evaluated annually or sooner if the employee is being reassigned or if the employee is not meeting job requirements. Evaluations should occur each year by the end of the first quarter.

The performance evaluation of the County Agent will be given by the County Extension Director and reviewed with the Extension District Director. This evaluation will be comprised of the following items: (a) actual performance evaluated against the performance plan

task-related responsibilities, (b) continuing responsibilities assessed as to their impact on task-related responsibilities, (c) overall level of achievement for performance plan, and (d) employee's overall contribution during the past year.

The level of achievement for items a, c, and d will have one of four ratings. These ratings include results far exceeded requirements, results exceeded requirements, results met most or all requirements, or results did not meet requirements. Employees who do not meet requirements are notified they are "on notice" and will be placed on an improvement plan for a period of 90 days.

When evaluating an employee's level of achievement for items a, c, and d, the following performance characteristics should be considered: direction required to get the job done, quality and timeliness of the work product, creative or problem solving skills, leadership and relationship with others on a team, feedback from employee's customers, and overall contribution. Some of these characteristics are included in the continuing responsibilities, others in the performance plans. They are to be used as a guide to help county directors in comparing contributions across peer groups.

Continuing responsibilities are assessed as to their positive, negative, or neutral impact on task-related

responsibilities. They should be discussed during the performance planning session which should begin every appraisal cycle, as well as during periodic reviews. Any positive or negative impact should be addressed in the evaluation of specific task-related responsibilities.

Limitations

The following limitations were identified:

1. The agents for this study were not assigned to a treatment or control group; however, they were randomly selected. Thus, selection was a limiting factor in the study and the external validity of the design must be considered to be a limitation.

2. The findings are limited to the North Carolina Cooperative Extension Service.

Definitions

Level of implementation used in this study was operationally defined as the degree to which county directors have implemented the many elements of the PPC&E program. An implementation score was calculated for county directors by surveying each director and from one to three of their employees. This provided a minimum of

two or a maximum of four independent measures of how well each element of the PPC&E program had been implemented.

Chapter 2

Review of Literature

The research reported in this dissertation deals with a planned change effort within the North Carolina Cooperative Extension Service (NCCES). This change effort was the implementation of a new program called Performance Planning, Counseling and Evaluation (PPC&E). Therefore, the first section of this review contains a brief history of the Cooperative Extension Service and its mission.

This study dealt with the process of planned change, therefore a framework for understanding this process in institutions of higher education was needed. The next section provides a conceptual framework for planned change, also called organizational development, in these complex organizations.

The last section of the review contains the organizational development model that was used in this research--the Probability of Adoption of Change (PAC) model developed and reported by Creamer and Creamer (1986a, 1986b, 1988, 1989, 1990) and Creamer, Creamer, and Ford (1991). In addition, a study conducted by Jackman (1991/1992) is also discussed. This research tested the

PAC model's effectiveness in predicting success in curriculum revitalization projects in undergraduate agricultural and life science projects.

History of the Cooperative Extension Service

The Cooperative Extension Service is an educational organization whose mission is to transfer practical, research-based knowledge from land-grant institutions to citizens who can use that knowledge to improve the quality of their lives. Over a 50 year period of federal and state legislation, the land-grant idea developed to include three central functions: teaching, research, and extension.

Land-grant institutions have their roots in the passage of the Morrill Land Grant Act of 1862 (Parker, 1924). Through the act, Congress provided large grants of federal land to each state. The funds produced by the sale of these lands created an endowment for the land-grant institutions. A second Morrill Act was passed in 1890, providing additional funds for these institutions. Since the colleges were severely hampered by a general lack of sound research in support of their teaching, Congress passed the Hatch Act (1887) to create and support experimental stations. Finally in 1914, the

Smith Lever Act established the system of cooperative extension services to bring people the benefits of current developments in the fields of agriculture, home economics, and related subjects (Grantham, 1958).

Today's land-grant universities have been developing as major educational institutions for more than 100 years. As the needs of people changed, so have the curricula, the topics of research, and the subject areas of the Cooperative Extension Service. The hallmark of the organization in providing service to the public has been its ability to advocate and promote change.

A public organization as large and influential as Cooperative Extension cannot escape scrutiny, criticism, and pressure to change. What is happening and what will happen in and to Extension are many internal and external events, some small, some large and widely influential, but all working to redefine and recreate the organization. A few of the major forces at work include: a new call for a revitalized land-grant institution, a major effort to increase Cooperative Extension's accountability, a major effort to increase the public's understanding and recognition of Cooperative Extension, a new effort to re-establish linkage and cooperation between extension and research, calls for new approaches to Extension's publics and programs, and a major effort in extension staff

development (Sanderson, 1988).

The NCCES is not immune from calls for change. In 1993, the NCCES completed its new strategic plan *Our Commitment to Excellence* in an attempt to address some of these issues related to change. This strategic plan positioned Extension to be a major player in the affairs of North Carolina and to control its destiny by planning for change rather than having change imposed upon it (North Carolina Cooperative Extension Service, 1993a). Some of the goals contained in the plan were caused by external forces. Others goals were due to internal forces.

One way to think about change in complex organizations such as the NCCES is in terms of organizational adaptation. "Organizational adaptation refers to modifications and alterations in the organization or its components in order to adjust to changes in the external environment. Its purpose is to restore equilibrium to an imbalanced condition" (Cameron, 1984, p. 123). The emphasis is on responding to some discontinuity or lack of fit that arises between the organization and its environment.

This kind of organizational change is different than what is often called organizational development (OD) or planned change (French & Bell, 1990). Adaptation focuses

on changes motivated by the external environment. OD focuses on changes motivated within the organization.

The PPC&E program was not only part of the strategic plan but was also motivated by internal forces within the NCCES. Therefore, the literature regarding OD is presented below. For the purposes of this research, the phrases planned change and organizational development will be used interchangeably.

Approaches to Organizational Development

A brief history of OD. The history of OD is rich with the contributions of behavioral sciences and practitioners, and the contributions of many people in client organizations. OD came from three different stems (French & Bell, 1990). The first was the growth of the National Training Laboratories and the development of training groups, otherwise known as sensitivity or T-groups. These were labels for the same process, consisting of small group discussions in which the primary, almost exclusive source of information for learning was the behavior of the group members themselves (Huse, 1980). Participants received feedback from one another regarding their behavior in the group, and this feedback became the learning source for personal insight

and development. Participants also had an opportunity to learn more about group behavior and intergroup relationships. T-groups were the educational vehicles for change, in this case individual change. When this form of education began to be applied in industrial settings during the late 1950s for organizational change, the T-group became one of the earliest so-called interventions of OD (Burke, 1982).

The second stem came from the early work in survey research and feedback. The survey feedback approach, developed by Rensis Likert and his colleagues at the Survey Research Center of the University of Michigan, used a standardized questionnaire for data collection. The collective responses to this questionnaire were reported back to work and managerial teams within the organization. These teams analyzed and interpreted the data and then planned action steps to deal with problems that were identified. This approach was given support as an effective technique for organizational planned change when Mann (1964) found more change occurred when employees received feedback on their responses to a survey than when they did not.

The third stem was action research which involved three processes. These processes were: data collection, feedback of the data to the clients, and action planning

based on the data (Beckhard, 1969). Action research is both an approach to problem solving and a problem-solving process. Corey (1953), an early advocate of action research stated: "The process by which practitioners attempt to study their problems scientifically in order to guide, correct, and evaluate their decisions and actions is what a number of people have called action research" (p. 6). The origin of action research can be traced to two individuals. The first individual was John Collier, a commissioner of Indian Affairs. In this position Collier had to diagnose problems and recommend remedial programs for the improvements of race relations. The second individual was Kurt Lewin, a social psychologist who was profoundly interested in applying social science knowledge to help solve social problems. These individuals believed to effectively solve problems required both research and action. One could not be done without the other, hence the term action research.

OD literature. French and Bell (1990) defined OD as "a planned, systematic process in which applied behavioral science principles and practices are introduced into an ongoing organization toward the goals of effecting organization improvement, greater organization competence, and greater organizational effectiveness" (p. 1). The focus is on organizations and their improvements or total

system change. The orientation is on action, thereby achieving the desired results as a consequence of planned activities.

French and Bell (1990) discussed 14 underlying assumptions related to organizational development. These assumptions deal with people as individuals, people as group members and as leaders, and people as members of total organization systems. They argued the assumptions seem to be reasonable for most organizations.

Assumptions about people as individuals. The first assumption in this group was that most individuals have ambitions for personal growth and development if provided an environment that is supportive and challenging. Second, most people have the desire and are capable of making more contributions to an organization than the organization will permit. These assumptions have to do with personal growth and constructive contributions to the organization. In the NCCES, these assumptions apply to any faculty or staff member with a teaching, research, or extension appointment.

Assumptions about people in groups and about leadership. The first assumption was that an individual's work group, including peers and superiors, can provide satisfaction for the individual. Second, people wish to be accepted and interact successfully within their work

group. Third, to optimize the effectiveness of the group, group members must assist one another. Fourth, suppressed feelings and attitudes adversely affect problem solving, personal growth, and job satisfaction. Fifth, the level of interpersonal trust, support, and cooperation was much lower in many groups and organizations than was desirable. Finally, attitudinal and motivational problems in the group can be best resolved when all individuals in the group work together toward a constructive solution. These assumptions highlight the importance of the work team in organizations if they are to be successful. In the NCCES, these assumptions apply to faculty and staff members who are members of academic departments or administrative units.

Assumptions about people in organizational systems. The first assumption was that attitudes and behaviors of people in organizations are affected by the interactions between groups within the total organization. Second, "win-lose" conflict strategies between people and groups are not optimal in the long run to the solutions of most organizational problems. Third, OD efforts need to have a relatively long-range time span. Fourth, improved performance stemming from OD efforts need to be sustained by the total human resources system. These last two assumptions are related to bringing about major shifts in

the culture of an organization. In the NCCES, these assumptions apply to inter-disciplinary cooperation in the organization and to the personal reward system.

Assumptions related to values in the organization.

The first assumption was that people in the organization need to work together in achieving the end products of the organization. Second, a high value must be placed on the welfare of all members in the organization, particularly by those individuals having the most power over others. In the NCCES, these assumptions suggest that all members of the organization must be committed to its mission statement.

A notable framework for viewing planned change was one developed by Chin and Benne (1969). This framework involved a threefold view of grouping change strategies. The first category was called rational-empirical. The fundamental assumptions underlying this strategy were that people are rational and they will follow their rational self-interest once this was revealed to them. The second group of strategies was called normative-reeducative. These build on the assumptions underlying the rational-empirical. However, much more emphasis was placed on the importance of sociocultural norms and on the commitments of individuals to those norms. Norms were supported by the attitudes and value systems of

individuals and groups. The third group of strategies, "power-coercive," was based on the application of power in one form or another. The influence process involved was basically that of compliance by those with less power to the plans, direction, and leadership of those with greater power.

Schmuck and Miles (1971) reported on much of the theory and data-based research on organizational development. Of particular interest was the OD cube. Their cube provided a scheme for classifying OD interventions. The three dimensions of the cube included diagnosed problems, focus of attention, and the mode of intervention. They argued OD interventions could be classified according to the problem, focus of attention, and mode of intervention.

Levine (1980) reviewed the prescriptions for planned change by Bennis (1973), Conrad (draft), Lindquist (1978), and Martorana and Kuhns (1975). He selected the best methods for how change should occur from each of their models and developed what Levine called the eclectic school of planned change. This school was comprised of 58 statements which were grouped into 12 categories. The ingredients for successful planned change included: create a climate for change, diminish the threat associated with innovation and avoid hardline approaches, avoid being

timid, appreciate timing, gear the innovation to the organization, engage in information dissemination and evaluation, communicate effectively, get organizational leaders behind the innovation, build an active base of support, establish rewards, and plan for the postadoption period. The twelfth category was a miscellaneous designation which included: plan for how to change, plan what to change, incorporate an explicit implementation plan into the proposal, and organize for implementation.

Bullock and Batten (1985) reported that OD was concerned with longitudinal organizational change. Longitudinal change implied that an organization existed as different states at different times with some form of movement from one state to another. They argued that to understand planned change a conception of these consecutive states and how the process of movement occurred must be developed. In their view, the fundamental theoretical description of this process was called OD phase analysis. Phase analysis implied that the stages in planned change were fluid and dynamic. This meant OD was a cycle of changes that blend and overlap. The authors used three basic approaches to define the phases for OD: the theoretical approach, the historical approach, and the intervention approach.

The theoretical approach defined conceptual processes

that occurred across time and described OD phases in terms of those processes. Bullock and Batten (1985) listed seven planned change models that fit into this approach. A common model of phases for the OD process was the planning model. Lippitt, Watson, and Westley (1958) developed a classic planning model with the following phases: develop the need for change, establish a relationship, clarify the problem, examine the goals and the alternatives, implement the change effort, stabilize the change, and terminate the relationship. Other authors reworked this model to develop their own planning models. Examples include Burke (1982), Frohman, Sashkin, and Kavanagh (1976), Kolb and Frohman (1970), Lawrence and Lorsch (1969), and Schein (1969).

The problem-solving model was similar to the planning model (Davis, 1967). The phases in this model included: problem awareness, problem identification, information gathering, solution generation, solution evaluation, decision, implementation, and review. This model placed more emphasis on the principle of confrontation as it related to the improvement and development of organizations.

Beckhard (1969) used the need satisfaction model to describe how needs were recognized and satisfied within organizations. Five case studies of OD programs were

utilized to explain the model. The basic phase sequence was need identification, initial diagnosis and strategy, and actions.

The growth model (Brugliera, 1976) used a biological plant metaphor to explain growth phases in organizations. Phases for this model included seeds, nutrients, first fruits, and preserving the grass roots. This model has not been formally developed.

