DOCUMENT RESUME

ED 398 418 CE 072 283

AUTHOR Joyner, Randy L., Ed.
TITLE North Carolina Council of Vocational Teacher Educators. Proceedings of the Annual Summer Workshop (11th, Raleigh, North Carolina, August 1996).
INSTITUTION North Carolina Council of Vocational Teacher Educators.; North Carolina State Dept. of Public Instruction, Raleigh. Div. of Vocational and Technical Education Services.
PUB DATE Aug 96
NOTE 78p.
PUB TYPE Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Administrator Attitudes; Agricultural Education; Career Choice; Cultural Awareness; Cultural Differences; *Educational Needs; Postsecondary Education; Research Methodology; Research Needs; Secondary Education; *Teacher Education; Teacher Educators; *Teaching (Occupation); *Tech Prep; *Vocational Education; Vocational Followup
IDENTIFIERS *North Carolina

ABSTRACT

This proceedings contains six papers selected by a review committee composed of teacher educators from North Carolina. The following papers are included: "Status of Ethics Instruction in Business Classrooms in North Carolina" (Vivian Arnold); "Middle School Students' Perceptions of Family and Consumer Sciences Teaching as a Career" (Cheryl L. Lee); "Tech Prep Personnel Training Needs in North Carolina" (Robert L. Wrisley, John A. Swope); "Preparing Students for Cultural and Ethnic Diversity in the Workplace" (Thelma C. King); "Perceptions of School Principals in North Carolina Concerning Agricultural Education Programs" (Larry R. Jewell); and "Perceptions of the North Carolina Vocational Competency Achievement Tracking System (VoCATS)" (Carolyn S. Jewell, Larry R. Jewell). (KC)

Eleventh Annual Research Report

Sponsored by the North Carolina Council of Vocational Teacher Educators and Vocational and Technical Education, State Department of Public Instruction

August, 1996
Raleigh,
North Carolina

Proceedings

North Carolina Council of Vocational Teacher Educators Research Conference

Hosted by

Workforce Development
Division of Instructional Services
Public Schools of North Carolina

Eleventh Annual Meeting
Summer Workshop
Raleigh, North Carolina
August 1996

PREFACE

The 1996 proceedings of the North Carolina Council of Vocational Teacher Educators (NCCVTE) Annual Research Conference consists of six papers selected by a review committee composed of teacher educators from North Carolina. This year's Research Committee consisted of Dr. Rita Noel, Western Carolina University; Dr. Tom Allen, Appalachian State University; Dr. Barbara Kirby, North Carolina State University; Dr. Lilla Holsey, East Carolina University; Dr. Rose Vaughn, Fayetteville State University; and Dr. Randy L. Joyner, Chairperson, East Carolina University.

Special thanks to the Public Schools of North Carolina staff, Ms. June Atkinson and Mr. Ken Smith for their support of the Research Conference.

Randy L. Joyner, Editor
1996 NCCVTE Research Committee

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North Carolina Council of Vocational Teacher Educators

Eleventh Annual Research Conference Report
Summer Workshop, August 1996

Table of Contents

STATUS OF ETHICS INSTRUCTION IN BUSINESS CLASSROOMS IN NORTH CAROLINA

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Overview and Purpose

Ethics, defined as standards of conduct and moral judgment, is a situational variable of behavior that involves the personal integrity, honesty, fairness, and respect for the rights of others in everyday life as well as in the business world (Heppermann, 1994). Ethics instruction, then, is viewed as the integration of ethics concepts into course subject matter. This research was completed to determine the status of ethics instruction provided by business educators at high school and collegiate levels in North Carolina schools.

With increasing diversity among individuals in the workforce--many nationalities, changing demographics, and new patterns of values and needs--ethical issues have surfaced as a concern for employers and educators. In addition, the widespread use of computer technology and the expanding global economy have increased the need for ethical business practices. The Global TransPark Development Zone will certainly impact the 13 counties in eastern North Carolina, and global practices with commensurate ethical dilemmas are expected to swell in this location.

Brown (1995) suggested that ethical skills should be well developed by the time students leave high school. As Nappi (1990) noted, students should by that time "...have acquired not only knowledge and skills to enhance the capacity to perceive and think clearly about moral issues, but also the ability to put ethical beliefs into practice" (p. 177). In fact, Jones (1989) reported that teaching business ethics to students at the postsecondary level may be necessary just to keep the moral development from declining.

Problem

To determine the status of ethics instruction in business classrooms, specific research questions were addressed:

- What motivates business educators to include ethics instruction in their courses?
- Which teaching methods do business educators perceive as most effective?
- How well do business educators perceive themselves as being prepared to teach ethics?

Methodology and Findings

An instrument adapted from one used by Fox (1993) was administered to business educators at the Atlantic Coast Business and Marketing Education Conference in early 1995. At the conference, held in Raleigh, North Carolina, 260 attendees were asked to complete the survey; and 138 did so for a 62.7% completion rate. Of the 138 responses, 96 were from North Carolina. Of the 96 North Carolina responses received, 63 taught ethics in some way (65.5%). Responses were received from individuals in a number of different counties in North Carolina and different educational levels from middle school to university.

Each respondent identified the course most often used for teaching ethics concepts. The courses utilized for ethics instruction and frequency were as follows:

Computer Applications	24
Marketing	11
Introduction/Principles	9
Management	9
Business Law	8
Accounting	8
Keyboarding	7
Business Communications	6
Office Technology	5
Other (Methods, Readiness, etc.)	4
Careers	3
Coop	1
Total	95

Note that the number of responses to courses utilized for teaching ethics exceeds the number of teachers who responded since many teachers taught ethics in more than one class. As can be seen, the most frequently used course for ethics instruction was computer applications.

The 63 respondents indicated the frequency of including ethics-related activities in instruction. The findings indicate that one ethics activity was presented in every instructional unit in 28 courses (44%), followed by one activity every one or two lessons in 18 courses (28%), one activity every semester in 10 courses (16%), and one activity every quarter in 8 courses (12.5%).

The teaching methods found to be most effective offered additional insight. On a scale of 1 (very effective) to 5 (ineffective), nine possible methods were identified. On a rank-order listing, the three most effective methods were role playing (17 responses) followed by case study and discussion (16 responses each). Computer-assisted instruction and guest speakers were viewed as somewhat effective. The three least effective methods were oral report, field interview, and panel discussion.

Each respondent also provided information regarding commitment to teaching ethics, what the motivation for teaching ethics was, and perception of preparation to teach ethics. Further, each respondent provided information about educational background, current teaching assignments, and teaching experience.

Table 1 included number and percent data for respondents who taught ethics, including their education, teaching level, teaching experience, and perception of preparation to teach ethics, and motivation for teaching ethics.

Table 1
The Characteristics of Respondents Who Taught Ethics

	N	%
Bachelor's degree plus additional coursework	26	41.3
Master's degree plus additional coursework	32	50.8
Doctorate and other	5	7.9
Middle school teachers	6	9.5
High school teachers	37	58.8
Postsecondary teachers	20	31.7
Beginning through 10th year experience	29	46.0
11 or more years' experience	32	50.8
Other experience	2	3.2
Highly/adequately prepared to teach ethics	35	55.6
Slightly/not prepared to teach ethics	20	31.7
No response	8	12.7

For data analysis, descriptive statistics, including means and standard deviations; analysis of variance; and correlation procedures were used. Data analysis revealed that neither the level of education of the teachers nor current teaching assignment had significant bearing on teachers' preference for providing ethics instruction. When teaching experience in number of years was explored, data analysis revealed that more than 50 percent of these teachers were highly experienced. Beginning through tenth year teachers perceived themselves as better prepared to teach ethics than teachers with more experience when chi-square outcomes for this relationship were examined. However, this relationship was significant only at the .05 level.