The ice model developed by Lewin (1951) is a classic planning model. It is a three step strategy of planned change comprised of unfreezing, moving, and refreezing. The author argued that the forces supporting change and the forces resisting change converge in what is called quasi-stationary equilibrium. This equilibrium was present when a balance existed between opposing forces.

The transition model was introduced by Beckhard and Harris (1977). Their model consisted of diagnosis, defining the end state, defining the transition state, change strategies, evaluation, and stabilization. These authors argued the importance of conceiving a transition phase between the current and future phases in the change process.

The primary activity model developed by Argyris (1970) attempted to outline a set of primary intervention activities and then map these activities into phases.

Primary activities included generating valid information, allowing free, informed choice, and fostering internal commitment. These activities could then be placed into one of the following phases: diagnostic, choice, or internal commitment.

Many case studies of actual OD efforts have been described as a chronology of historical events. This has been called the historical approach (Bullock & Batton, 1985). In this approach, the case study was divided into time periods based on critical events. These events might include project announcement, committee formation, transfer of key managers, strikes, and firing of consultants. The purpose of this type of analysis was simply to describe the prominent events of organizational life in a case. These descriptions have generality only if history repeated itself.

The third approach to phase identification was called the intervention approach (Bullock & Batton, 1985). In this approach, the primary activities of some particular intervention technique were identified to enable planned change in organizations. An intervention based phase example is the managerial grid (Blake & Mouton, 1969, 1983). The grid is a highly formalized, step-by-step instrumental approach to change. The implementation of a grid improvement program consists of six phases lasting

three to five years. In this model intervention begins with a managerial grid, continues with teamwork development and intergroup development, and then develops, implements, and critiques an ideal strategic model for the organization. The program is highly instrumented and uses a wide variety of questionnaires and cases, enabling individuals and groups to assess strengths and weaknesses. The grid approach focuses on the processes, skills, and knowledge necessary for effectiveness at ever-widening levels: individual, group, intergroup, and total organization levels. Grid OD is an approach to organization development that might be characterized as complete, systematic, and difficult.

Bullock and Batten (1985) concluded that none of the models were ideal for phase analysis. Therefore, they developed their own four-phase model with accompanying change processes to approximate as closely as possible an optimal solution to the phase problem. Phase one, exploration, contained the change processes of need awareness, search, and contracting. Diagnosis, design, and decision processes comprised the second phase, planning. The action phase contained the processes of implementation and evaluation. Phase four, integration, consisted of stabilization, diffusion, and renewal.

Porras and Silvers (1991) suggested that planned

change consisted of four identifiable, interrelated components. These components included: (a) a change intervention that altered (b) key organizational target variables that then impacted (c) individual organizational members and their on-the-job behaviors resulting in (d) changes in organizational outcomes. They also made a distinction between the more traditional approach to planned change, organizational development (OD), and the cutting edge of planned change, organizational transformation (OT). For them, OD concentrated on work setting changes that either help an organization better adapt to its current environment or improve its fit into expected future environments. This approach to planned change was appreciable, not radical. OT was also planned but directed more toward the vision of the organization. The organization was constantly changing to more appropriately fit the present organizational state and better anticipate desired futures. This type of change was most effective when the organization developed the capability for continuous self-diagnosis. This approach to planned change resulted in more radical behavioral changes of organization members. French and Bell (1990) believed that OT was largely synonymous with OD. However, they argued the OT concept was frequently used to describe change efforts that have a future orientation and where

there was a massive attempt at changing the culture and direction of an organization using participative, OD-like approaches.

The Probability of Adoption of Change (PAC) Model

The PAC model was first offered by Creamer and Creamer (1986a) as a conceptual paradigm for explaining the likelihood of successful adoption of planned change initiatives in student affairs. Development of the PAC model was based on the AVICTORY model which was attributed to the work of Davis and Salasin (1980). The factors determining the success of a planned change were contained in the acronym, AVICTORY, formed from the first letters of the following: ability, values, information, circumstances, timing, obligation, resistances, and yield.

Data collected during an in-depth case study regarding an institution-wide planned change project caused Creamer and Creamer (1986a) to make suggested changes in the AVICTORY model. The suggestions, more emphasis on leadership and advocacy and less emphasis on resistance, were incorporated into a new planned change model which they named the Probability of Adoption of Change (PAC) model. This model consisted of eight variables which included advantage probability,

championship, circumstances, idea comprehensibility, leadership, practicality, strategies, and value compatibility (Table 2).

Creamer and Creamer (1986a) reported the results of a test of the original PAC model. A 35-item survey developed to collect responses about change efforts under way in student affairs was mailed to 740 voting delegates of the National Association of Student Personnel Administrators (NASPA). Planned change was defined as "a long-term systematic, and purposeful effort to change existing policies and practices to incorporate (a) new behaviors, values, or goals, (b) new technological innovations, or (c) structural changes in the communication or authority systems of an organization" (Creamer & Creamer, 1986a, p.20). Respondents were asked a series of questions concerning their planned change effort. Respondents were also asked to characterize their change effort as successful or unsuccessful.

Responses were received from 280 (38 percent) of those surveyed, with 163 (58 percent) of the respondents reporting planned change efforts under way and 117 (42 percent) reporting no planned change efforts. Data from the 163 respondents were analyzed using chi-square analyses to determine if relationships existed in the model variables for successful and unsuccessful projects.

Table 2

Original PAC Model Variables and Definitions

Advantage probability refers to the perception of demonstrable gains, the likelihood of achievement of stated goals, and the probability of solving vexing problems felt by many people.

Championship refers to advocacy by influential persons, other than the leader(s) who are assigned or who assume responsibility for implementing the change.

Circumstances refers to the source of impetus for change, whether internal or external and may either include or exclude an integrative or supportive environment for change. The presence or absence of felt need is included.

Idea comprehensibility refers to the degree of clarity, simplicity, and timing of the idea.

Leadership refers to the actions of "prime movers" or "changemasters" who focus energy and resources within the organization toward the implementation or adoption of the idea on a continuing basis, including the processing of and action on new information gained through feedback and monitoring systems.

Practicality refers to the availability of appropriate staff skills, knowledge, attitudes, and resources.

Strategies refers to the interventions or actions taken to implement the idea. Includes intensity and forms of communication used to inform constituents of the idea, plans proposed and undertaken, progress achieved, and evaluation of effects. Also includes actions to ensure integration of efforts toward common purposes.

Value Compatibility refers to the degree to which the proposed change seems compatible with existing values, norms, procedures, or facilities.

Analyses of this information underscored the importance of leadership and championship. Little statistical support was identified for the other six PAC model variables.

Intensive case studies were conducted by on-site interviews at four institutions selected from 10 of the total 163 survey respondents (Creamer & Creamer, 1986b). Of the four selected, two institutions were publicly controlled and two were privately controlled. Two were undergraduate institutions, one was a community college, and one was a large, private institution granting doctoral degrees. Enrollments ranged from 3,000 to 30,000 students.

Semistructured interviews using open-ended questions at each of the four sites were performed to investigate the role of each model variable in the planning and implementation stages of the planned change projects. Site visits from two to three days were conducted to interview all individuals who had played a major role in the project. Judgments concerning the predictive power of the variables were based on consistency of information from multiple sources both within and across cases.

Data analysis from the case studies provided consistent support for all variables in the model. However, the overall success or failure of the planned change efforts were highly influenced by the leadership

and championship variables. The central purpose of leadership was setting the stage and making it possible for the planned change effort to be done. The central purpose of championship was to get the job done. The influential roles of the project leader included formulating the vision, developing top-level support, selecting personnel, allocating resources, empowering the champion, and developing internal support. Project champions were responsible for operationalizing the plan, selling the idea, negotiating participation, and monitoring implementation.

Cremer and Cremer (1988) studied actual cases of planned change in student affairs to identify forces that influence the likelihood of institutional adoption of the project activities or goals. Based on this research, top-level support was added to the previously existing eight variables. The revised model now had three variables dealing with different levels of leadership-- top-level support, leadership, and championship. The authors also suggested that opposition, an element of the AVICTORY model (Davis & Salasin, 1980) that had been previously eliminated from the PAC model would be worthy of further study and should be reconsidered for inclusion in the PAC model. A summary of the key conditions for project change associated with each PAC model variable are

presented in Table 3 (Creamer & Creamer, 1988).

Creamer and Creamer (1989) reported results of a study in which a Likert-type scale was used to assess the role of the nine variables in the PAC model across four student affairs planned change projects and three curriculum reform planned change projects. This was the first effort to apply the PAC model to curriculum change projects.

The curriculum reform case studies used in the analysis were taken from Lindquist (1978). The student affairs case studies were identical to the ones reported in previous research by Creamer and Creamer (1986b, 1988). Indicators of the operational properties of each variable were assigned values ranging from one (strongly inhibitive of change) to five (strongly supportive of change). Independent ratings of the variables were conducted by each of the authors. Differences in ratings were resolved by joint re-evaluation of case evidence. An assumption was made that each variable contributed equally to the actual outcome of the project. Therefore, assigned values were summed for each case to yield a PAC index. The indices were ranked either strong, moderate, or slight. These rankings represented predictions of success of the individual cases. The predictions of the planned change outcomes from the indices were then compared to the actual

Table 3

PAC Model Key Conditions for Change

Advantage probability suggests the outcomes of the project are apparent and perceived to address significant institutional concerns.

Championship suggests a clearly identifiable project champion serves as an influential advocate empowered with the responsibility to implement project goals.

Circumstances suggests the presence of a uniform perception of a need for change.

Idea comprehensibility suggests the project goals with the ways to implement them articulated clearly.

Leadership suggests clearly identifiable project leader maintains commitment and support throughout the planning and early implementation of the project.

Practicality suggests adequate personnel and resources are sustained throughout the planning and implementation of the project.

Strategies suggests that a distinction is maintained between the process of conceptualizing the fundamental focus of the project and the process of developing strategies to implement them.

Top-level support suggests that top-level leadership exhibits sustained commitment to the project.

Value compatibility suggests that the project and its plan for implementation are seen as useful and harmonious with other procedures.

project outcomes as reported in the case studies.

The predicted outcomes (PAC indices) were very similar to the actual reported outcomes of the case study. For example, one report read, "Participation in a mentoring program for black students was widespread and there was general satisfaction about the effort by students, professional staff, and project leaders" (Creamer & Creamer, 1989, p. 29). The PAC index for this project was 35 and was assigned a ranking of strong. Another report read, "The program to introduce interdisciplinary instruction and individualized educational planning did not result in major change in educational practices, but, instead, resulted in a minor increase in interdisciplinary efforts....Programs had a hard time moving beyond the committed few faculty and administrative participants" (Lindquist, 1978, p. 161). The PAC index for this project was 26 and was given a ranking of moderate.

The relative contribution of each PAC model variable as a predictor in determining the likelihood of success for the planned change effort was also reported. Idea comprehensibility, circumstances, and championship were classified as strong variables. Top-level support, leadership, strategies, and advantage probability were considered moderate in terms of variable strength.

Finally, practicality and value compatibility were weak in terms of variable strength. Opposition had not been added to the PAC model as a separate variable at this time. However, the authors did note that the role of opposition was more pronounced in curriculum reform projects than in student affairs programs (Creamer & Creamer, 1989) due to multiple and often conflicting values related to the planned change.

Creamer, Creamer, and Ford (1991) reported the findings from a questionnaire about actual planned change projects undertaken in student affairs and the results of reliability coefficients for the nine constructs in the PAC model. Previous to this paper, the authors had referred to the components of the PAC model as variables. Two refinements to the model were also reported.

The sample for this study was 84 respondents to the authors' survey of chief student affairs officers (CSAOs) from previous research (Creamer & Creamer, 1986a, 1986b, 1988, 1989). A 43-item questionnaire was developed with each item assigned to one of the constructs of the model. Respondents were asked to weigh the level of influence, if any, of each item on the outcomes of the planned change project. The scale used to measure each item ranged from negative three (item was perceived to have negatively influenced change) to positive three (item was perceived

to have positively influenced change). A response of zero indicated the item had no influence on project outcomes. An eighth point on the scale, not applicable (NA), indicated the item was not present in the planned change project. For statistical purposes, responses of NA were recoded to zero under the assumption that both zero and NA responses indicated no influence on planned change outcomes.

Alpha coefficients calculated from final assignment of items to the constructs supported some refinements to the model. Top-level support and leadership were combined into one construct called superintendency. The construct of opposition was also added to the model. The reliability scores (internal consistency method) for the revised constructs were reported as follows: idea comprehensibility and advantage probability .77, practicality .76, championship .74, opposition .73, strategies .64, superintendency .62, value compatibility .53, and circumstances .41.

The original PAC model consisted of eight variables which included advantage probability, championship, circumstances, idea comprehensibility, leadership, practicality, strategies, and value compatibility. The discussion of the model presented in this section has briefly described the history and refinements made to the

model based on the developers' research. The current PAC model, which was used in this study, consists of nine constructs. The constructs and their definitions were previously provided in Table 1.

Jackman (1991/1992) tested the PAC model in the context of curriculum revitalization in undergraduate agriculture and life sciences programs. Faculty and administrators from these programs throughout the United States responded to survey items written to measure the relationship of the PAC model constructs with the success of curriculum revitalization projects with which they had been involved. Their perceptions of the success of the projects were also requested. The overall objective of the study was to develop a model to predict success of curriculum revitalization projects in undergraduate agricultural and life sciences programs using the theoretical framework of the PAC model.

Cronbach's alpha was estimated for each of the constructs. Additionally, reliability coefficients with each item deleted from the respective constructs were estimated. This procedure revealed that for six of the nine constructs (championship, circumstances, idea comprehensibility, practicality, superintendency, and value compatibility) the construct score reliability was highest when all three items used to measure a construct

were included in the respective construct. Reliability scores ranged from .57 (practicality) to .75 (championship and circumstances). However, for the other three constructs (advantage probability, opposition, and strategies) one item per construct caused a lower construct score reliability. Deleting these items resulted in the following reliability scores: advantage probability (.82), opposition (.83), and strategies (.73).

Scores representing the success of the projects were regressed on scores representing the PAC model constructs. Multiple regression was used to assess the effectiveness of the PAC model in projecting project success. Findings from the study suggested three constructs should be eliminated from the model (practicality, strategies, and value compatibility). These constructs were eliminated because of large intercorrelations among the constructs indicating collinearity. Constructs in the reduced PAC model (PAC-R) that were significant predictors of project success were championship, circumstances, idea comprehensibility, and superintendency. Advantage probability and opposition were not significantly related to the outcome.

Idea comprehensibility and superintendency were strong predictors of project success. Idea comprehensibility was positively related to project

success. Superintendency was negatively related to project success indicating that strong administrative leadership has a detrimental effect on curriculum revitalization efforts. Jackman (1991/1992) suggested this relationship might be explained by considering the relationships between faculty and administrators on university campuses. In institutions that have strong faculty governance structures, strong administrative support of a project may be viewed as threatening to faculty autonomy. He concluded that faculty may, indeed, reject the views and opinions of the administration. Circumstances and championship were weaker, yet significant, predictors of success. Both of these constructs were positively related to change project success.

Summary

The Cooperative Extension Service has provided valuable public service for more than 100 years. A public organization as large and influential as Cooperative Extension cannot escape pressure to change. The NCCES is not immune to calls for change. Its most recent strategic plan positioned the organization to be a major player in the affairs of North Carolina and to control its destiny

by planning for change rather than having change imposed upon it. The PPC&E program was part of this strategic plan and was motivated by internal forces within the NCCES.

There are many approaches in which to conceptualize change in educational environments. The approach discussed in this chapter centered on organizational development also called planned change. Planned change is purposive, deliberate, and usually process oriented. This approach was selected since the overarching theory related to planned change focuses on change motivated by forces within or internal to the organization. Many models of planned change were presented. However, the Probability of Adoption of Change (PAC) model was highlighted.

The planned change approach was an appropriate one for the study of the implementation of the PPC&E program. The underlying assumptions of planned change were applicable to the NCCES, its values, and mission. The PPC&E program was planned, purposive, and deliberate. The PAC model was one of the few models that dealt with planned change in institutions of higher education. In addition, the nine constructs associated with the PAC model all seemed to be critical elements that define conditions within an organization that influence the success of planned change projects.

Based on this information, the PAC model was chosen as the theoretical framework for analyzing the effects of the PAC model constructs on the level of implementation of the PPC&E program. The research presented in the next three chapters examines the proportion of the variance in the level of implementation of the PPC&E program that can be attributed to the nine PAC model constructs.

Chapter 3

Methodology

This chapter describes the population, sample, data collection procedures and instruments, and statistical data analysis procedures for the study. The research focused on the Probability of Adoption of Change (PAC) model constructs that may explain variance in the level of implementation of the Performance Planning, Counseling, and Evaluation (PPC&E) program. Permission to conduct the study was obtained from Virginia Tech's Institutional Review Board for Research Involving Human Subjects and the Administrative Council of the North Carolina Cooperative Extension Service (NCCES).

Variables

This study was concerned with nine variables each representing the following constructs: advantage probability, championship, circumstances, idea comprehensibility, opposition, practicality, strategies, superintendency, and value compatibility. These variables were used to explain the level of implementation of the

PPC&E program.

Population and Sample

The population in the study was to include all 100 county extension directors as well as all county extension agents in these 100 counties. However, any large organization always has vacant positions or new employees within its ranks. To obtain an accurate picture of how the NCCES was staffed at the time this research was conducted, a listing of county extension directors and county extension agents was requested from the Extension Personnel Office.

In developing their county extension director list, Extension Personnel was given two sorting variables. First, county extension directors had to have been in their current positions for at least one year. This guaranteed county directors had been through one PPC&E cycle. Second, vacant county extension director positions were to be eliminated from the listing. Based on these instructions, 85 counties were included in the population.

The county extension agent list was based on these 85 counties. Once again, Extension Personnel developed their list using the same sorting variables as for the county extension directors. This resulted in a list of 324

names. Some counties had as many as eight names per county while others only had one per county.

Extension agents who worked for each of the 85 directors were randomly selected from this list. If possible, three agents were chosen from each county. However, due to small staff sizes in some of the counties this was not possible. This selection process resulted in a sample size of 222.

Measurement of Variables

Data were collected from county extension directors and county extension agents through the administration of two questionnaires: (a) The County Extension Agent's Questionnaire (Appendix A) and (b) The County Extension Director's Questionnaire (Appendix B).

The county extension agent's questionnaire. The County Extension Agent's Questionnaire had two parts. Part 1 measured the behavior exhibited by their county extension director in implementing the PPC&E program. This questionnaire was developed around three factors: (a) performance planning, (b) performance counseling, and (c) performance evaluation. Behaviors that a county extension director might exhibit were abstracted from the NCCES Performance Planning Counseling and Evaluation Program

Manual (1993b). The list of behaviors was used to develop 38 behavior statements. Agents responded to each statement by circling Y for yes or N for no.

To make sure the questionnaire had accurately recorded all appropriate statements, a memorandum and the questionnaire were sent to seven Extension District Directors (Appendix C). These individuals were asked to review the questionnaire to make sure it made sense. Any other comments concerning the questionnaire were also encouraged.

Part 2 of the agent's questionnaire dealt with demographic information, including education level, age, gender, years in current position, and years with the Extension Service. Agents were also given the opportunity to make any other comments they wanted concerning the PPC&E program.

The Extension district directors' feedback to the county agent's questionnaire was very positive. None of the district directors found any problems with the questions other than small editorial changes. They indicated the questionnaire was simple, straight forward, and should provide useful information.

The county extension director's questionnaire. The County Extension Director's Questionnaire had three parts. Part 1 measured the existence of the nine PAC model

constructs during the implementation of the PPC&E program. Ten items were used to measure each construct for a total of 90 items (Appendix D). Twenty-seven of these items were taken from the 1991 Creamer, Creamer, and Ford questionnaire and from Jackman (1991/1992). Items in these questionnaires were written in relation to student affairs and curriculum reform planned change projects. Items in the questionnaire for this study were reworded appropriately for the PPC&E program. Seven new items were written for each of the nine constructs. Directors responded to each item by circling the response which best reflected their agreement with the item. Response choices for these items were based on the following Likert scale: strongly agree (SA), agree (A), uncertain (U), disagree (D) and strongly disagree (SA). In order to score the scale, the response categories were weighted. For favorable or positively stated items the numerical values 5, 4, 3, 2, 1, respectively, were assigned to the response categories beginning at the favorable end. For example, strongly agree with a favorable item received a weight of 5, agree received a 4, and strongly disagree a weight of 1. For unfavorable or negatively stated items the weighting was reversed, because disagreement with an unfavorable item was psychologically equivalent to agreement with a favorable item (Ary, Jacobs, & Razavieh,

1990). The following items were the only unfavorable or negatively stated items: 9, 11, 16, 18, 27, 36, 45, 54, 63, 72, 81, and 90.

Part 2 of the County Extension Director's Questionnaire measured the behavior directors exhibited in implementing the PPC&E program. The list of behaviors included 38 statements. Directors responded to each statement by circling Y for yes or N for no.

Part 3 of the director's questionnaire dealt with demographic information, including education level, age, gender, years in current position, and years with the Extension Service. Directors were also given the opportunity to make any other comments they wanted concerning the PPC&E program.

The Extension district directors' feedback to the county director's questionnaire was also very positive. None of the district directors found any problems with the questions other than small editorial changes. They indicated the questionnaire should provide useful information. Their only negative comment was related to the length of the questionnaire. Some expressed concern that too much time might be needed to complete the questionnaire.

Data Collection Procedures

Data for this study were collected from county extension directors and county extension agents through questionnaires mailed during April 1995. The questionnaires were accompanied by a letter from the director of the NCCES announcing the study and providing details on its nature, the use of the data, and instructions for completing the questionnaire (Appendix E).

Letters and questionnaires were mailed to 84 directors and 222 agents. A reminder postcard was sent to non-respondents two weeks after the initial mailing (Appendix F). A second letter along with another copy of the appropriate questionnaire was sent to non-respondents three weeks after the initial mailing (Appendix G). During the last two weeks of May, non-respondents were contacted by telephone to obtain their responses. All questionnaires were coded for follow-up purposes.

Based on the returned questionnaires, each county director received a composite score for each PAC model construct and an accompanying implementation score. This meant each director had ten separate scores. A few comments concerning these scores are in order.

Computing the scores for the nine constructs was

relatively straight forward. Ninety items in Part 1 of the director's questionnaire were used to measure the existence of the nine PAC model constructs (10 statements per construct) during the implementation of the PPC&E program. However, in calculating reliability coefficients, some of the statements were deleted to increase the homogeneity of the constructs. Therefore, the composite score for each construct was obtained by adding up the scores for the remaining items related to that particular construct and dividing by the appropriate total number of items related to that construct. For example, two statements used to measure the existence of the PAC model construct circumstances were deleted. This meant the composite score for each of the directors was obtained by adding the remaining eight scores together and dividing by eight. Each construct could have a composite score ranging from 1 to 5. The number of items per construct used to calculate the composite scores can be found in Table 4.

Computing an implementation score was somewhat more complicated. In order for a county extension director to receive credit for a specific behavior in completing the PPC&E program, that item had to be circled by three out of four individuals. Any combination of three yes votes was acceptable. If only three individuals were surveyed in a

Table 4

Items Per Construct Used to Calculate Composite Scores

Construct	Number of items
Advantage probability	10
Championship	8
Circumstances	8
Idea comprehensibility	9
Opposition	6
Practicality	8
Strategies	10
Superintendency	9
Value compatibility	8

county, two yes votes were required per item. If only two individuals were surveyed in a county, both individuals had to circle yes for each item. Implementation scores for county directors could range from 0 to 38.

Analysis of Data

Statistical analyses were conducted using SPSS (Norusis, 1990). Details of the data analysis and results are provided in Chapter 4, Analysis and Results. A brief discussion of the analytical procedures is presented below.

Cronbach's alpha was calculated to assess the inter-item consistency or homogeneity of the nine constructs. Additionally, reliability coefficients with each item deleted from the respective construct were estimated.

Multiple regression was used to explain the proportion of the variance in the level of implementation (dependent variable) of the PPC&E program that could be attributed to the nine PAC model constructs (independent variables). These constructs included: advantage probability, championship, circumstances, idea comprehensibility, opposition, practicality, strategies, superintendency, and value compatibility. With this

procedure, all nine constructs were entered simultaneously.

Demographic information was summarized to describe the respondents in this research. In addition, a qualitative section was included that summarized other comments made concerning the PPC&E program.

Chapter 4

Analysis and Results

This chapter contains the analysis of data obtained from North Carolina Cooperative Extension Service (NCCES) personnel through the administration of two questionnaires: (a) The County Extension Director's Questionnaire and (b) The County Extension Agent's Questionnaire.

Response Rate and Demographics of Sample

County extension directors. The County Extension Director's Questionnaire was mailed to 84 individuals. The response rate was 100 percent. The respondents were 83 percent male and 17 percent female. The average county extension director's age was 46. Most of the respondents had completed the masters degree (88 percent). Only two percent had completed the doctorate. The directors had been in their current positions an average of 9.5 years and had been with extension an average of 20.2 years. Males tended to have a longer tenure than females in both categories (9.9 years versus 7.3 years and 20.6 years

versus 18.4 years, respectively).

In their questionnaire, the directors were given the opportunity to make any comments they wished concerning the Performance Planning, Counseling, and Evaluation (PPC&E) program. Twenty-eight directors (33 percent) supplied additional comments with some directors supplying more than one comment. This low response rate might be due to the extra time required to complete this section.

For those directors making comments, most were negative (Table 5). The biggest complaint centered around the lack of training for implementing the PPC&E program. The next concern was that implementation was not consistent from county to county. Directors were also concerned that good examples of a PPC&E plan were not shared with them.

For those directors making positive comments, their comments were centered primarily around two issues. They viewed the PPC&E program as a much improved evaluation method than the previous method. In addition, they felt the program was a valuable tool.

County extension agents. The County Extension Agent's Questionnaire was mailed to 222 individuals, 219 of whom returned the questionnaire. This resulted in a response rate of 99 percent. The respondents were 48 percent male and 52 percent female. The average county

Table 5

Directors' Comments Concerning PPC&E Program

Responses	Times mentioned
Negative	
Very little training for implementing PPC&E program	8
Implementation not consistent from county to county	6
No examples provided of good PPC&E plan	5
District directors can change evaluations too easily	3
Too lengthy of a process	2
PPC&E program does not address "deadwood"	2
No understanding of its value	1
Poor leadership	1
Extension over-evaluates personnel	1
Positive	
Much improved evaluation method than previous method	3
A valuable tool	3
A plan with teeth in it	1

extension agent age was 39. Fifty-seven percent of the respondents had completed the masters degree while 42 percent had completed the bachelors. Only one percent had completed the doctorate. The agents had been in their current positions an average of 9.2 years and had been with extension an average of 12.7 years. Unlike the directors, females tended to have a longer tenure than males in both categories (10.2 years versus 8.2 years and 14.2 versus 11.2 years, respectively).