The sources used by these teachers as motivation for teaching ethics was studied based on self-reported responses as follows:

Required to include ethics in instruction	11	17.5
Chose due to courses, workshops, seminars, etc.	17	26.9
Suggestions from readings or professional discussion	10	15.9
Personal interest and conviction	11	17.5
Needed for job success	2	3.2
No response	12	19.0

As can be seen, the decision to include ethics instruction was primarily a personal decision rather than a requirement since only 17.5% were mandated to include ethics instruction. Many teachers inferred that their personal experiences in the classroom and in workforce preparedness led them to include ethics instruction when completing this open-

ended question. Years of teaching had no significant bearing on electing to provide ethics instruction which may be explained by the mandated ethics instruction factor.

Teachers rated the overall noticeable student attitude change after receiving ethics instruction on a 5-point Likert scale where 1 was great effect and 5 was no effect. The results and percentages of these attitude ratings were as follows:

Rating of 1 (great effect)	7	11.1%
2	25	39.7
3	19	30.2
4	8	12.7
5 (no effect)	1	1.5
No Response	3	4.8

From the ratings of 1 and 2 which were observed and reported after ethics instruction, 32 teachers or almost 51% rated instruction as having very positive effects, and only nine teachers or about 14.2% rated the effects as none or low on attitude.

Teachers rated the overall noticeable student behavior change after receiving ethics instruction on a 5-point Likert scale where 1 was great effect and 5 was no effect. The results of these ratings on behaviors were as follows:

Rating of 1 (great effect)	4	6.3%
2	20	31.8
3	20	31.8
4	11	17.5
5	5	7.8
No response	3	4.8

From the ratings of 1 and 2 which were observed and reported behaviors after ethics instruction, 24 teachers or about 38% rated instruction as having very positive effects, and 16 teachers or about 25% rated the effects as none or low on behavior. ANOVA outcomes for teachers' perceptions of students' attitude and behavior changes related to frequency of ethics instruction were analyzed. Results indicated that neither the attitude nor the behavior were significantly changed for any of the 4 frequencies of instruction (every one or two lessons to one per semester).

Conclusions

The overall objective of this study was to determine the status of ethics instruction in business classrooms in North Carolina. Toward that end, teachers who taught ethics were asked (1) are ethics concepts being integrated in business curricula in North Carolina what motivated them to teach ethics, (2) which teaching methods were most effective, (3) what motivated teachers to teach ethics, and (4) how well business educators perceive themselves as being prepared to teach ethics. Finally, teachers were asked if changes in student attitude and behavior could be observed.

1. Are ethics concepts being integrated into business curricula in North Carolina? Of the 96 responses, 65.5 percent reported that ethics was taught in a variety of courses with computer applications courses being utilized most frequently.

2. Which teaching methods were most effective? The teaching methods found to be most effective were role playing, case study and discussion. Of the nine methods listed, teachers found oral report, field interview, and panel discussion to be the least effective teaching methods.

3. What motivates teachers to teach ethics? The most frequent response was that teachers were motivated to teach ethics based on their attendance at workshops, seminars, and classes. Having ethics required by public instruction mandates and personal interest and conviction were additional motivators.

4. Can changes in student attitude and/or behavior be observed? Fifty-one percent of the teachers who teach ethics concepts reported very positive effects in attitude change. However, only 38 percent rated instruction as having very positive effects on behavior. Some respondents indicated that attitude and behavior changes are difficult to gauge, but many examples of attitude and behavior change were mentioned by these respondents. More tolerance of other's views and awareness of what is acceptable were listed most frequently. Respondents' ratings showed that these changes were not extreme--no miracle change from devil to angel.

Recommendations

The findings and conclusions of this study indicated that incorporating business instruction into existing courses should be beneficial to North Carolina students; therefore, the following recommendations were made:

1. Incorporate business ethics concepts among several business-related courses. As indicated by this study, any number of courses can be successfully utilized to provide ethics instruction.

2. Incorporate business ethics concepts into several learning activities and by using several methodologies and strategies. As indicated by this study and the Fox (1993) study, interactive problem-solving strategies may cause students to transfer ethic concepts from situation to situation.

3. Incorporate ethics concepts activities into the materials provided for computer applications courses since respondents utilized this course most frequently.

4. Further study is recommended as to the frequency and intensity of ethics-related activities. These factors may influence successes.

5. Based on the responses from respondents in this study, many teachers incorporated ethics-related instruction after assessing students' needs for employable skills. The reported discernible difference in attitude makes this an important tool.

Educational Importance

Murphy and Boatright (1994) reported that a course in business ethics can have a positive effect on students' abilities to identify the presence of ethical issues. Their research outcomes substantiate that student sensitivity to ethical issues can be influenced by formal

instruction in business ethics and improving students' sensitivities to ethical issues is a viable objective for ethics instruction. "By teaching students how to recognize a moral issue, how to think critically through the alternatives, and how to decide on the best solution, we are taking positive steps" according to Goree (1992, 21).

The findings of this study provided insight into business educators' perceptions of their role in the teaching of ethics in North Carolina schools. The data from this study indicated that change can occur; therefore, integration of ethics concepts can make a difference.

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MIDDLE SCHOOL STUDENTS' PERCEPTIONS OF FAMILY AND CONSUMER SCIENCES TEACHING AS A CAREER

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Introduction

Currently, a critical need exists to prepare secondary family and consumer sciences (FCS) teachers for North Carolina public schools. A recent national supply and demand study reported North Carolina as one of the top four states in need of large numbers of FCS teachers by the year 2000 (Miller & Meszaros, 1996). Likewise, Rebecca Payne, Chief Consultant, Family and Consumer Sciences Education, North Carolina State Department of Public Instruction (1995) envisions a shortage of 500 secondary FCS teachers over the next five years. Ironically, FCS education enrollment in secondary programs has increased in recent years, due in part to the implementation of block scheduling. As more high school students enroll in FCS courses to learn critical life management skills, how will sufficient numbers of qualified FCS teachers be located?

In the past, adequate numbers of college students chose to major in FCS/home economics education and eventually became secondary FCS teachers. In recent years, however, the number of students who major in FCS education has declined dramatically across the nation (Miller & Meszaros, 1996; Weis & Pomraning, 1993). According to Hotta and Meszaros (1995), the total undergraduate enrollment in FCS education programs in 1993 in the United States was 2,088, while the demand for FCS teachers was 7,903. The nation wide trend of lower FCS undergraduate enrollments is characteristic of North Carolina enrollments, as well. During the 1994-95 academic year, only 26 FCS education majors graduated from North Carolina undergraduate programs, and even fewer in 1995-96, numbers which will never provide the 500 teachers needed by the early 2000's. While some of the current vacancies are being filled by substitute teachers, this is not seen as a permanent solution. Rebecca Payne (1995) anticipates that some secondary FCS programs will be closed in the near future if qualified teachers are not located.

In view of the critical shortage of secondary FCS teachers, an obvious need to recruit students into this area is apparent. However, to successfully recruit these young people, the factors which motivate students to or deter students from selecting FCS teaching as a career must first be determined. For many students, perceptions of various careers as desirable or undesirable become substantial during middle school. Middle school students' perceptions may be influenced by FCS classes, friends' opinions of these classes, and FCS teachers (Callahan, 1993; DeWald-Link & Lester, 1985; Smith, 1995). Middle school students often enter the FCS classroom with a traditional, stereotypical view of what FCS involves: cooking and sewing as part of a homemaker's responsibilities (LeBleu and Smith, 1994). Through the course of the class, the perception may be reaffirmed or broadened to include such concepts as nutrition, relationships, housing, consumer education, child development, and clothing selection.