In their questionnaire, the agents were given the opportunity to make any comments they wished concerning the PPC&E program. Forty-eight agents (22 percent) supplied additional comments with some agents supplying more than one comment. This low response rate might be due to the extra time required to complete this section.

For those agents making comments, most were negative (Table 6). Agents viewed the PPC&E program as a tool to discourage personnel. In addition, they believed it was too subjective. Agents also expressed concern that directors were not adequately trained to implement the PPC&E program. They also believed district directors could change evaluations too easily.

For those agents making positive comments, their comments were centered primarily around four related issues. Agents liked the program and viewed it as a much

Table 6

Agents' Comments Concerning PPC&E Program

Responses	Times mentioned
Negative	
PPC&E used as a tool to harass or discourage personnel	5
PPC&E process too subjective	5
County director not trained to implement PPC&E	4
Agents penalized unfairly if plans not accomplished	4
Lack of merit pay makes PPC&E a bureaucratic process	3
Implementation not consistent from county to county	3
District directors can change evaluations too easily	3
Too much emphasize on short term results	2
Too much paperwork	2
PPC&E program not taken seriously by county director	1
PPC&E program a duplication of accomplishment reports	1
Do not understand the value of PPC&E program	1
Focuses too much on programming	1
PPC&E misses staff dynamics	1
PPC&E program no better than what we had before	1
Positive	
I like the program	5
Much improved evaluation method than previous method	4
A useful tool for planning my program	3
County director takes PPC&E program very seriously	2

improved tool for planning and evaluating programs. In addition, they felt it was a useful tool for planning their programs. Finally, two agents commented that their county directors took the PPC&E program very seriously. Their directors made them feel the PPC&E program was a partnership for meeting job performance goals.

Descriptive Statistics

Table 7 shows the descriptive statistics for the variables in the study. The average score for level of implementation was high (29.45). However, the standard deviation (6.30) and the minimum and maximum scores (13 and 38) indicate the level of implementation varied among personnel within the organization.

The average scores for the Probability of Adoption of Change (PAC) model constructs were high. They ranged from 3.8 for advantage probability to 3.37 for practicality. Standard deviations were small. Opposition had the largest range (3.67) while championship had the smallest range (1.75).

Reliability

Reliability means that a set of latent construct

Table 7

Descriptive Statistics for the Variables in the Study, N=84

	Total Possible Score	M	SD	Min	Max
IMPL	38	29.45	6.30	13.00	38.00
ADPROB	5	3.80	.62	1.80	5.00
CHAMP	5	3.72	.41	2.75	4.50
CIR	5	3.67	.44	2.50	4.75
IDEACO	5	3.39	.62	2.00	4.67
OPPOS	5	3.46	.71	1.33	5.00
PRACT	5	3.37	.55	1.75	4.63
STRAT	5	3.45	.53	2.10	4.70
SUPER	5	3.67	.45	2.33	4.78
VALCOM	5	3.74	.50	1.75	5.00

Note. IMPL = level of implementation, ADPROB = advantage probability, CHAMP = championship, CIR = circumstances, IDEACO = idea comprehensibility, OPPOS = opposition, PRACT = practicality, STRAT = strategies, SUPER = superintendency, VALCOM = value compatibility.

indicators are consistent in their measurements. In more formal terms, reliability is the degree to which a set of two or more indicators "share" in their measurement of a construct (Hair, 1992). Highly reliable constructs are those in which the indicators are highly intercorrelated, suggesting that they all are measuring the same latent construct. In light of this, a Pearson correlation matrix of the 90 items was examined. Intercorrelations within each construct were moderately to highly positive (.38 to .93). In addition, moderate correlations were also observed among constructs indicating collinearity (.41 to .66).

The reliability procedure in SPSS (Norusis, 1990) was used to determine the construct score reliabilities. Cronbach's alpha was estimated for each of the constructs. Additionally, reliability coefficients with each item deleted from the respective construct were calculated.

In order for an item to be deleted, a decision was made that its removal had to increase the reliability score by at least .0050. This procedure revealed that for two of the nine constructs (advantage probability and strategies) it was not necessary to delete items (Appendix H). Each of the other seven constructs had at least one item which caused a lower construct reliability score indicating these items were ambiguous. Therefore, items

were deleted to increase the homogeneity of each of these constructs. The problematic items were items 51 and 78 (championship), items 46 and 28 (circumstances), item 39 (idea comprehensibility), items 27, 9, 63, and 18 (opposition), items 49 and 40 (practicality), item 59 (superintendency), and items 29 and 74 (value compatibility). Deleted items and their impact on reliability scores are shown in Appendix I. Reliability scores for the remaining constructs are presented in Appendix J.

Interpreting the strength of reliability coefficients is similar to interpreting correlations. A coefficient from .51 to .70 indicates a moderate relationship while a coefficient from .71 to .90 indicates a strong relationship. Reliability coefficients exceeded .70 in eight of the nine constructs. Championship was the only construct in the moderate range (.68).

What is the minimum reliability that is acceptable for an instrument? Perhaps the best response to this question is that a good reliability is one that is as good or better than the reliability of competing measures (Ary, Jacobs, & Razavieh, 1990). In Table 8 reliability coefficients for three different measures are reported. These include the results of this research as well as the results reported by Creamer, Creamer, and Ford (1991) and

Table 8

Reported PAC Model Construct Reliabilities Across Three Different Measures

Construct	Reliability coefficient ^a	Reliability ^b coefficient	Reliability ^c coefficient
Advantage Probability	.87	.77	.81
Championship	.68	.74	.75
Circumstances	.72	.41	.75
Idea Comprehensibility	.82	.77	.67
Opposition	.83	.73	.82
Practicality	.85	.76	.57
Strategies	.82	.64	.73
Superintendency	.79	.62	.72
Value Compatibility	.81	.53	.62

Note. These are three different instruments so direct comparison is not possible.

^a Coefficients reported in this research.

^b Coefficients reported by Creamer, Creamer, and Ford.

^c Coefficients reported by Jackman.

Jackman (1991/1992). In all but two constructs (championship and circumstances), the reliability coefficients in this study were higher. This indicates the reliability coefficients for the measures used in this study were better than previously reported measures.

Multiple Regression

Correlation matrix. Correlations were calculated across all variables. The matrix (Table 9) shows the correlations between the level of implementation (dependent variable) and each PAC model construct (independent variables), as well as the correlations among the independent variables.

The correlations between the level of implementation and each PAC model construct were low (-.13 to .12). None of the correlations were significant. This indicated no relationship between these variables. Correlations among the constructs were fairly large (approximately 78 percent were greater than .50) with six correlations greater than .70. All were significant. These factors indicated collinearity.

Appropriateness of regression analysis. There are certain assumptions which must be true in order for multiple regression to be an appropriate analysis. These

Table 9

Correlations Between Level of Implementation and PAC Model Constructs and Among PAC Model Constructs (One Tailed Significance, Alpha = .05)

	IMPL	ADPROB	CHAMP	CIR	IDEACO	OPPOS	PRACT	STRAT	SUPER	VALCOM
IMPL	1.00									
ADPROB	-.120 ^a	1.00								
CHAMP	.138 ^b	.523	1.00							
CIR	.047	.717	.574	1.00						
IDEACO	-.062	.544	.505	.587	1.00					
OPPOS	-.134	.699	.381	.561	.596	1.00				
PRACT	.053	.406	.464	.443	.676	.515	1.00			
STRAT	.317	.000	.000	.000	.000	.000	.770	1.00		
SUPER	-.072	.622	.563	.613	.754	.613	.000	.527	.655	1.00
VALCOM	.257	.000	.000	.000	.000	.000	.000	.000	.000	.389
	.121	.365	.657	.482	.603	.242	.527	.000	.678	.000
	.136	.000	.000	.000	.000	.013	.000	.000	.000	.000
	-.050	.829	.529	.727	.583	.722	.547	.678	.000	.000
	.325	.000	.000	.000	.000	.000	.000	.000	.000	.000

^a Correlation.

^b Significance level.

assumptions include independent and normally distributed error terms and linearity between the dependent and independent variables (Hair, 1992; Norusis, 1990).

Normality assumptions were tested through the use of histograms of the studentized residuals (Stevens, 1986) and normal probability plots (Norusis, 1990). Studentized residuals were plotted against predicted values to assess linearity and constant variance. No violations of assumptions were detected. In addition, outliers were not observed in the residual plots nor in the histograms.

Test of significance. Level of implementation (dependent variable) was regressed on PAC model constructs (independent variables). All independent variables were entered into the regression equation simultaneously. The results of this procedure are shown in Table 10. The F-test associated with the analysis of variance tested whether there was a linear relationship between level of implementation and the entire set of PAC model constructs. The F-test was not significant indicating there was no linear relationship between the level of implementation and the PAC model constructs. In summary, the nine PAC model constructs did not do a good job of explaining the variance in the level of implementation of the PPC&E program.

Table 10

Analysis of Variance Information for Level of Implementation Regressed on PAC Model Constructs

Source	Sum of Squares	DF	Mean Square	F	P
Regression	536.69	9	59.63	1.599	.131
Residual	2758.12	74	37.27		
Total	3294.81	83			

A Revised Model Approach

Intuitively one would think there would be a relationship between the PAC model constructs and the level of implementation of the PPC&E program. What factor may have contributed to this lack of relationship? In reviewing the original model, the obvious choice seemed to be the implementation score. County directors were the only individuals who had the opportunity to answer questions pertaining to both the implementation of the PPC&E program as well as the nine PAC model constructs. Therefore, it made sense to conduct another regression analysis calculating implementation scores without the scores of the county agents included in the implementation scores.

Revised implementation scores. Originally a county extension director received credit for a specific behavior in implementing the PPC&E program only if it was verified by county extension agents. This meant the implementation score was a combination of directors' and agents' perceptions of the level of implementation. In the revised model, implementation scores were calculated separately for directors and agents.

The county director's implementation score was calculated for each county by adding up the number of

times yes was circled in Part 2 of the county director's questionnaire. The county agent's implementation score was an average score of the agents surveyed in each county. For example, if two agents were surveyed in a county, implementation scores were calculated for each agent by adding up the number of times yes was circled in Part 1 of the county agent's questionnaire. These two scores were then added together and divided by two.

If a revised method of calculating implementation scores was to be used in the model, evidence was needed to show that the directors' and agents' implementation scores were not the same. A paired t-test was performed on the county directors' and the county agents' implementation scores to see whether the two subgroups were significantly different from each other. The results were significant at the .05 level and the null hypothesis was rejected; the two subgroups' implementation scores were significantly different.

The director's average implementation score was 33.98 while the agent's average implementation score was 27.37. This suggested that the directors' and agents' perceived implementation of the PPC&E program was different. Using agents' scores to verify directors' scores, as was done in the original model, in all likelihood added "noise" to the model. As mentioned earlier, county directors were the

only individuals who had the opportunity to answer questions pertaining to both the implementation of the PPC&E program as well as the nine PAC model constructs. Therefore, in the revised model the multiple regression analysis was redone only using the county directors' implementation scores.

Descriptive statistics. Using only the county directors' implementation scores changed the descriptive statistics for level of implementation as reported in Table 7. The average level of implementation score increased to 33.98. The standard deviation decreased to 3.52. Finally, the minimum and maximum scores (21 and 38) resulted in a smaller range.

Multiple Regression

Correlation matrix. Correlations were calculated among all variables. The matrix (Table 11) shows the correlations between the level of implementation (dependent variable) and each PAC model construct (independent variables), as well as the correlations among the independent variables.

The correlations between level of implementation and each PAC model construct were relatively low but higher than reported in Table 9. Practicality had the highest

Table 11

Revised Model Correlations Between Level of Implementation and PAC Model Constructs and Among PAC Model Constructs (One Tailed Significance, Alpha = .05)

	IMPL	ADPROB	CHAMP	CIR	IDEACO	OPPOS	PRACT	STRAT	SUPER	VALCOM
IMPL	1.00									
ADPROB	.171 ^a									
CHAMP	.060 ^b	.523								
CIR	.128	.000	.574							
IDEACO	.124	.717	.000	.587						
OPPOS	.299	.000	.505	.000	.596					
PRACT	.003	.544	.000	.561	.000	.515				
STRAT	.285	.000	.381	.000	.676	.000	.770			
SUPER	.004	.699	.000	.000	.000	.613	.000	.655		
VALCOM	.255	.000	.464	.443	.754	.000	.000	.000	.389	1.00
	.010	.406	.000	.000	.000	.000	.527	.000	.678	.000
	.376	.000	.563	.613	.754	.000	.000	.000	.000	.000
	.000	.622	.000	.000	.000	.242	.000	.000	.547	.000
	.320	.000	.657	.482	.603	.013	.000	.000	.000	.000
	.002	.365	.000	.000	.000	.722	.547	.000	.000	.000
	.150	.000	.529	.727	.583	.000	.000	.000	.000	.000
	.087	.829	.000	.000	.000	.000	.000	.000	.000	.000
	.291	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.004	.000	.000	.000	.000	.000	.000	.000	.000	.000

^a Correlation.

^b Significance level.

correlation with a value of .376 followed by strategies with a value of .320. In addition, all of the constructs were significant with the exception of advantage probability, championship, and superintendency. Correlations among the constructs were identical to those reported in Table 9. These correlations indicated collinearity.

Appropriateness of regression analysis. As reported earlier, there are certain assumptions which must be true in order for multiple regression to be an appropriate analysis. These assumptions include independent and normally distributed error terms and linearity between the dependent and independent variables (Hair, 1992; Norusis, 1990).

Normality assumptions were tested through the use of histograms of the studentized residuals (Stevens, 1986) and normal probability plots (Norusis, 1990). Studentized residuals were plotted against predicted values to assess linearity and constant variance. No violations of assumptions were detected. In addition, outliers were not observed in the residual plots nor in the histograms.