Middle school students' perceptions of FCS can influence the decisions to explore or eliminate certain careers, as well as various classes in high school. While some "recruitment" type studies are currently being conducted, most appear to be targeted toward older students, especially undergraduates majoring in FCS education or recent graduates. While a profile of these students will undoubtedly provide valuable information, the number of such students is extremely small at the present. A large group of potential FCS teachers exists at the middle school level; yet few of these students ultimately choose to become FCS teachers. What are their perceptions of FCS teaching as a career? What influences them to consider or reject FCS teaching as a career? What influences their decisions to enroll in high school FCS classes? In order to encourage students' consideration of FCS teaching as a potential career, as well as their enrollment in high school FCS classes, answers to questions such as the above are needed.

Purpose and Objectives

In view of the critical shortage of family and consumer sciences (FCS) teachers in North Carolina, as well as across the country, the study sought to assess middle school students' perceptions of FCS teaching as a career. Specific objectives included the following:

(1) To determine middle school students' perceptions of FCS programs at the schools, as well as the perceptions of the career of "family and consumer sciences teacher."

(2) To identify factors which may influence students' decisions regarding enrollment in FCS courses at the secondary level.

(3) To identify factors which may influence students' selection of FCS teaching as a career.

Procedures

Following a review of the literature, a survey instrument was developed. Selected North Carolina family and consumer sciences (FCS) middle school teachers were contacted to critique the instrument, and suggestions were incorporated.

The *Family and Consumer Sciences Survey for Middle School Students* sought information concerning eighth graders' perceptions of FCS teaching as a career (as well as FCS programs at the schools) and perceptions of positive and negative aspects of being a FCS teacher. An initial screening question verified that students were enrolled in the state-approved, eighth grade FCS class, *Exploring Life Skills*. In open-ended questions, students were asked:

(1) How do you feel about the *Exploring Life Skills* class at your school?

(2) How do you think other students at your school feel about the *Exploring Life Skills* class?

(3) What do you think of the career, "family and consumer sciences teacher?"

Students were then asked if, as adults, they would like to be a FCS teacher, and why they, the students, responded as they did. Students were also asked if they planned to take any

FCS classes in high school, as well as the reason for the answer. Demographic information related to age and gender was also collected.

Twenty copies of the survey were mailed to each of 175 randomly selected middle/junior high school FCS teachers in North Carolina. A cover letter which explained the purpose of the study and requested teachers' assistance in collecting the data was included. Teachers were asked to administer the surveys to one of their eighth grade *Exploring Life Skills* classes. If FCS teachers receiving the mailed survey were not the instructor of that particular class, teachers receiving the survey were asked to forward the packet to the appropriate instructor in the school. To insure that surveys were appropriately administered, teachers were asked to share with their students that participation was voluntary, the survey was anonymous, and questions should be answered as honestly as possible. After students completed the surveys, teachers were asked to collect and return them to the researcher in the postage-paid envelopes provided.

The surveys were mailed in February 1996 to the randomly selected middle school FCS teachers. No follow-up surveys were sent. Descriptive statistics were used to describe respondents' characteristics, as well as the perceptions of the FCS classes, plans for taking FCS classes in high school, and the perceptions of the career, "family and consumer sciences teacher." Open-ended questions were also analyzed for additional descriptive information.

Findings

Characteristics of Sample. Usable questionnaires were returned by 1297 eighth grade students who were currently enrolled in the *Exploring Life Skills* class. Respondents included 757 females (58.4%) and 537 males (41.4%); three students did not reveal their gender (Table 1). Students ranged in age from 12-16 years old. The majority of the students (84.2%) were 13 to 14 years old, while 4.5% were age 12 and 10.1% were 15 to 16 years of age. Sixteen students did not provide their ages.

Table 1
Characteristics of Respondents

Variable	Number	Percent*
Gender		
Female	757	58.4
Male	537	41.4
Age		
12	59	4.5
13	521	40.2
14	571	44.0
15	115	8.9
16	15	1.2

*Unequal to 100.0 due to missing cases.

Middle School Students' Perceptions of Family and Consumer Sciences

Table 2 presents middle school students' perceptions of the state-approved, eighth grade FCS course, *Exploring Life Skills*. The majority of students (80.5%) enrolled in the FCS class held positive attitudes regarding the class, while only 7.9% expressed negative opinions of the class. A greater percentage of female students (84.7%) reported positive perceptions of the *Exploring Life Skills* class than males (74.7%). More than half of the students (57.0%) felt their friends, whether or not they were enrolled in the *Exploring Life Skills* class, also viewed the class positively (Table 3). Only 15.1% of the respondents felt their friends held a negative attitude toward the eighth grade FCS class at their school.

Table 2
Middle School Students' Perceptions of Their FCS Class

Perception	Number	Percentage*
Positive	1044	80.5
Female	641	84.7
Male	401	74.7
Negative	102	7.9
Female	40	5.3
Male	62	11.5
Neutral	128	9.9
Female	68	9.0
Male	60	11.2

*Unequal to 100.0 due to missing cases.

Table 3
Students' Perceptions of their Friends' Opinions of FCS Classes

Perception	Number	Percentage*
Positive	739	57.0
Negative	196	15.1
Neutral	320	24.7

*Unequal to 100.0 due to missing cases.

When asked what they thought of the career, "family and consumer sciences teacher," slightly over half of the students (51.7%) provided a positive response (Table 4). Approximately one-fourth of the students (27.6%) responded negatively. A greater percentage of females (60.9%) than males (38.5%) viewed the career positively.

Table 4
Students' Perceptions of "Family and Consumer Sciences Teaching" as a Career

Perception	Number	Percentage*
Positive	670	51.7
Female	461	60.9
Male	207	38.5
Negative	358	27.6
Female	172	22.7
Male	186	34.6
Neutral	113	8.7
Female	56	7.4
Male	57	10.6

*Unequal to 100.0 due to missing cases.

Students' Plans Regarding Family and Consumer Sciences Classes and Careers

When asked if the students planned to enroll in any FCS classes in high school, more than half (59.6%) responded "yes," while approximately one-third (34.5%) said "no" (Table 5). A greater percentage of females (68.6%) than males (46.9%) planned to take a secondary FCS class.

Table 5
Middle School Students' Plans to Enroll in High School FCS Classes

Decision	Number	Percentage*
"Yes"	773	59.6
Female	519	68.6
Male	252	46.9
"No"	447	34.5
Female	200	26.4
Male	247	46.0

*Unequal to 100.0 due to missing cases.

Both males and females reported most often that they planned to enroll in future FCS classes because the present class was interesting and enjoyable, as well as helpful preparation for future lives as adults (Table 6). Males, on the other hand, were most likely to report their dissatisfaction with the current class as the reason for not enrolling in future FCS classes.

Table 7
Middle School Students' Plans to Consider FCS Teaching as a Career

Decision	Number	Percentage*
"Yes"	208	16.0
Females	145	19.2
Males	62	11.5
"No"	1057	81.5
Females	594	78.5
Males	462	86.0

*Unequal to 100.0 due to missing cases.

When asked why the students would or would not consider a career as a FCS teacher, both females (43.3%) and males (52.0%) most often described the occupation as undesirable (Table 8). Some students responded that they had already decided to pursue another career. While the majority of students had previously reported positive perceptions regarding the career of "family and consumer sciences teacher," only 12.9% viewed FCS teaching as an enjoyable career for themselves.

Table 8
Middle School Students' Reasons for Career Decisions Regarding FCS Teaching

Reason		Number	Percentage*
1.	Would not like to be an FCS teacher because I have other career plans.	217	16.8
	Females	156	20.6
	Males	61	11.4
2.	Would not like to be an FCS teacher because pay is low.	58	4.5
	Females	36	4.8
	Males	22	4.1
3.	Would not like to be an FCS teacher because the career is undesirable to me.	607	46.8
	Females	328	43.3
	Males	279	52.0
4.	Would like to be an FCS teacher because the career appears enjoyable and desirable to me.	167	12.9
	Females	130	17.2
	Males	36	6.7

*Unequal to 100.0 due to missing cases.