Test of significance. Level of implementation (dependent variable) was regressed on PAC model constructs (independent variables). All independent variables were entered into the regression equation simultaneously. The

results of this procedure are shown in Table 12. The F-test associated with the analysis of variance tested whether there was a linear relationship between the level of implementation and the entire set of PAC model constructs. The F-test was significant indicating there was a linear relationship between the level of implementation and the PAC model constructs.

A commonly used measure of the goodness of fit of a model is R-square. For this model the R-square was .20 which indicated a linear relationship. This means 20 percent of the variance in the level of implementation can be explained by the PAC model constructs. Statistics for variables in the equation can be found in Table 13. None of the independent variables in the regression equation were significantly related to the level of implementation. This should not be surprising since the independent variables were highly correlated among themselves. This situation is referred to as collinearity.

The tolerance of a variable is a commonly used measure of collinearity. Tolerance is the amount of variability of the selected independent variable not explained by the other independent variables. If the tolerance of a variable is small, it is almost a linear combination of the other independent variables (Norusis, 1990). Thus, very small tolerance values denote high

Table 12
Revised Model Analysis of Variance Information for Level of Implementation
Regressed on PAC Model Constructs

Source	Sum of Squares	DF	Mean Square	F	P
Regression	207.95	9	23.11	2.090	.041
Residual	818.00	74	11.05		
Total	1025.95	83			

Table 13

Statistics for Variables in the Equation

Variable	B	SE B	Beta	t	Sig t
ADPROB	-1.503	1.196	-0.264	-1.256	.2131
CHAMP	-0.984	1.318	-0.115	-0.747	.4577
CIR	2.252	1.362	0.282	1.654	.1024
IDEACO	0.083	1.004	0.015	0.082	.9347
OPPOS	0.103	0.858	0.021	0.119	.9052
PRACT	1.863	1.132	0.290	1.647	.1039
STRAT	0.522	1.476	0.079	0.353	.7249
SUPER	-0.774	1.360	-0.098	-0.569	.5708
VALCOM	1.181	1.545	0.168	0.763	.4477
CONSTANT	24.810	3.924		6.322	.0000

Note. ADPROB = advantage probability, CHAMP = championship, CIR = circumstances, IDEACO = idea comprehensibility, OPPOS = opposition, PRACT = practicality, STRAT = strategies, SUPER = superintendency, VALCOM = value compatibility.

collinearity. Tolerance values for the nine constructs ranged from 0.22 to 0.45 indicating high collinearity. The problem with collinear variables is that they provide very similar information, and it is difficult to separate the effects of the individual variables. In addition, when highly intercorrelated independent variables are included in a regression equation, results may seem abnormal. The overall regression may be significant while none of the individual coefficients are significant. The sign of the regression coefficients may be counterintuitive. Finally, high correlations among independent variables inflate the variances of the estimates, making individual coefficients quite unreliable without adding much to the overall fit of the model.

Summary

Multiple regression was used to explain the proportion of the variance in the level of implementation (dependent variable) of the PPC&E program that could be attributed to the nine PAC model constructs (independent variables). The results of this analysis showed that 20 percent of the variance in the level of implementation of the PPC&E program can be explained by the PAC model constructs. None of the constructs were significantly

related to level of implementation and collinearity was a problem.

Chapter 5

Summary, Conclusions, Discussion, and Recommendations

Chapter 5 contains a brief summary of the study, conclusions that have been drawn from the research, a discussion of the results and their implications, and recommendations for further research on the Probability of Adoption of Change (PAC) model.

Summary

The purpose of the study was to explain the proportion of the variance in the level of implementation of the Performance Planning, Counseling, and Evaluation (PPC&E) program that could be attributed to the nine PAC model constructs. Level of implementation was operationally defined as the degree to which county directors implemented the many elements of the PPC&E program. An implementation score was calculated for county directors by surveying each director and from one to three of their employees. The objectives of the PPC&E program were to establish how North Carolina Cooperative Extension Service (NCCES) goals translate to plan-of-work

objectives and to the employee's performance plan. The PPC&E program was also implemented to develop employee potential, to help determine merit pay, and when necessary, to decide when an employee should be separated from the NCCES. The nine PAC model constructs included: advantage probability, championship, circumstances, idea comprehensibility, opposition, practicality, strategies, superintendency, and value compatibility.

Data were collected with two questionnaires: (a) The County Extension Agent's Questionnaire and (b) The County Extension Director's Questionnaire. The questionnaires were accompanied by a letter from the director of the NCCES announcing the study and providing details on its nature, the use of the data, and instructions for completing the questionnaire. Based on the returned questionnaires, each county director received a composite score for each PAC model construct and an accompanying implementation score.

The response rates for the county directors' and county agents' questionnaires were 100 percent and 99 percent, respectively. Cronbach's alpha was calculated to assess the inter-item consistency or homogeneity of each of the nine constructs. Additionally, reliability coefficients with each item deleted from the respective construct were estimated. Overall, eight out of the nine

constructs had reliability coefficients which were strong. Values ranged from .72 for circumstances to .87 for advantage probability. The only construct below .70 was championship with a value of .68.

Multiple regression was used to explain the proportion of the variance in the level of implementation (dependent variable) of the PPC&E program that could be attributed to the nine PAC model constructs (independent variables). The level of implementation was regressed on the PAC model constructs. All independent variables were entered into the regression equation simultaneously. The F-test was not significant indicating there was no linear relationship between the level of implementation and the PAC model constructs.

It was hypothesized there would be a relationship between the PAC model constructs and the level of implementation of the PPC&E program. One possible explanation for this lack of relationship may have been the implementation score. Therefore, it made sense to conduct a revised model approach centered around a different method of calculating implementation scores. In the original model the implementation score was a combination of directors' and agents' perceptions of the level of implementation. In the revised model, implementation scores were calculated separately for

directors and agents. In this model, only the county directors' level of implementation was regressed on PAC model constructs. The F-test was significant, indicating there was a linear relationship between the level of implementation and the PAC model constructs.

Conclusions

It has been stated many times that the major purpose of the study was to explain the proportion of the variance in the level of implementation of the PPC&E program that can be attributed to the nine PAC model constructs. The original model did not provide a meaningful R-square value. The R-square value associated with the revised model was .20 which indicated a linear relationship. This meant 20 percent of the variance in the level of implementation can be explained by the PAC model constructs.

Discussion

The constructs were highly correlated among themselves indicating collinearity. When two or more constructs are correlated, the statistical estimation techniques are incapable of sorting out the independent

relationships of each to the dependent variable. In the social sciences collinearity among independent variables is generally common due to the nature of the data. Thus, whether collinearity was a problem depends on the degree of collinearity. One method to search for the problem was to look for high correlations within the correlation matrix between independent variables. For this research, correlations among the constructs were fairly large (approximately 78 percent were greater than .50) with six correlations greater than .70. In addition, all correlations were significant. These factors indicated a problem with collinearity.

Reliability coefficients reported in the study were strong. Eight of the nine constructs exceeded .70. Championship was the only construct in the moderate range (.68). This indicated that the 10 items used to measure a specific construct were consistent. An examination of the Pearson correlation matrix of variables within a construct supported this fact since the intercorrelations within each construct were high. This examination also revealed that correlations were high among constructs. This added support to the problem with collinearity. The items associated with each construct did not do a good job differentiating between constructs. This meant the unique contribution of each construct was difficult to assess.

It should be noted that previous research on the PAC model also provided evidence of collinearity. Jackman (1991/1992) eliminated three constructs from the model (practicality, strategies, and value compatibility) due to large correlations among these three PAC model constructs. The only other quantitative research on the PAC model that has been reported in the literature to date was to estimate the construct score reliabilities of the PAC model constructs (Creamer, Creamer, & Ford, 1991). These authors reported reliability coefficients exceeded .70 in five of the nine constructs, were greater than .60 in two of the constructs, and were less than .60 in two of the constructs. These authors also reported that several items in the questionnaire used to measure the constructs contributed significantly to more than one construct. Although no mention was made of correlations among constructs, this evidence lends support to the view there were intercorrelations among constructs and a potential problem with collinearity. Assuming the nine constructs do in fact explain planned change, there is a concern that the items used to measure the constructs are not sufficient to isolate the construct to the greatest extent.

The unique contribution of each construct may have been difficult to assess due to unidimensionality.

Unidimensionality refers to the existence of a single trait, attitude, or construct underlying a set of measures (Hattie, 1985). Evidence of unidimensionality can be found in Table 11. Correlations among the constructs were large (approximately 78 percent were greater than .50) with six correlations greater than .70. All correlations were also significant. These factors indicated unidimensionality and collinearity. If the measures used for this research were in fact unidimensional, what trait, attitude, or construct was being measured?

One possibility may be the overall probability of adoption of change. The average scores for the PAC model constructs were high. They ranged from 3.80 for advantage probability to 3.37 for practicality (Table 7). If one were to round these scores off, eight of the nine constructs would have a score of 4 (agree) on a 5 point scale (with 5 being strongly agree).

Implications. These findings suggest there is a good probability the PPC&E program will succeed. Even though no individual constructs were significant, 20 percent of the variance in the level of implementation can be explained by the PAC model constructs. Collinearity indicated all constructs were important to the implementation of the PPC&E program. These constructs combined as one global construct (probability of adoption

of change) to explain a high percentage of the variance in the level of implementation of the PPC&E program.

The high average score for level of implementation (33.98) indicates county directors are actually implementing the PPC&E program. This indicates personnel within the organization will likely adopt the program. Overall, directors seem to agree the PPC&E program is a much improved evaluation method than the previous evaluation method. In addition, they seem to like the PPC&E program and find the process a useful way to plan.

However, with any new program there are always weaknesses. In all likelihood, these weaknesses account for a portion of the remaining 80 percent of the variance in the level of implementation that could not be explained by the PAC model constructs. The biggest concerns expressed by county directors were centered around three issues. These included: insufficient training for implementing the PPC&E program, absence of sample PPC&E plans, and inconsistency of PPC&E program implementation from county to county. These concerns seem to suggest that for future change projects within the NCCES more importance needs to be placed on pre-planning.

County directors also expressed some concern that district directors can change evaluations too easily. A main reason for implementing the PPC&E program was to

empower county directors with the responsibility of evaluating their field faculty. District directors need to be sure that if in fact they do change an evaluation, they have a legitimate reason. Changing evaluations arbitrarily could have a negative impact on the likelihood of a successful implementation project like the PPC&E program.

Recommendations

Based upon the results of this study and conclusions drawn, the following recommendations are offered. First, an enhanced statistical analysis for this study, such as factor analysis, would have been possible with a larger sample size. Factor analysis is a statistical procedure that analyzes how the variance common to several intercorrelated measures can be accounted for in order to identify a smaller number of common factors. In other words, this procedure helps in dealing with the problem of collinearity. County extension directors (n=84) were the only individuals that had the opportunity to answer questions pertaining to the nine PAC model constructs. In the director's questionnaire, 90 items were used to measure the existence of the nine PAC model constructs. This meant the n versus K ratio was approaching a ratio of

1:1. In terms of sample size required for reliable factors related to factor analysis, Gorsuch (1983) reported that an absolute minimum is 5:1. Thus, the unsatisfactory n versus K ratio in this study prohibited the use of factor analysis. Factor analysis can only be used when the population is sufficient in size to support the required n versus K ratio.

Second, a major effort in future research on the PAC model should be to provide further statistical support for the premise that the items associated with the constructs, do in fact measure and differentiate the PAC model constructs. One of the most difficult tasks associated with the areas of social and behavioral science research is adequately measuring the constructs of interest. Since the PAC model constructs are all related to each other, the wording of items to measure each individual construct is vital to isolate the construct to the greatest possible degree. Even in the best possible cases, the constructs may still not account for a unique portion of the variance in the dependent variable. Therefore, the PAC model used in this research may merit further examination if the model is "tightened up" by more precise measures for the constructs.

References

- Argyris, C. (1970). Intervention theory and method: A behavioral science review. Reading, MA: Addison-Wesley.
- Ary, D., Jacobs, L. C., & Razavieh, A. (1990). Introduction to research in education (4th ed.). Fort Worth, TX: Harcourt Brace.
- Beckhard, R. (1969). Organization development: Strategies and model. Reading, MA: Addison-Wesley.
- Beckhard, R., & Harris, R. T. (1977). Organizational transitions: Managing complex change. Reading, MA: Addison-Wesley.
- Bennis, W. (1973). The leaning ivory tower. San Francisco: Jossey-Bass.
- Blake, R. R., & Mouton, J. S. (1969). Building a dynamic corporation through grid organization development. Reading, MA: Addison-Wesley.
- Blake, R. R., & Mouton, J. S. (1983). Consultation: A handbook for individual and organizational development (2nd ed.). Reading, MA: Addison-Wesley.
- Brugliera, M. (1976). The self-help roots of Northcare. Journal of Applied Behavioral Science, 12, 397-403.
- Bullock, R. J., & Batten, D. (1985). It's just a phase we're going through: A review and synthesis of OD phase analysis. Group and Organizational Studies, 10, 383-412.
- Burke, W. W. (1982). Organization development: Principles and practices. Boston: Little, Brown.
- Cameron, K. S. (1984). Organizational adaptation and higher education. Journal of Higher Education, 55(2), 122-144.
- Chin, R., & Benne, K. D. (1969). General strategies for effecting changes in human systems. In W. G. Bennis, K. D. Benne, & R. Chin (Eds.), The planning of change (pp. 32-59). New York: Holt, Rinehart and Winston.
- Conrad, C. (draft). "Initiating and implementing changes in general education."