Table 6
Students' Reasons for Enrollment Decisions Regarding FCS Classes

Reason		Number	Percentage*
1.	Will not enroll in high school FCS class as present middle school class is not helpful.	56	4.3
	Female	29	3.8
	Male	27	5.0
2.	Will not enroll in high school FCS class as present middle school class is not enjoyable.	159	12.3
	Female	59	7.8
	Male	100	18.6
3.	Will not enroll in high school FCS class as I plan to take other classes and won't have room in my schedule for FCS class.	142	10.9
	Female	84	11.1
	Male	58	10.8
4.	Will enroll in high school FCS class as it will help prepare me for the future.	353	27.2
	Female	252	33.3
	Male	101	18.8
5.	Will enroll in high school FCS class as present middle school class is interesting and enjoyable.	339	26.1
	Female	228	30.1
	Male	110	20.5
6.	Will enroll in high school FCS class as present middle school class is "easy."	18	1.4
	Female	6	.8
	Male	12	2.2

*Unequal to 100.0 due to missing cases.

Students were asked if, as adults, they would like to become a FCS teacher. As Table 7 indicates, the majority (81.5%) did not want to become FCS teachers; however, 16.0% were interested in pursuing that career. Not surprising, more females (19.2%) than males (11.5%) expressed interest in teaching FCS.

Discussion and Implications for Educators

Overall, the majority of these North Carolina middle school students held positive perceptions regarding the eighth grade family and consumer sciences (FCS) classes, with many describing their classes as "fun," "enjoyable," and "cool." The positive comments concerning the *Exploring Life Skills* course revealed a range of content and activities included in the class. The most frequent concepts that appeared to be taught and that students appeared to enjoy related to cooking and sewing. The following statements represent the majority of the positive comments students made regarding their FCS classes.

- "It's a really good class because it teaches us how to cook a meal."
- "I enjoy getting to cook stuff."
- "It teaches me how to cook better."
- "I like it because it teaches me to cook, clean, and use manners."
- "We get to cook and eat the food we make."
- "I like it because of the cooking and sewing."
- "It's a good way to learn to be a good housekeeper---to sew, cook, and clean."
- "It helps people learn about the kitchen and sewing."
- "The best thing is you get to eat."

Although most students' positive comments about their FCS classes related to cooking and sewing, some students' statements revealed broader views of the course content. Apparently, students were gaining important life skills related not only to food preparation and clothing, but also family relations, parenting, problem-solving, self-esteem, consumer education, communication, and career education as illustrated by the following statements.

- "I like the class because it teaches you to deal with your problems."
- "It teaches you how to deal with stress."
- "I learn about basic life skills which will be useful as I get older."
- "It teaches you how to feel good about yourself."
- "It's a good way to learn about how to take care of yourself and others."
- "It gets you ready for the real world."
- "It helps you to become a responsible consumer and budget your money."
- "It teaches you many things which can help to keep your family together."
- "It helps me to decide what I want to do in the future."

More than half of the middle students in the study planned to enroll in high school FCS classes, and the plans appeared to be directly related to the middle school FCS experiences. Both males and females reported most often that they reached this decision because the present middle school *Exploring Life Skills* class was interesting and enjoyable, as well as good preparation for future lives as adults. Only a few students stated they planned to take a high school FCS course because it was an "easy" class.

Students not planning to enroll in high school FCS classes provided a number of reasons for the decisions. Some reported that the present middle class was not enjoyable or interesting, providing comments such as "My *Exploring Life Skills* class is boring. All we do

is a bunch of worksheets." Other students felt they had learned enough "homemaking skills" in their middle school FCS class; therefore, further FCS classes in high school would not be helpful, e.g., "I already learned how to cook and sew this year, so I don't need it in high school." Still some were planning to take other elective courses in high school, such as foreign language, computer classes, advanced math and science, etc., and would have no room to schedule FCS classes. As one student remarked, "In high school, I need to take classes in important things."

Unfortunately, some students appeared to be confused by the term, "family and consumer sciences." For example, several students remarked, "I don't like FCS because I don't like science." Several other students indicated they did not know what FCS was. Apparently, students identified classes and the FCS profession itself more narrowly by the individual specializations which were studied, e.g., nutrition, child development, interior design, etc., rather than identifying FCS in its broader sense.

Approximately half of the middle school students in the study reported positive perceptions of the career, "family and consumer sciences teacher," and 16.0% of the students said they would like to be FCS teachers. When asked why the career was desirable to them, several students reported they would like to help others.

- "I'd like to help other people learn things they need in life."
- "It would be fun teaching younger people about what they're going to face in the future."
- "I want to help people plan their lives."
- "I'd like to teach people good ways to live."
- Most of those expressing interest in FCS teaching reported they would enjoy the various responsibilities of the job, although they perceived those responsibilities rather narrowly.
- "I'd like to be an FCS teacher because I love to cook."
- "I admire my teacher and I love to cook."
- "I'd like to teach kids to cook and sew."
- "It would be fun because you get to cook."

Although more than half of the students in the study held positive perceptions of an FCS teaching career, most were not interested in becoming FCS teachers themselves. Interestingly, several students, though they did not plan an FCS teaching career, were positively influenced by their FCS teachers.

- "My teacher tries to make us responsible like the way we will be in life at a job---but I don't want to be a teacher like her."
- "Mrs. _____ is cool and nice. Her job is very important---but not something I want to do."
- "My teacher does a great job teaching but I am interested in something more challenging."

Several students reported they were not interested in becoming FCS teachers because the students already had other career plans. Students' occupational goals ranged from various vocational trades to professional specialities, such as mechanic, beautician,

receptionist, businessman, pediatrician, lawyer, computer programmer, artist, musician, pharmacist, social worker, nurse, interior decorator, pilot, plastic surgeon, veterinarian, electrical engineer, and chemist. Some students reported no specific career plans but simply did not want to pursue any kind of teaching career. One student remarked, "I would not enjoy teaching," while another stated, "I do not want to be a teacher of any kind."

When asked why FCS teaching was an undesirable career for them, some students mentioned that teaching salaries were insufficient. One male noted, "I wouldn't want to be an FCS teacher because I don't think that it would pay near enough to support my future family." One female stated, "My mother is a teacher, and she is always complaining about how much paper work you have to do and how you don't get paid as much as you should." Several students reported that FCS teaching would be "boring." Some of the male students reported that FCS teaching was "a woman's job," while a few described the career as "unchallenging."

By far, the most frequent responses students provided regarding why FCS teaching was undesirable to them related to student discipline and teaching responsibilities. Many students indicated they would find it difficult and stressful to manage students in the classroom.

- "I couldn't put up with the kids."
- "I just don't think I could tolerate all the kids yelling, screaming, and making a mess."
- "I don't think I could handle all those kids."
- "The students would get on my nerves."
- "I couldn't put up with kids that back talk."
- "The kids today don't listen."
- "I don't think I could handle the stress."
- "Some kids would drive me crazy."
- "I don't have enough patience to teach kids."
- "A large number of students viewed FCS teaching as undesirable because they disliked what they perceived as the responsibilities of FCS teaching.
- "I don't like to sew, wash clothes, or cook."
- "I don't like sewing or cooking."
- "I would not like to teach people how to cook and sew."
- "I don't like to clean up the kitchen."
- "I'm not into cooking."
- "I would prefer not to teach sewing and cooking every day."

Some students did not want to consider FCS teaching because students reported they would not be proficient in areas that were necessary, e.g., "I am not a great cook or sewer;" "I can't cook very well;" and "I don't really know a lot about cooking or mainly sewing."

What do these middle school students' perceptions of the eighth grade FCS classes and teachers reveal? Does the curriculum reflect the diverse life skill preparation it should, or do students learn only to "cook and sew?" "Are educators helping students to grasp a full understanding of the FCS profession, or are educators simply reaffirming the

stereotypical notion that FCS relates only to housekeeping skills? "Are middle school FCS educators helping the students visualize the important life skills and occupational training obtained through high school FCS classes, perhaps initiating in some the desire to become FCS educators themselves? Or instead, are educators painting a narrow, dismal picture of what it means to be a FCS teacher?

While the study sought relatively simple information regarding students' general impressions of their FCS classes and FCS teaching as a future career in order to direct effective recruitment efforts, some rather disturbing findings were obtained. Although commendable, the majority of the students enjoyed their eighth grade FCS classes, was the challenging life skills learned or the food items prepared and eaten which accounted for the satisfaction with FCS? A number of the students viewed high school FCS courses as helpful preparation for adult live, but do the students anticipate that preparation includes the development of consumer, management, parenting, and problem-solving skills, or primarily advanced food preparation and clothing construction skills? This limited vision of FCS further impacts students' perceptions regarding the desirability of FCS teaching as a career. Whether or not students view FCS teaching as a desirable career, students almost always equate FCS with cooking and sewing--a narrow job description which is not only inaccurate and incomplete, but also unattractive to many young adults.

While some middle school FCS teachers in this study provided a diverse curriculum that addressed important life skills, far too many perpetuated an outdated program comprised primarily of "stichin' and stewin.'" Although contemporary textbooks, curriculum guides, and teaching resources emphasize preparation for adult life and professional careers, a substantial number of FCS educators apparently continue to focus on housekeeping skills. Whether or not the intent is to equate FCS with household competence, educators certainly appeared to have left that impression with the majority of the students. Finally, many students appear to have rejected FCS teaching as a result of classroom discipline concerns, perhaps due in part to the number of special needs and problem students so often placed in vocational classes.

In view of the critical shortage of FCS teachers, educators must all consider students' perceptions of the middle school FCS classes and reflect upon what is being modeled as FCS professionals to students, as well as to parents, colleagues, counselors, administrators, legislators, and communities. The curricula and instructional objectives must be examined to assure that critical life skills and issues are addressed. Further, our presentation methods and professional outlook must be reviewed to assure the value and importance of what is being taught is communicated. FCS educators must be competent, resourceful, and joyful in teaching if FCS is to effectively impact students, encourage them to acquire additional life and occupational skills from our high school courses, and perhaps pursue an FCS teaching career. The new name, "family and consumer sciences," must be clarified and enhanced to assure FCS connotes the intended meaning, and that the FCS profession is meaningfully communicate and promoted to others. Never has the need been greater that the professional image that FCS encompasses be exemplified. The future of our FCS teaching profession depends upon it!

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TECH PREP PERSONNEL TRAINING NEEDS IN NORTH CAROLINA

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Introduction

Approximately 60 percent or more of the youth in high schools today do not attend a four-year institution (Peterson, Tentcher, Peyer, 1992). Tech Prep programs can provide needed technical education to enable the students to be successful in the rapidly changing workplace of tomorrow. The Southern Region Education Board (1994) has recommended that all vocational students complete mathematics, science, and communications courses that have a "hands-on," or applied, teaching approach and a content similar to college prep courses. Where an applied approach has been used, more students are staying in school and succeeding.

Lankard (1991) describes Tech Prep as an articulation partnership between secondary and postsecondary technical institutions. The program, according to Lankard, offers a more efficient use of tax dollars for education and training by eliminating unnecessary duplication of program content. In addition, the technological content knowledge and skill training required by today's employers are provided. The strength of Tech Prep programs lies in the partnership commitment Tech Prep promotes between academic and technical instructors, secondary and postsecondary educational institutions, and educational systems and the business community to provide a program comparable to a college prep program (Lankard, 1992).

Dutton (Hull and Parnell, 1991) reports that major changes must be made in educational programs within institutions if they are to be responsive to the educational and workplace needs of tomorrow. The changes must occur in student expectations; the attitudes of students, parents, teachers, and administrators about the quality and worth of vocational and technical education; teaching styles and techniques that correspond to the learning styles of students; and changes in the organizational structures currently found in schools. Staff development is one of the three most important segments of the change implementation process. The other two segments are promoting ownership of the program by the personnel involved and articulating the curriculum.

Staff development and in-service training is basic to the success of any educational change process. The greater and more significant the changes required, the more important the amount and quality of staff development. All groups, including school administrators, teachers and counselors, need to be involved in staff development activities in order to ensure that Tech Prep programs succeed.

Description of the Study

Purpose. The major purpose of the study was to assess the professional needs and in-service priorities for select school personnel involved with Tech Prep programs in North Carolina. The specific objectives were to: (1) identify potential in-service and staff development alternatives, (2) identify discrepancies between the educators' perception of the present levels of familiarity with and the perceived importance and interest assigned to potential in-service and staff development alternatives, and (3) recommend in-service/staff development priorities for building administrators, academic teachers, vocational teachers, and counselors.

Limitations of the Study. The study asked participants to self-assess their levels of familiarity with Tech Prep in-service topics as well as interest in learning more about the topics. For purposes of this study, professional needs is defined as the discrepancy between the educators' perception of their present familiarity with a topic and their interest in learning more about the topic in order to work effectively in a North Carolina Tech Prep program.

Procedures. An initial list of 34 potential topics and competencies necessary to work in integrated Tech Prep programs was developed based upon a review of literature, including Tech Prep in-service priorities identified by other states, and consultation with teacher educators, DPI personnel, and Tech Prep coordinators. The topics and competencies were refined and validated by a panel comprised of vocational and academic classroom teachers, vocational directors, Tech Prep coordinators, Division of Vocational and Technical Education personnel, and teacher educators.

The revised survey instrument was divided into two sections. The first requested respondents to rate each of the proposed Tech Prep in-service topics and competencies on a Likert-type scale as to the opinion of that topic's importance to Tech Prep personnel, the personal familiarity with the topic, and the interest in the topic as a potential staff development activity. The second section was designed to collect demographic information about the respondents and the present levels of the involvement in the Tech Prep program at the schools.

Population and Sample. The population for the survey was identified as all professional personnel engaged in Tech Prep in North Carolina public secondary schools. This included academic and vocational teachers, counselors, and administrators. A listing of all North Carolina units engaged in the implementation and/or development of a Tech Prep program was obtained from A Summary of North Carolina Tech Prep Funding Patterns and Expenditures (NCDPI, 1993). Using a random number table, a total of 24 school administrative units were selected to participate in the study. To ensure a geographic and demographic balance of schools, four school systems were selected from each of the state's six Technical Assistance Center Regions. The final selection included schools from rural, suburban, and urban population centers as well as representatives of the largest and smallest school systems participating in Tech Prep programs.

The vocational director of each system selected was contacted. At the time of contact, the vocational director was requested to provide a listing of all the vocational and academic teachers, school administrators, and counselors in their school system identified as working in, or with, the Tech Prep program. Using a random number table, a stratified

sample was drawn from those lists. Original lists identified school personnel by job title. A final sample size of 462 was comprised of 45 school administrators, 60 counselors, 187 academic teachers, and 170 vocational teachers.

Data and Information Collection. The survey instrument and cover letter were mailed in May 1994 to individuals selected to participate in the study. A follow-up mailing was made in September to all who had not responded to the original request. Of the 462 questionnaires mailed, 163 (35.3 percent) were returned.

Data Analysis. Descriptive statistics were computed for each population sub-group as well as for the entire survey population. Means computed for the total survey population were as follows: importance of the topic, 3.46; familiarity with the topic, 2.61; and interest in learning more about the topic, 3.06. For each population sub-group, topics were placed into high and low categories based on the mean score for each topic as compared with the total survey population mean score for that topic. Any in-service topic with a population sub-group mean equal to or greater than the total sample mean was placed in the high category; any topic receiving a mean score below the total sample mean was assigned to the lower category.