- Corey, S. M. (1953). Action research to improve school practices. New York: Bureau of Publications, Teachers College, Columbia University.
- Creamer, D. G., & Creamer, E. G. (1986). Applying a model of planned change to program innovation in student affairs. Journal of College Student Personnel, 27, 19-26.
- Creamer, D. G., & Creamer, E. G. (1986). The role of leaders and champions in planned change in student affairs. Journal of College Student Personnel, 27, 431-437.
- Creamer, E. G., & Creamer, D. G. (1988). Predicting successful organizational change: Case studies. Journal of College Student Personnel, 29, 4-11.
- Creamer, E. G., & Creamer, D. G. (1989). Testing a model of planned change across student affairs and curriculum reform projects. Journal of College Student Personnel, 30, 27-34.
- Creamer, D. G., & Creamer, E. G. (1990). Use of a planned change model to modify student affairs programs. In D. G. Creamer and Associates, College student development: Theory and practice for the 1900s (pp. 181-192). Alexandria, VA: American College Personnel Association.
- Creamer, E. G., Creamer, D. G., & Ford, R. H. (1991). Construct reliability of the probability of the adoption of change (PAC) model. Journal of College Student Development, 32, 31-38.
- Davis, S. A. (1967). An organic problem-solving method of organizational change. Journal of Applied Behavioral Science, 3, 3-21.
- Davis, H. R., & Salasin, S. E. (1980). Change: Decisions and their implementation. In S. Feldman (Ed.), The administration of mental health services (2nd ed.) (pp. 386-433). Springfield, IL: Charles L. Thomas.
- French, W. L., & Bell, Jr., C. H. (1990). Organization development: Behavioral science interventions for organization improvement (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.

- Frohman, M. A., Sashkin, M., & Kavanagh, M. J. (1976). Action-research applied to organization development. In S. L. Spray (Ed.), Organizational effectiveness: Theory-research-utilization. Kent, OH: Kent State University Press.
- Grantham, D. W. (1958). Hoke Smith and the politics of the new South. Baton Rouge, LA: Louisiana State University Press.
- Gorsuch, R. L. (1983). Factor analysis. Hillsdale, NJ: Lawrence Erlbaum.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1992). Multivariate data analysis. New York: Macmillan.
- Hattie, J. (1985). Methodology review: Assessing unidimensionality of tests and items. Applied Psychological Measurement, 9, 139-164.
- Huse, E. F. (1975). Organization development and change. New York: West.
- Huse, E. F. (1980). Organization development and change (2nd ed.). New York: West.
- Jackman, W. J. (1992). Validation of the probability of the adoption of change model: An exploratory analysis (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1991). Dissertation Abstracts International, 52(12), 4235A.
- Kolb, D. A., & Frohman, A. L. (1970). An organization development approach to consulting. Sloan Management Review, 12(1), 51-65.
- Lawrence, P. R., & Lorsch, J. W. (1969). Developing organizations: Diagnosis and actions. Reading, MA: Addison-Wesley.
- Levine, K. (1980). Why innovation fails. Albany: State University of New York Press.
- Lewin, K. (1951). Field theory in social science. New York: Harper & Roe.
- Lindquist, J. (1978). Strategies for change. Berkeley, CA: Pacific Soundings.

- Lippitt, R., Watson, J., & Westley, B. (1958). The dynamics of planned change. New York: Harcourt, Brace, & Jovanovich.
- Mann, F. C. (1964). Studying and creating change. In W. G. Bennis, K. D. Benne, & R. Chin (Eds.), The planning of change (pp. 605-615). New York: Holt, Rinehart and Winston.
- Martorana, S. V., & Kuhns, E. (1975). Managing academic change. San Francisco: Jossey-Bass.
- North Carolina Cooperative Extension Service. (1993). Our commitment to excellence. Raleigh, NC: North Carolina Cooperative Extension Service, North Carolina State University.
- North Carolina Cooperative Extension Service. (1993). Performance planning, counseling & evaluation program (PPC&E). Raleigh, NC: North Carolina Cooperative Extension Service, North Carolina State University.
- Norusis, M. J. (1990). SPSS advanced statistics student guide. Chicago, IL: SPSS.
- Parker, W. B. (1924). The life and public services of Justin Smith Morrill. Boston, MA: Houghton Mifflin.
- Porras, J. I., & Silvers, R. C. (1991). Organization development and transformation. Annual Review of Psychology, 42, 51-78.
- Sanderson, D. R. (1988). Working with our publics, module 1: Understanding cooperative extension: Our origins, our opportunities. Raleigh, NC: North Carolina Agricultural Extension Service and Department of Adult and Community College Education, North Carolina State University.
- Schein, E. H. (1969). The mechanisms of change. In W. G. Bennis, K. D. Benne, & R. Chin (Eds.), The planning of change (2nd ed.) (pp. 98-107). New York: Holt, Rinehart and Winston.
- Schmuck, R. A., & Miles, M. B. (Eds.). (1971). Organizational development in schools. Palo Alto, CA: National Press Books.
- Stevens, J. (1986). Applied multivariate statistics for the social sciences. Hillsdale, NJ: Lawrence Erlbaum.

Appendix A The County Extension Agent's Questionnaire

**Performance Planning, Counseling, & Evaluation
Questionnaire**

Part 1

There are no right or wrong answers to the following statements. A candid, simple response is requested. Please respond to each statement by circling Y for yes or N for no. All of the statements are related to the behavior your County Extension Director exhibited in implementing the Performance Planning, Counseling, and Evaluation (PPC&E) program.

My County Extension Director--

- | | | | |
|-----|---|---|---|
| 1. | helped me develop my job performance plan. | Y | N |
| 2. | held a progress review meeting with me at least every six months. | Y | N |
| 3. | completed my job performance evaluation by the end of March 1995. | Y | N |
| 4. | discussed the amount of supervision I need to complete a job in determining my overall job performance level. | Y | N |
| 5. | helped develop a specific job performance plan just for me. | Y | N |
| 6. | discussed my job performance during the progress review meeting. | Y | N |
| 7. | discussed the quality of my work products in determining my overall job performance level. | Y | N |
| 8. | helped me develop my job performance plan within 30 days of the last job performance evaluation. | Y | N |
| 9. | discussed my adaptability during the progress review meeting. | Y | N |
| 10. | compared my actual contributions to my planned contributions for Extension programs. | Y | N |

- | | | | |
|-----|---|---|---|
| 11. | discussed my problem solving skills in determining my overall job performance level. | Y | N |
| 12. | told me my job performance plan should include my major job responsibilities. | Y | N |
| 13. | discussed my communication skills during the progress review meeting. | Y | N |
| 14. | compared my actual contributions to my planned contributions in marketing the North Carolina Cooperative Extension Service. | Y | N |
| 15. | considered my leadership ability in determining my overall job performance level. | Y | N |
| 16. | told me my job performance plan should contribute to Extension programs. | Y | N |
| 17. | discussed my interpersonal skills during the progress review meeting. | Y | N |
| 18. | evaluated my actual versus expected contributions in maintaining my professional competency. | Y | N |
| 19. | examined feedback from my customers in determining my overall job performance level. | Y | N |
| 20. | told me my job performance plan should contribute to the marketing of the North Carolina Cooperative Extension Service. | Y | N |
| 21. | discussed my ability to <u>learn</u> new skills during the progress review meeting. | Y | N |
| 22. | discussed my overall contribution to Extension in determining my overall job performance level. | Y | N |
| 23. | told me my job performance plan should maintain my professional competency. | Y | N |
| 24. | discussed my dependability during the progress review meeting. | Y | N |

25.	suggested areas for job improvement.	Y	N
26.	discussed the timeliness of my work product in determining my overall job performance level.	Y	N
27.	suggested my job performance plan include specific statements of the results expected.	Y	N
28.	provided me with an explanation of my level of achievement.	Y	N
29.	discussed my relationships with other Extension personnel in determining my overall job.	Y	N
30.	discussed my appreciation for diversity during the progress review meeting.	Y	N
31.	stressed that my expected results should contain quantifiable data.	Y	N
32.	listened to my views during the progress review meeting.	Y	N
33.	stressed that my performance plan should include a description of my major job responsibilities.	Y	N
34.	assessed my job accomplishments.	Y	N
35.	verified that I had a clear understanding of the job results expected of me.	Y	N
36.	helped me determine specific actions required for a successful job performance plan.	Y	N
37.	set a follow-up date for my next progress review meeting.	Y	N
38.	discussed my ability to <u>apply</u> new skills during the progress review meeting.	Y	N

Part 2

1. What is your highest level of education? (check one)

- _____ Bachelor's degree
- _____ Master's degree
- _____ Doctorate
- _____ Other. Please specify. _____

2. Please indicate the number of years you have held your current position and the number of years you have been employed with the Extension Service.

- _____ Years in current position
- _____ Years with the Extension Service

3. Please fill in the blanks:

- _____ Your age
- _____ Your gender

4. If you have any other comments you would like to make concerning the Performance Planning, Counseling, and Evaluation (PPC&E) program, please write them in the space below.

PLEASE CHECK TO SEE THAT YOU HAVE RESPONDED TO EACH STATEMENT. THANK YOU VERY MUCH FOR YOUR COOPERATION. PLEASE RETURN BY APRIL 15, 1995, TO: LARRY G. JAHN, 103 CRICKET LANE, CARY, NC 27511.

Appendix B The County Extension Director's Questionnaire

**Performance Planning, Counseling, & Evaluation
Questionnaire**

Part 1

Below you will find some statements about the Performance Planning, Counseling, and Evaluation (PPC&E) program. Please respond to each statement by circling the response which best reflects your agreement with the statement. Circle one response for each statement and please respond to all statements. SA--Strongly agree, A--Agree, U--Uncertain, D--Disagree, and SD--Strongly disagree.

1. There is a need within Extension for the PPC&E program.
SA A U D SD
2. The PPC&E program facilitates the ways Extension personnel prefer to work.
SA A U D SD
3. PPC&E program goals are clear.
SA A U D SD
4. Extension administration selected knowledgeable Extension personnel to develop the PPC&E program.
SA A U D SD
5. Extension administration exhibited sustained commitment to the PPC&E program.
SA A U D SD
6. An influential person is an advocate for the PPC&E program.
SA A U D SD
7. The benefits of the PPC&E program outweigh the costs.
SA A U D SD
8. The use of a planning committee was effective in developing the PPC&E program.
SA A U D SD
9. One or more influential individuals opposed the PPC&E program.
SA A U D SD
10. Extension personnel accept the PPC&E program.
SA A U D SD

11. The PPC&E program is inconsistent with the best interests of Extension personnel.
SA A U D SD
12. The timing of the PPC&E program is right for the current Extension climate.
SA A U D SD
13. Individuals developing the PPC&E program had access to information about similar programs.
SA A U D SD
14. The PPC&E program received the endorsement of the Extension Director.
SA A U D SD
15. An influential **group** is an advocate for the PPC&E program.
SA A U D SD
16. Nothing will really change in the Extension Service as a result of the PPC&E program.
SA A U D SD
17. The PPC&E program is an efficient method to document Extension's success stories.
SA A U D SD
18. The PPC&E program was **not** viewed as an important project by Extension personnel.
SA A U D SD
19. Extension's vitality depends on the success of the PPC&E program.
SA A U D SD
20. The PPC&E program is consistent with the Extension mission.
SA A U D SD
21. Procedures for implementing the PPC&E program are clear.
SA A U D SD
22. Individuals leading the PPC&E program had the necessary skills to implement it.
SA A U D SD

23. The Extension Director endorsed the PPC&E program publicly.
SA A U D SD
24. Extension personnel expected to implement the PPC&E program are clearly identifiable.
SA A U D SD
25. Job responsibilities are better known by Extension personnel under the PPC&E program than under the previous system.
SA A U D SD
26. The PPC&E program achieves the desired effect of improving county faculty development.
SA A U D SD
27. One or more influential groups opposed the PPC&E program.
SA A U D SD
28. The PPC&E program was developed by Extension personnel.
SA A U D SD
29. The value of the PPC&E program was assessed by Extension personnel before its adoption.
SA A U D SD
30. Extension personnel clearly understand how the PPC&E program affects their work.
SA A U D SD
31. The planning time frame for the PPC&E program was considered realistic by Extension personnel.
SA A U D SD
32. Extension administration is supportive of the PPC&E program.
SA A U D SD
33. Extension personnel expected to monitor PPC&E implementation are clearly identifiable.
SA A U D SD
34. The PPC&E program is a better evaluation method than the previous method used for county extension agents.
SA A U D SD

35. The PPC&E manual helped me implement the PPC&E program.
SA A U D SD
36. The PPC&E program takes too much effort to implement.
SA A U D SD
37. The PPC&E program was supported during development by Extension personnel.
SA A U D SD
38. The PPC&E program addresses the evaluation concerns of Extension personnel.
SA A U D SD
39. The PPC&E program was needed to enhance the work of the Extension Service.
SA A U D SD
40. Adequate time was given to successfully implement the PPC&E program.
SA A U D SD
41. Extension administration clearly identified a project leader for the PPC&E program.
SA A U D SD
42. The commitment of the County Extension Director in implementing the PPC&E program plays a vital role in its success.
SA A U D SD
43. The PPC&E program is a better measure of accountability than the previous method used for county extension agents.
SA A U D SD
44. The different forms of communication used to inform Extension personnel about the PPC&E program were impressive.
SA A U D SD
45. The PPC&E program causes too many unnecessary meetings.
SA A U D SD
46. Internal forces within Extension were the impetus for the PPC&E program.
SA A U D SD