Topics in the priority groups were determined by ranking the topics according to the educators' rating reported for importance, familiarity, and interest. Topics were ranked from highest to lowest for the importance and interest dimensions; the topics were ranked from lowest to highest for the familiarity dimension. Only those topics respondents rated as important for Tech Prep practitioners were included in final priority-lists. The topics were placed in four priority levels. From highest to lowest these were: Priority 1 (High Importance-Low Familiarity-High Interest), Priority 2 (High Importance-Low Familiarity-Low Interest), Priority 3 (High Importance-High Familiarity-High Interest), and Priority 4 (High Importance-High Familiarity-Low Interest).

FINDINGS

BUILDING ADMINISTRATORS

Demographics of Respondents. Survey instruments were returned by 21 of the 45 building administrators selected for the study (47%). Respondents were 62 percent male and averaged more than twenty-two years experience in education, with nearly half reporting between twenty-one and twenty-five years experience.

The level of the building administrators' involvement in their school's Tech Prep program varied from having no involvement (10%) to supervision of the Tech Prep program (29%). Six administrators indicated that they had attended meetings where Tech Prep was discussed, three were involved in the planning for a Tech Prep program at their school, and three were teaching courses in their school's Tech Prep program.

Staff Development/In-Service Needs. In-Service Topics Administrators Rated as Important. Administrators identified 27 of the 34 in-service topics as being of relatively high importance. The topic rated highest in importance was the integration of academic and technical education. In general, staff development topics relating to the connection of Tech Prep with the community work environment received relatively high ratings, including working with business/industry/labor, connecting school and work-based programs, and

designing work-based experiences for students. Administrators assigned their lowest rating to "back-to-industry" opportunities.

Administrators' Reported Levels of Familiarity with In-Service Topics. Administrators indicated that they were highly familiar with 31of the 34 in-service topics. Even though the administrators rated their familiarity with most topics as high, the administrators' reported levels of familiarity were lower than the assessments of each topic's respective importance. Cooperative learning and team building each received the highest familiarity ratings. Three topics received familiarity ratings that were below the mean familiarity rating for the total sample. Among these three, administrators indicated that they were the least familiar with the topic "back-to-industry" opportunities for educators.

Administrators' Reported Levels of Interest in In-Service Topics. Administrators indicated relatively greater interest in 16 of the 27 topics previously identified as being important to Tech Prep programs. Two topics, cooperative learning and performance-based curricula, received low importance ratings but high interest ratings. Four topics received mean interest scores equal to or greater than 3.5 (highest interest), including the integration of academic and vocational education, teaching to higher expectations, working with business/ industry/labor, and teaching critical thinking/problem solving. Among topics rated of relatively greater importance, administrators indicated that they did not have a high interest in nine. These included: managing the change process, supervising curriculum integration, learning styles, defining competencies for two-year school placement exams, evaluating programs, working with special populations, aligning vertically and horizontally the curriculum, supervising teaching and learning in Tech Prep, and understanding the Tech Prep philosophy.

Priority of Staff Development and In-Service Needs for Building Administrators. A listing of the in-service topics building administrators identified as important and with which they had varying degrees of familiarity and interest is provided in Table 1.

ACADEMIC TEACHERS

Demographics of Respondents. Fifty-two of the 187 academic teachers selected to participate in the survey (27.81%) returned usable questionnaires. Respondents were 58 percent female and averaged slightly more than 15 years of teaching experience (median = 17 years), with between one and 28 years reported.

The degree to which academic teachers reported involvement in Tech Prep programs varied. About half of the academic teachers (54%) indicated they had attended meetings on Tech Prep; 16 percent reported no involvement at all; and about 5 percent indicated their involvement had included participating in school planning for Tech Prep. Six academic teachers (16.2%) reported their involvement had been to teach academic skills courses as a part of the school's Tech Prep program. One reported assuming the responsibility for teaching a vocational course.

Staff Development and In-Service Needs

In-Service Topics Academic Teachers Rated as Important. Teachers in this group rated nineteen of the topics to be of relatively greater importance. The two topics academic

Table 1
Tech Prep Staff Development and In-Service Priorities for Building Administrators

In-Service Topic	Importance	Familiarity	Interest
High Importance-Low Familiarity-Low Interest			
Competencies on 2-year school placement exams	3.50	2.56	3.00
High Importance-High Familiarity-High Interest			
Connecting school and work-based programs	3.83	2.68	3.32
Working with business/industry/labor	3.88	2.94	3.50
Designing a Tech Prep curriculum	3.63	2.78	3.36
Teaching to higher expectations	3.84	3.05	3.55
Integration of academic and technical education	3.89	3.22	3.57
Using applications-based instruction	3.80	3.00	3.47
Teaching critical thinking/problem solving	3.84	3.35	3.50
Shaping attitudes about Tech Prep	3.80	3.00	3.26
Student recruitment/selection for Tech Prep	3.57	2.83	3.26
Articulating a course of study	3.73	2.94	3.16
Career planning/guidance for Tech Prep students	3.78	3.05	3.31
Designing work-based experiences for students	3.65	3.05	3.38
Implementing a successful Tech Prep program	3.73	3.11	3.35
Assessment of student outcomes	3.55	3.00	3.31
Marketing Tech Prep	3.55	2.94	3.21
Team Building	3.73	3.38	3.29
Managing resources	3.63	3.05	3.21
Teachers as change agents	3.47	3.25	3.27
High Importance-High Familiarity-Low Interest			
Program evaluation	3.60	2.72	3.00
Supervising teaching and learning in Tech Prep	3.60	2.77	3.00
Working with special populations in Tech Prep	3.55	2.83	3.00
Managing the change process	3.52	2.94	3.05
Supervising curriculum integration	3.50	2.94	3.05
Vertical and horizontal curriculum alignment	3.47	2.88	3.00
Understanding the Tech Prep philosophy	3.47	2.94	2.94
Learning styles	3.50	3.27	3.05

teachers rated highest in importance were teaching critical thinking and problem solving and integrating academic and technical education. The items respondents assigned lowest evaluations were: competencies on two-year school placement tests and vertical and horizontal curriculum alignment.

Academic Teachers' Reported Levels of Familiarity with Staff Development and In-Service Topics. Respondents in this group indicated relatively lower levels of familiarity with 29 topics (85%). Teachers rated 23 topics (approximately 70%) below the mean for familiarity recorded by all survey participants. Among the topics with which the group reported the highest level of familiarity were career planning and guidance for Tech Prep students, performance-based curricula, and developing the articulation process. The topics with which academic teachers indicated least familiarity were assessing student outcomes from instruction, integrating academic and vocational education, and connecting school and

work programs. In general, academic teachers' reported levels of familiarity with the topics were much lower than their assessments of these same topics' relative importance.

Academic Teachers' Reported Levels of Interest in In-Service Topics. Academic teachers responding to the survey rated eight of the topics (23.5 percent) as stimulating relatively greater interest as possible staff development activities, including marketing Tech Prep programs, supervising teaching and learning in Tech Prep programs, student recruitment and selection, and articulating a course of study generated the greatest interest. The items which generated the lowest reported interest were: competencies on two-year school placement tests, admission requirements for two-year college programs, and developing the articulation process.

Priority of Staff Development and In-Service Needs for Academic Teachers. Based on the importance academic teachers assigned the topics, as well as their reported levels of familiarity and interest, a prioritized listing of staff development topics for this group is presented in Table 2.