47. The PPC&E program is seen as useful by Extension personnel.
SA A U D SD
48. Training was provided to help Extension personnel understand the PPC&E program.
SA A U D SD
49. An adequate budget was earmarked to implement the PPC&E program.
SA A U D SD
50. The Extension Director influenced the implementation of the PPC&E program.
SA A U D SD
51. County Extension Directors were expected to develop support for the PPC&E program.
SA A U D SD
52. The PPC&E program can improve the marketing of Extension in the local community.
SA A U D SD
53. Using a planning committee to explore the idea of the PPC&E program was a sound idea.
SA A U D SD
54. The Extension organization is experiencing apathy for the PPC&E program.
SA A U D SD
55. I personally felt there was a need to change the evaluation process for agents.
SA A U D SD
56. Extension personnel view the PPC&E program as an asset to the work of the Extension Service.
SA A U D SD
57. Frequent communications have been used to explain the PPC&E concept.
SA A U D SD
58. A pilot program was tried before implementing the PPC&E program organization wide.
SA A U D SD

59. Extension administration formulated the central vision of the PPC&E program.
SA A U D SD
60. County Extension Directors take the implementation of the PPC&E program very seriously.
SA A U D SD
61. The PPC&E program has the potential to improve the quality of Extension programming.
SA A U D SD
62. Collaboration among Extension personnel was effective in planning the PPC&E program.
SA A U D SD
63. The benefits of the PPC&E program have not been realized.
SA A U D SD
64. Influential people throughout Extension support the PPC&E program.
SA A U D SD
65. The PPC&E program is consistent with the culture of the Extension Service.
SA A U D SD
66. The benefits of the PPC&E program have been shared with Extension personnel.
SA A U D SD
67. Individuals developing the PPC&E program had the necessary knowledge to develop it.
SA A U D SD
68. Extension administration allocated sufficient resources to the PPC&E program.
SA A U D SD
69. Field faculty were given the authority to make the PPC&E program a success.
SA A U D SD
70. The PPC&E program better facilitates the improvement of the professional competence of Extension personnel than the old system.
SA A U D SD

71. Extension personnel were given ample opportunity to provide feedback during the PPC&E planning stage.
SA A U D SD
72. The PPC&E program is given too high a priority within Extension.
SA A U D SD
73. Influential groups throughout Extension support the PPC&E program.
SA A U D SD
74. The PPC&E program is not viewed as a threat to Extension personnel.
SA A U D SD
75. Extension personnel understand the goals of the PPC&E program.
SA A U D SD
76. Individuals developing the PPC&E program had the necessary experiences to develop it.
SA A U D SD
77. The Extension Director made the implementation of the PPC&E program a top priority.
SA A U D SD
78. An influential person was able to defuse opposition to the PPC&E program.
SA A U D SD
79. The PPC&E program better clarifies key responsibilities for Extension personnel than the old system.
SA A U D SD
80. Extension personnel were involved in the implementation of the PPC&E program.
SA A U D SD
81. The implementation of the PPC&E program is competing with more important programs.
SA A U D SD
82. Extension personnel generally are supportive of this type of change.
SA A U D SD

83. PPC&E program goals are consistent with prevailing Extension priorities.
SA A U D SD
84. The fundamental purpose of the PPC&E program has been clearly articulated.
SA A U D SD
85. Individuals developing the PPC&E program received training on developing employee evaluation systems.
SA A U D SD
86. Extension administration believes the timing was right to pursue the PPC&E program.
SA A U D SD
87. An influential group was able to defuse opposition to the PPC&E program.
SA A U D SD
88. The PPC&E program is a less ambiguous evaluation method than the previous method used for county extension agents.
SA A U D SD
89. A sense of ownership was developed within Extension for the PPC&E program.
SA A U D SD
90. The PPC&E program is a change Extension does not need to make.
SA A U D SD

Part 2

There are no right or wrong answers to the following statements. A candid, simple response is requested. Please respond to each statement by circling Y for yes or N for no. All of the statements are related to the behavior you exhibited in implementing the Performance Planning, Counseling, and Evaluation (PPC&E) program.

As a County Extension Director I--

- | | | | |
|-----|--|---|---|
| 1. | helped agents develop their job performance plans. | Y | N |
| 2. | held a progress review meeting with agents at least every six months. | Y | N |
| 3. | completed agent's job performance evaluations by the end of March 1995. | Y | N |
| 4. | discussed the amount of supervision the agents need to complete their jobs in determining the agent's overall job performance level. | Y | N |
| 5. | helped develop specific job performance plan for agents. | Y | N |
| 6. | discussed the agent's job performance during the progress review meetings. | Y | N |
| 7. | discussed the agent's quality of work products in determining the agent's overall job performance level. | Y | N |
| 8. | helped agents develop their job performance plan within 30 days of the last job performance evaluation. | Y | N |
| 9. | discussed the agent's adaptability during the progress review meetings. | Y | N |
| 10. | compared the agent's actual contributions to the agent's planned contributions for Extension programs. | Y | N |
| 11. | discussed the agent's problem solving skills in determining the agent's overall job performance level. | Y | N |

12.	told agents their job performance plans should include major job responsibilities.	Y	N
13.	discussed the agent's communication skills during the progress review meetings.	Y	N
14.	compared agent's actual contributions to the agent's planned contributions in marketing the North Carolina Cooperative Extension Service.	Y	N
15.	considered the agent's leadership ability in determining the agent's overall job performance level.	Y	N
16.	told agents their job performance plans should contribute to Extension programs.	Y	N
17.	discussed the agent's interpersonal skills during the progress review meetings.	Y	N
18.	compared the agent's actual contributions to the agent's planned contributions in maintaining professional competency.	Y	N
19.	examined feedback from agent's customers in determining the agent's overall job performance level.	Y	N
20.	told agents their job performance plans should contribute to the marketing of the North Carolina Cooperative Extension Service.	Y	N
21.	discussed the agent's ability to <u>learn</u> new skills during the progress review meetings.	Y	N
22.	discussed the agent's overall contribution to Extension in determining the agent's overall job performance level.	Y	N
23.	told agents their job performance plans should maintain their professional competency.	Y	N
24.	discussed the agent's dependability during the progress review meetings.	Y	N
25.	suggested areas for job improvement.	Y	N

- | | | | |
|-----|--|---|---|
| 26. | discussed the timeliness of the agent's work product in determining the agent's overall job performance level. | Y | N |
| 27. | suggested the agent's job performance plans include specific statements of the results expected. | Y | N |
| 28. | provided agents with an explanation of their level of achievement. | Y | N |
| 29. | discussed the agent's relationships with other Extension personnel in determining the agent's overall job performance level. | Y | N |
| 30. | discussed the agent's appreciation for diversity during the progress review meetings. | Y | N |
| 31. | stressed that agent's expected results should contain quantifiable data. | Y | N |
| 32. | listened to agent's views during the progress review meetings. | Y | N |
| 33. | stressed that the agent's performance plan should include a description of the agent's major job responsibilities. | Y | N |
| 34. | assessed the agent's job accomplishments. | Y | N |
| 35. | verified that agents had a clear understanding of the job results expected of them. | Y | N |
| 36. | helped agents determine specific actions required for successful job performance plans. | Y | N |
| 37. | set a follow-up date for the next agent progress review meeting. | Y | N |
| 38. | discussed the agent's ability to <u>apply</u> new skills during the progress review meetings. | Y | N |

Part 3

1. What is your highest level of education? (check one)

- Bachelor's degree
- Master's degree
- Doctorate
- Other. Please specify. _____

2. Please indicate the number of years you have held your current position and the number of years you have been employed with the Extension Service.

- Years in current position
- Years with the Extension Service

3. Please fill in the blanks:

- Your age
- Your gender

4. If you have any other comments you would like to make concerning the Performance Planning, Counseling, and Evaluation (PPC&E) program, please write them in the space below.

PLEASE CHECK TO SEE THAT YOU HAVE RESPONDED TO EACH STATEMENT. THANK YOU VERY MUCH FOR YOUR COOPERATION. PLEASE RETURN BY APRIL 15, 1995, TO: LARRY G. JAHN, 103 CRICKET LANE, CARY, NC 27511.

Appendix C Memorandum to Extension District Directors

MEMORANDUM

To: Extension District Directors

From: Larry G. Jahn
Interim Department Extension Leader
Department of Wood and Paper Science

Subject: Dissertation Survey Instruments

Date: February 20, 1995

A planned change effort was recently instituted within the North Carolina Cooperative Extension Service. This change effort dealt with the implementation of a new program called Performance Planning, Counseling, and Evaluation (PPC&E). The number of theoretical models available to explain planned change in higher education is limited. However, one model that deals with planned change in institutions of higher education is the Probability of Adoption of Change (PAC) model. My dissertation will attempt to analyze the effects of the PAC model constructs in the level of implementation of the PPC&E program.

In October 1994 I made a presentation to the Administrative Council concerning this topic. At that time, the District Directors requested that they have the opportunity to review my survey instruments. These instruments are attached for your review. These include a county agent's questionnaire and a county director's questionnaire.

Please look them over to see if they make sense to you. Any comments you may have are appreciated. Part 1 of the county agent's questionnaire and Part 2 of the county director's questionnaire are based on the Performance Planning, Counseling, and Evaluation Program Manual (February 1993). Part 1 of the county director's questionnaire is based on the nine constructs associated with the PAC model.

I am requesting your feedback to me no later than **5:00 PM, TUESDAY, FEBRUARY 28**. If you have any questions or concerns, feel free to call me at 515-5579 or FAX me at (919) 515-7231. Thanks for your help, support and input.

Attachments

Appendix D Statements Related to the Nine Constructs

Advantage Probability

7. The benefits of the PPC&E program outweigh the costs.
16. Nothing will really change in the Extension Service as a result of the PPC&E program.
25. Job responsibilities are better known by Extension personnel under the PPC&E program than under the previous system.
34. The PPC&E program is a better evaluation method than the previous method used for county extension agents.
43. The PPC&E program is a better measure of accountability than the previous method used for county extension agents.
52. The PPC&E program can improve the marketing of Extension in the local community.
61. The PPC&E program has the potential to improve the quality of Extension programming.
70. The PPC&E program better facilitates the improvement of the professional competence of Extension personnel than the old system.
79. The PPC&E program better clarifies key responsibilities for Extension personnel than the old system.
88. The PPC&E program is a less ambiguous evaluation method than the previous method used for county extension agents.

Championship

6. An influential **person** is an advocate for the PPC&E program.
15. An influential **group** is an advocate for the PPC&E program.
24. Extension personnel expected to **implement** the PPC&E program are clearly identifiable.
33. Extension personnel expected to **monitor** PPC&E implementation are clearly identifiable.
42. The commitment of the County Extension Director in implementing the PPC&E program plays a vital role in its success.
51. County Extension Directors were expected to develop support for the PPC&E program.
60. County Extension Directors take the implementation of the PPC&E program very seriously.
69. Field faculty were given the authority to make the PPC&E program a success.
78. An influential **person** was able to defuse opposition to the PPC&E program.
87. An influential **group** was able to defuse opposition to the PPC&E program.

Circumstances

1. There is a need within Extension for the PPC&E program.
10. Extension personnel accept the PPC&E program.
19. Extension's vitality depends on the success of the PPC&E program.
28. The PPC&E program was developed by Extension personnel.
37. The PPC&E program was supported during development by Extension personnel.
46. Internal forces within Extension were the impetus for the PPC&E program.
55. I personally felt there was a need to change the evaluation process for agents.
64. Influential **people** throughout Extension support the PPC&E program.
73. Influential **groups** throughout Extension support the PPC&E program.
82. Extension personnel generally are supportive of this type of change.

Idea Comprehensibility

3. PPC&E program goals are clear.
12. The timing of the PPC&E program is right for the current Extension climate.
21. Procedures for implementing the PPC&E program are clear.
30. Extension personnel clearly understand how the PPC&E program affects their work.
39. The PPC&E program was needed to enhance the work of the Extension Service.
48. Training was provided to help Extension personnel understand the PPC&E program.
57. Frequent communications have been used to explain the PPC&E concept.
66. The benefits of the PPC&E program have been shared with Extension personnel.
75. Extension personnel understand the goals of the PPC&E program.
84. The fundamental purpose of the PPC&E program has been clearly articulated.

Opposition

9. One or more influential **individuals** opposed the PPC&E program.
18. The PPC&E program was **not** viewed as an important project by Extension personnel.
27. One or more influential **groups** opposed the PPC&E program.
36. The PPC&E program takes too much effort to implement.
45. The PPC&E program causes too many unnecessary meetings.
54. The Extension organization is experiencing apathy for the PPC&E program.
63. The benefits of the PPC&E program have not been realized.
72. The PPC&E program is given too high a priority within Extension.
81. The implementation of the PPC&E program is competing with more important programs.
90. The PPC&E program is a change Extension does **not** need to make.

Practicality

4. Extension administration selected knowledgeable Extension personnel to develop the PPC&E program.
13. Individuals developing the PPC&E program had access to information about similar programs.
22. Individuals leading the PPC&E program had the necessary skills to implement it.
31. The planning time frame for the PPC&E program was considered realistic by Extension personnel.
40. Adequate time was given to successfully implement the PPC&E program.
49. An adequate budget was earmarked to implement the PPC&E program.
58. A pilot program was tried before implementing the PPC&E program organization wide.
67. Individuals developing the PPC&E program had the necessary knowledge to develop it.
76. Individuals developing the PPC&E program had the necessary experiences to develop it.
85. Individuals developing the PPC&E program received training on developing employee evaluation systems.

Strategies

8. The use of a planning committee was effective in developing the PPC&E program.
17. The PPC&E program is an efficient method to document Extension's success stories.
26. The PPC&E program achieves the desired effect of improving county faculty development.
35. The PPC&E manual helped me implement the PPC&E program.
44. The different forms of communication used to inform Extension personnel about the PPC&E program were impressive.
53. Using a planning committee to explore the idea of the PPC&E program was a sound idea.
62. Collaboration among Extension personnel was effective in planning the PPC&E program.
71. Extension personnel were given ample opportunity to provide feedback during the PPC&E planning stage.
80. Extension personnel were involved in the implementation of the PPC&E program.
89. A sense of ownership was developed within Extension for the PPC&E program.