Table 2
Tech Prep Staff Development and In-Service Priorities for Academic Teachers

In-Service Topic	Importance	Familiarity	Interest
High Importance-Low Familiarity-High Interest			
Integrating academic and technical education	3.78	2.02	3.13
Using applications-based instruction	3.65	2.37	3.15
Articulating a course of Study	3.46	2.49	3.23
High Importance-Low Familiarity-Low Interest			
Assessing student outcomes	3.57	2.13	2.87
Learning styles	3.60	2.30	2.94
Working with Business/industry/labor	3.67	2.47	2.96
Connecting school with work programs	3.45	2.02	2.87
Design a Tech Prep curriculum	3.57	2.40	2.94
Team-building	3.47	2.54	3.04
Designing work-based experiences	3.62	2.38	2.78
Teachers as change agents	3.51	2.28	2.61
Managing resources	3.44	2.30	2.86
Implementing a Successful Tech Prep program	3.51	2.50	2.76
High Importance-High Familiarity-High Interest			
Teaching critical thinking and problem-solving	3.82	2.89	3.21
Career planning and guidance	3.59	3.32	3.09
(High Importance-High Familiarity-Low Interest)			
Teaching to higher expectations	3.70	2.76	2.91
Cooperative learning	3.52	2.63	2.94
Shaping attitudes about Tech Prep	3.54	2.80	2.89
Performance-based curricula	3.43	3.17	2.70

VOCATIONAL TEACHERS

Demographics of Respondents. Fifty-nine of the 170 vocational teachers in the school systems selected for the study (34.71%) returned usable instruments. Respondents

were 56 percent female, and averaged over sixteen years experience in education (median = 18 years). Nearly one third (32%) had ten or fewer years experience; about two in five (41%) reported more than 20 years of experience.

About one-half of the vocational teachers (51%) indicated they had attended meetings where Tech Prep was discussed, and seventeen (29%) stated that they were currently teaching vocational courses in Tech Prep programs. One reported having no involvement and three indicated they were counseling students in Tech Prep programs.

Staff Development and In-Service Needs

In-Service Topics Vocational Teachers Rated as Important. Vocational teachers rated 15 of the in-service topics on the survey as relatively higher in importance; 19 topics on the survey were rated in the low category. Teachers in this group indicated that teaching critical thinking and problem-solving skills and integration of academic and technical education were of highest importance. In-service topics related to community college and technical institute programs were rated among the lower importance scores. The topic receiving the lowest mean score was for aligning the curriculum.

Vocational Teachers' Reported Levels of Familiarity with In-Service Topics. Vocational teachers indicated that they had high levels of familiarity with 26 of the topics. Vocational teachers also assigned high scores for familiarity to four of the five items rated relatively higher in importance, including integration of academic and technical education; working with business, industry, and labor; teaching critical thinking and problem-solving skills; and teaching to higher expectations. Eight topics that received lower familiarity scores also received low importance ratings from vocational teachers. The topic receiving the lowest mean for importance, vertical and horizontal curriculum alignment, received the next to the lowest score for familiarity.

Vocational Teachers' Reported Levels of Interest in In-Service Topics. Vocational teachers responding indicated relatively higher interests in fifteen of the in-service topics (44%). Topics rated as the top four in interest also received the highest importance ratings, including working with business, industry, and labor; integration of academic and technical education; designing work-based experiences for students; and teaching critical thinking and problem-solving skills. More than half the topics (19) were rated by vocational teachers below the mean for the total sample. One topic, team building, had a high importance value but a low interest score for this group.

Priority of Staff Development and In-Service Needs for Vocational Teachers. A prioritized list of in-service topics vocational teachers identified as important, and with which vocational teachers had varying degrees of familiarity and interest, is provided in Table 3.

COUNSELORS

Demographics of Respondents. A total of 31 of the 60 counselors (51.7%) selected to participate in the study returned usable questionnaires. Respondents were 70% female and indicated educational experience levels ranging between one and 33 years, with a mean of about 18 years of experience (median = 20 years) reported.

Table 3
Tech Prep Staff Development and In-Service Priorities for Vocational Teachers

In-Service Topic	Importance	Familiarity	Interest
High Importance-High Familiarity-High Interest			
Designing work-based experiences for students	3.65	2.92	3.48
"Back-to-Industry" opportunities	3.58	2.78	3.38
Student recruitment/selection for Tech Prep	3.60	2.84	3.30
Teaching critical thinking/problem-solving	3.78	3.15	3.44
Working with business/industry/labor	3.66	3.17	3.53
Integration of academic and technical education	3.77	3.25	3.52
Teaching to higher expectations	3.62	3.03	3.33
Connecting school and work-based programs	3.50	2.85	3.30
Career planning/guidance for Tech Prep students	3.59	2.94	3.29
Using applications-based instruction	3.57	2.91	3.27
Shaping attitudes about Tech Prep	3.61	3.01	3.16
Implementing a successful Tech Prep program	3.59	3.03	3.29
Designing a Tech Prep curriculum	3.50	2.86	3.14
Managing resources	3.47	2.98	3.11
High Importance-High Familiarity-Low Interest			
Team building	3.42	3.01	3.05

The degree of counselor involvement in school Tech Prep programs varied. Eleven indicated they had attended meetings on Tech Prep; one indicated involvement had included participating in school planning for Tech Prep, while three indicated they had participated in implementing the plans/programs developed. Fourteen (45.1%) reported their involvement had been to provide counseling for Tech Prep students. One counselor reported assuming the responsibility for teaching a vocational course as part of the Tech Prep program.

Staff Development and In-Service Needs

In-Service Topics Counselors Rated as Important. Counselors responding to the survey rated all but one of the proposed staff development topics as important, the exception being supervising teaching and learning in Tech Prep. The topic counselors rated most highly in importance was career planning and guidance. In general, in-service topics most closely related to what might be viewed as the counselor's traditional role, including admission to higher education, performance tracking and student recruitment and selection, were rated of higher importance. Among topics rated lower in importance were three which deal primarily with program administration issues, including supervising teaching and learning in Tech Prep, aligning vertically and horizontally the curriculum, and supervising curriculum integration. Other lower-rated topics were the use of applications-based instruction and the implementation of the Tech Prep philosophy.

Counselors' Reported Levels of Familiarity with In-Service Topics. Counselors indicated relatively low levels of familiarity with about 70 percent of the issues (24). Career planning and guidance was the topic with which counselors reported the highest familiarity. The two topics with which the counselors indicated least familiarity were aligning the curriculum and supervising teaching and learning in Tech Prep. In general, counselors' ratings

of familiarity with the topics were much lower than the assessments of the importance of these same items. As was observed for importance ratings, topics generally regarded as a part of the role counselors traditionally assume in the school were those with which they indicated greatest familiarity.

Counselors' Reported Levels of Interest in Tech Prep In-service Topics. Counselors indicated higher interest in seventeen of the topics (50%) as possible in-service activities. As was true for their ratings of importance and familiarity, career planning and guidance for Tech Prep students produced the greatest interest, followed by learning styles, teaching critical thinking and problem-solving, and working with business/industry/labor. Among items generating less interest, supervising teaching and learning in Tech Prep, evaluating and managing Tech Prep resources were rated lowest.

Priority of Staff Development and In-Service Needs for Counselors. A prioritized list of in-service topics counselors identified as important, and with varying degrees of familiarity and interest, is shown as Table 4.

Table 4
Tech Prep Staff Development and In-Service Priorities for Counselors

In-Service Topic	Importance	Familiarity	Interest
High Importance-Low Familiarity-High Interest			
Designing work-based experiences	3.72	2.51	3.24
High Importance-Low Familiarity-Low Interest			
Developing the articulation process	3.46	2.57	3.04
Managing resources	3.50	2.60	2.77
High Importance-High Familiarity-High Interest			
Connecting school with work programs	3.70	2.80	3.33
Working with business/industry/labor	3.71	2.94	3.45
Teaching critical thinking/problem-solving	3.79	3.06	3.47
Teachers as change agents	3.70	2.97	3.38
Managing the change process	3.53	2.67	3.27
Career planning and guidance	3.87	3.52	3.58
Shaping attitudes about Tech Prep	3.74	3.06	3.35
Integrating academic and technical education	3.77	3.00	3.25
Implementing successful Tech Prep programs	3.58	2.97	3.35
Learning styles	3.70	3.41	3.47
Team-building	3.61	2.90	3.16
Student recruitment and selection for Tech Prep	3.66	3.10	3.27
Designing a Tech Prep curriculum	3.52	2.94	3.20
"Back-to-industry" opportunities	3.45	2.71	3.07
Admission requirements for 2-year school programs	3.61	3.35	3.19
Tracking student performance	3.55	3.19	3.13
High Importance-High Familiarity-Low Interest			
Working with special populations in Tech Prep	3.53	2.73	3.03
Assessing student outcomes	3.53	2.73	3.03
Marketing Tech Prep	3.42	2.81	3.03
Teaching to higher expectations	3.43	2.87	3.00
Performance-based curricula	3.47	3.03	2.97
Understanding the Tech Prep philosophy	3.48	3.13	2.94

RECOMMENDATIONS FOR STAFF DEVELOPMENT

Based on the findings presented above, several recommendations can be drawn concerning the staff development and in-service priorities of professional personnel in Tech Prep. The four highest priority staff development topics for each category are identified below.