Superintendency

5. Extension administration exhibited sustained commitment to the PPC&E program.
14. The PPC&E program received the endorsement of the Extension Director.
23. The Extension Director endorsed the PPC&E program publicly.
32. Extension administration is supportive of the PPC&E program.
41. Extension administration clearly identified a project leader for the PPC&E program.
50. The Extension Director influenced the implementation of the PPC&E program.
59. Extension administration formulated the central vision of the PPC&E program.
68. Extension administration allocated sufficient resources to the PPC&E program.
77. The Extension Director made the implementation of the PPC&E program a top priority.
86. Extension administration believes the timing was right to pursue the PPC&E program.

Value Compatibility

2. The PPC&E program facilitates the ways Extension personnel prefer to work.
11. The PPC&E program is inconsistent with the best interests of Extension personnel.
20. The PPC&E program is consistent with the Extension mission.
29. The value of the PPC&E program was assessed by Extension personnel before its adoption.
38. The PPC&E program addresses the evaluation concerns of Extension personnel.
47. The PPC&E program is seen as useful by Extension personnel.
56. Extension personnel view the PPC&E program as an asset to the work of the Extension Service.
65. The PPC&E program is consistent with the culture of the Extension Service.
74. The PPC&E program is not viewed as a threat to Extension personnel.
83. PPC&E program goals are consistent with prevailing Extension priorities.

Appendix E Initial Cover Letter to Accompany
Questionnaires

April 1, 1995

Dear Extension Colleague:

Enclosed is a questionnaire about the Performance Planning, Counseling, and Evaluation (PPC&E) program. This questionnaire will provide data to be used in a study of planned change within the Extension Service. This research is being conducted by Mr. Larry G. Jahn, an extension specialist with the North Carolina Cooperative Extension Service. Mr. Jahn is currently working toward a Ph.D. at Virginia Tech. His study is designed to determine the impressions of Extension personnel concerning the implementation of the PPC&E program.

Your participation is crucial to the completion of this study. Indicate your considered responses to each statement in the questionnaire by carefully circling the appropriate response category. For the results to be valid, **please be sure to respond to all statements.**

All responses will be treated in absolute confidence and will remain confidential. Your name will never be placed on the questionnaire and the information collected is for use in the generation of statistics only. The questionnaire is numbered simply to identify non-respondents so that a reminder notice can be sent to them.

I urge you to complete the questionnaire and return it by April 30, 1995. A self-addressed, stamped envelope is enclosed for your convenience. If you have any questions about the study, please call Mr. Jahn at (919) 515-5579.

Your cooperation and participation are greatly appreciated.

Sincerely,

Billy E. Caldwell
Interim Associate Dean and Director

Enclosure

Appendix F Reminder Postcard

April 15, 1995

Dear Extension Colleague:

Recently, you received a questionnaire about the Performance Planning, Counseling, and Evaluation (PPC&E) program. This research is being conducted by Mr. Larry G. Jahn, an extension specialist with the North Carolina Cooperative Extension Service. As a reminder, I urge you to complete the questionnaire and return it by April 30, 1995. Your participation is crucial to the completion of the study. If for some reason you did not receive the questionnaire, request another by calling Mr. Jahn at (919) 515-5579. Thank you for your cooperation and participation.

Sincerely,

Billy E. Caldwell
Interim Associate Dean and Director

Appendix G Second Cover Letter to Accompany
Questionnaires

May 1, 1995

Dear Extension Colleague:

Several weeks ago you received a letter from Billy Caldwell, Interim Associate Dean and Extension Director, urging you to complete a questionnaire about the Performance Planning, Counseling, and Evaluation (PPC&E) program. This questionnaire will provide data to be used in a study of planned change within the Extension Service. I am conducting this research as part of my dissertation requirements as I work toward my Ph.D. at Virginia Tech.

As of this time, I have not received your completed questionnaire. I am writing to you because of the importance of your response. Your participation is crucial to the completion of the study. For the results to be valid, it is very important that I receive your opinions. In addition, the results of the study will help the Extension Service identify strengths and weaknesses with the PPC&E program and in the implementation of future planned change efforts.

I want to stress the fact that all responses will be treated in absolute confidence. I am the only individual with access to completed questionnaires. Your name will never be placed on the questionnaire, and the information collected will be reported only in combination with other responses.

In case you did not receive a questionnaire or your copy has been misplaced, a duplicate copy and a self-addressed, stamped envelope are enclosed for your convenience. I am requesting you take a little time from your busy schedule to complete the questionnaire and return it by May 15, 1995. If you have already returned your questionnaire, I apologize for this additional reminder. If you have any questions about the study, please call me at (919) 515-5579.

Your cooperation and participation are greatly appreciated.

Sincerely,

Larry G. Jahn
103 Cricket Lane
Cary, NC 27511

Enclosure

Appendix H Construct Reliability--Items Not Deleted

Table H1

Reliabilities for Advantage Probability (Cronbach's Alpha)

Item number	Alpha if item deleted
7. The benefits of the PPC&E program outweigh the costs.	.8675
16. Nothing will really change in the Extension Service as a result of the PPC&E program.	.8688
25. Job responsibilities are better known by Extension personnel under the PPC&E program than under the previous system.	.8564
34. The PPC&E program is a better evaluation method than the previous method used for county extension agents.	.8478
43. The PPC&E program is a better measure of accountability than the previous method used for county extension agents.	.8503
52. The PPC&E program can improve the marketing of Extension in the local community.	.8750
61. The PPC&E program has the potential to improve the quality of Extension programming.	.8636
70. The PPC&E program better facilitates the improvement of the professional competence of Extension personnel than the old system.	.8640
79. The PPC&E program better clarifies key responsibilities for Extension personnel than the old system.	.8613
88. The PPC&E program is a less ambiguous evaluation method than the previous method used for county extension agents.	.8703
Alpha =	.8738

Table H2

Reliabilities for Strategies (Cronbach's Alpha)

Item number	Alpha if item deleted
8. The use of a planning committee was effective in developing the PPC&E program.	.8069
17. The PPC&E program is an efficient method to document Extension's success stories.	.8175
26. The PPC&E program achieves the desired effect of improving county faculty development.	.7907
35. The PPC&E manual helped me implement the PPC&E program.	.8120
44. The different forms of communication used to inform Extension personnel about the PPC&E program were impressive.	.8035
53. Using a planning committee to explore the idea of the PPC&E program was a sound idea.	.8086
62. Collaboration among Extension personnel was effective in planning the PPC&E program.	.8114
71. Extension personnel were given ample opportunity to provide feedback during the PPC&E planning stage.	.8177
80. Extension personnel were involved in the implementation of the PPC&E program.	.8108
89. A sense of ownership was developed within Extension for the PPC&E program.	.7919
Alpha =	.8316

Appendix I Deleted Items and Their Impact on the
Reliability Scores

Table I1

Deleted Items and Their Impact on the Reliability Scores of the Scales to Which They Were Assigned (Cronbach's Alpha)

Item number	Increase in alpha when deleted
51. County Extension Directors were expected to develop support for the PPC&E program.	.0134
78. An influential person was able to defuse opposition to the PPC&E program.	.0069
46. Internal forces within Extension were the impetus for the PPC&E program.	.0524
28. The PPC&E program was developed by Extension personnel.	.0052
39. The PPC&E program was needed to enhance the work of the Extension Service.	.0077
27. One or more influential groups opposed the PPC&E program.	.0173
9. One or more influential individuals opposed the PPC&E program	.0245
63. The benefits of the PPC&E program have not been realized.	.0249
18. The PPC&E program was not viewed as an important project by Extension personnel.	.0095
49. An adequate budget was earmarked to implement the PPC&E program.	.0128
40. Adequate time was given to successfully implement the PPC&E program.	.0050
59. Extension administration formulated the central vision of the PPC&E program.	.0235
29. The value of the PPC&E program was assessed by Extension personnel before its adoption.	.0070
74. The PPC&E program is not viewed as a threat to Extension personnel.	.0062

Appendix J Construct Reliability--Items Deleted

Table J1

Reliabilities for Championship (Cronbach's Alpha)

Item number		Alpha if item deleted
6.	An influential person is an advocate for the PPC&E program.	.6763
15.	An influential group is an advocate for the PPC&E program.	.6654
24.	Extension personnel expected to implement the PPC&E program are clearly identifiable.	.6003
33.	Extension personnel expected to monitor PPC&E implementation are clearly identifiable.	.6276
42.	The commitment of the County Extension Director in implementing the PPC&E program plays a vital role in its success.	.6429
60.	County Extension Directors take the implementation of the PPC&E program very seriously.	.6433
69.	Field faculty were given the authority to make the PPC&E program a success.	.6690
87.	An influential group was able to defuse opposition to the PPC&E program.	.6776
Alpha =		.6814

Table J2

Reliabilities for Circumstances (Cronbach's Alpha)

Item number		Alpha if item deleted
1.	There is a need within Extension for the PPC&E program.	.6896
10.	Extension personnel accept the PPC&E program.	.6804
19.	Extension's vitality depends on the success of the PPC&E program.	.6484
37.	The PPC&E program was supported during development by Extension personnel.	.7181
55.	I personally felt there was a need to change the evaluation process for agents.	.7106
64.	Influential people throughout Extension support the PPC&E program.	.6804
73.	Influential groups throughout Extension support the PPC&E program.	.6943
82.	Extension personnel generally are supportive of this type of change.	.6990
	Alpha =	.7191

Table J3

Reliabilities for Idea Comprehensibility (Cronbach's Alpha)

Item number	Alpha if item deleted
3.	.8021
12.	.8285
21.	.7674
30.	.8002
48.	.8180
57.	.8162
66.	.7912
75.	.8214
84.	.8039
Alpha =	.8244

Table J4

Reliabilities for Opposition (Cronbach's Alpha)

Item number	Alpha if item deleted
36.	.8060
45.	.8074
54.	.8192
72.	.7852
81.	.8167
90.	.7974
Alpha = .8323	

Table J5

Reliabilities for Practicality (Cronbach's Alpha)

Item number		Alpha if item Deleted
4.	Extension administration selected knowledgeable Extension personnel to develop the PPC&E program.	.8265
13.	Individuals developing the PPC&E program had access to information about similar programs.	.8498
22.	Individuals leading the PPC&E program had the necessary skills to implement it.	.8326
31.	The planning time frame for the PPC&E program was considered realistic by Extension personnel.	.8310
58.	A pilot program was tried before implementing the PPC&E program organization wide.	.8501
67.	Individuals developing the PPC&E program had the necessary knowledge to develop it.	.8110
76.	Individuals developing the PPC&E program had the necessary experiences to develop it.	.8043
85.	Individuals developing the PPC&E program received training on developing employee evaluation systems.	.8375
	Alpha =	.8490

Table J6

Reliabilities for Superintendency (Cronbach's Alpha)

Item number	Alpha if item deleted
5. Extension administration exhibited sustained commitment to the PPC&E program.	.7754
14. The PPC&E program received the endorsement of the Extension Director.	.7618
23. The Extension Director endorsed the PPC&E program publicly.	.7809
32. Extension administration is supportive of the PPC&E program.	.7594
41. Extension administration clearly identified a project leader for the PPC&E program.	.7683
50. The Extension Director influenced the implementation of the PPC&E program.	.7888
68. Extension administration allocated sufficient resources to the PPC&E program.	.7760
77. The Extension Director made the implementation of the PPC&E program a top priority.	.7481
86. Extension administration believes the timing was right to pursue the PPC&E program.	.7695
Alpha =	.7903

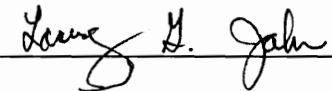
Table J7

Reliabilities for Value Compatibility (Cronbach's Alpha)

Item number		Alpha if item deleted
2.	The PPC&E program facilitates the ways Extension personnel prefer to work.	.7891
11.	The PPC&E program is inconsistent with the best interests of Extension personnel.	.8080
20.	The PPC&E program is consistent with the Extension mission.	.7995
38.	The PPC&E program addresses the evaluation concerns of Extension personnel.	.8092
47.	The PPC&E program is seen as useful by Extension personnel.	.7702
56.	Extension personnel view the PPC&E program as an asset to the work of the Extension Service.	.7688
65.	The PPC&E program is consistent with the culture of the Extension Service.	.7820
83.	PPC&E program goals are consistent with prevailing Extension priorities.	.8014
Alpha =		.8128

Vita

Larry G. Jahn was born in Pittsburgh, Pennsylvania, on February 11, 1950. He graduated from North Hills High School in 1968 and received his Bachelor of Science degree in Wood Science from The Pennsylvania State University in June 1972. Mr. Jahn started his career as a production management supervisor for Koppers Company in Houston, Texas. In 1973, Mr. Jahn left the Koppers Company to pursue a Master of Business Administration degree in Marketing at The Pennsylvania State University. Mr. Jahn completed this program of study in June 1974. He worked as a contract analyst for the Pullman Swindell Company in Pittsburgh, Pennsylvania, from September 1974 to July 1976. In August 1976, Mr. Jahn accepted employment with the North Carolina Cooperative Extension Service in Raleigh, North Carolina. His current title is Associate Professor and Wood Products Extension Specialist. Mr. Jahn started to pursue a Doctor of Philosophy degree in Higher Education Administration at Virginia Polytechnic Institute and State University in August 1993. His Ph.D was completed in January 1996.


Larry G. Jahn