A. Recommended staff development priorities for building administrators:

1. determining competencies on 2-year school placement exams,
2. connecting school and work-based programs,
3. working with business/industry/labor,
4. designing a Tech Prep curriculum, and

B. Recommended staff development priorities for counselors:

1. designing work-based experiences,
2. developing the articulation process,
3. managing resources,
4. connecting school with work programs, and

C. Recommended staff development priorities for academic teachers:

1. integrating academic and technical education,
2. using applications-based instruction,
3. articulating a course of study,
4. assessing student outcomes, and

D. Recommended staff development priorities for vocational teachers:

1. designing work-based experiences for students,
2. participating in "Back-to-Industry" opportunities,
3. developing activities for student recruitment/selection for Tech Prep,
4. connecting school and work-based programs, and

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PREPARING STUDENTS FOR CULTURAL AND ETHNIC DIVERSITY IN THE WORKPLACE

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INTRODUCTION

According to Fernandez (1991), the U.S. population includes 14% Anglo-Saxon ancestry, 13% Germanic ancestry, 12% African ancestry, 10% Hispanic ancestry, and 2% Asian ancestry. Also by the year 2050, one-half of the U.S. population will be African-American, Hispanic-American, Native American, and Asian-American. Thus, employers must develop short- and long-term plans to manage the new workforce effectively.

Everyone enters the workplace with a unique perspective shaped by past experiences (Loden and Rosener, 1991). Several people may work at the same place, read the same correspondence, attend the same meetings, yet experience the work environment differently. The development of cooperative and diverse work groups are important to organizations in the 90s. Teamwork is essential otherwise organizations risk efficiency, consistency, and high quality service over a period of time.

Comments from employee seminars and studies done by Fernandez (1991) revealed that people are not free from prejudices about various ethnic groups. The ability to manage diversity in the workplace is the ability to manage a company without unnatural advantage or disadvantage to diverse groups.

Loden and Rosener (1991) state that productivity in the workplace is directly related to the ability to interact in a pluralistic society. Programs offered through schools must be relevant and reflect the skills, concepts, and attitudes students need in the workplace.

Banks (1981) suggests that knowledge of cultural differences and careful observation can enable one to recognize potential conflict among different ethnic groups. Early identification of any differences enables one to manage, avoid, or redirect tensions. Banks (1981, p. 44) further states that "cultural conflict is a result of individuals and groups with different goals, values, attitudes, and behavior patterns living and working together in constricted spatial limitations." Thus, there is a greater potential for conflict when teachers, employers, and students do not share similar ethnic identities, cultural codes, value systems, and background experiences.

Significance of Study

Because society has become increasingly service-oriented and technological, business and industry employers are looking more to schools to assist in meeting human resource and training needs. Today's global society requires employees who can effectively work across national and cultural boundaries interacting with people of different cultures,

lifestyles, and perspectives. Breakdowns in communication can lead to bad feelings, lowered productivity, heightened resistance and reinforcement of preconceived ideas and stereotypes (Loden, et al., 1991).

People in multicultural workplaces sometime have difficulty working with people who look, believe, and act different than the perceived norm. Interacting with diverse groups of people requires understanding, patience, and training. Everyone has cultural layers that teach how to interpret everyday events and how to behave (Simons, 1989). The layers make all alike in some ways and different in other ways.

Purpose

The purposes of the study were to provide documented accounts of students' experiences when interacting with diverse groups and to obtain student and employer perceptions of the knowledge and attitudes needed by students to interact effectively with diverse groups. The specific experiences and examples cited by students and employers in the outcomes of the study can be incorporated in the general curriculum as a basis for teaching about student interactions with culturally and ethnically diverse groups.

Method of Procedure

Focus groups, a quantitative method, are used often in education and other social programs to document what is expected and the impact on people. Focus groups were used to gather the data for this study because of the emphasis on insights, perceptions, and explanations, and also because focus groups provide for group interaction.

Twenty-four students and 12 employers were selected from a list of cooperative education students and employers provided by a southeastern comprehensive community college. Four focus groups comprised of six students each were held on the school site. Two focus groups comprised of six work-site supervisors of the students were also held on the school site.

Each focus group session was from one to two hours in length. The sessions were tape recorded and field notes were taken by the researcher. Additionally, each participant completed an information sheet. Focus group discussions were transcribed, and field notes and information sheets were compiled.

The transcripts were read, coded, and categorized. Further, ethnographic analysis was used. Recurring themes were identified and marked. The five major themes that evolved were understanding, self-esteem, acceptance, principles, and interactions. Sub-themes were also derived from the major themes.

Findings

During the focus group discussions, students and supervisors talked about experiences interacting with individuals from multicultural backgrounds as well as the knowledge and attitudes needed to interact effectively. The findings are reported through the five themes that evolved and relative quotes from the focus group discussions are inserted.

Understanding. Understanding was defined as the power to make experience intelligible by applying concepts and categories, explanation, and interpretation. Students stated that lack of knowledge of diverse groups was the number one cause of misunderstandings. Preconceived perceptions about diverse groups of people could be clarified through information on beliefs, customs, language, family background, ethnicity, communication style and/or perspectives. Research has shown that students' perceptions directly influence their actions in the workplace (Loden et al., 1991).

Students' accounts of experiences interacting with diverse groups of people also revealed that much of knowledge of diverse groups came from the media, home, and/or the community which in many cases was inaccurate and/or incomplete. Some students went as far as to say that people need to take that knowledge and check it with other types of knowledge for accuracy.

> The media reinforces different things about other backgrounds all the time. You are constantly bombarded with stereotypes from both TV and radio. I also felt as if the media contributed to what I viewed about other cultures. As I was saying about the Asians, I didn't really know much about those individuals until I met them. I think my idea was generally that all Orientals were the same until I met more and more people that were from that background, and then I realized that they had different backgrounds. But what I knew about them, I learned from the media.

Research by Cortes (1991a, 1991b) and Greenfield & Cortes (1991) revealed that media knowledge often reinforces stereotypes and misconceptions of racial and ethnic groups. Individuals need to be aware that information in the media is usually presented in subtle ways like stories and interpretations of current events. Along the same lines, knowledge received in the home and community should also be scrutinized like media knowledge for some of the same reasons. Both employers and students emphasized the importance of reserving judgment of others until more is known about them. One should not stereotype but try to get to know people on a more personal level.

Self-Esteem. Self-esteem is defined as confidence and satisfaction with oneself. Overall, students recognized their uniqueness and had a sense of self-worth. Students strived to maintain and develop high standards and expressed a desire to be liked by others which in turn made students feel special about themselves. Some students realized the importance of setting internal standards rather than always comparing themselves to others.

The dominant sub-theme that surfaced was language barriers--accents and dialects. A great deal of language diversity exists in the United States because of its racial and ethnic composition. Several students agreed that when talking to someone with a different accent or dialect, both parties needed to talk slowly and ask questions to avoid misunderstandings. The literature (Banks, 1981; Odenwald, 1993) revealed that conquering language barriers would contribute to students' future success.

> I try to talk to Oriental people slowly . . . . But with anybody that has an accent, you try to talk slow. Mexican people are somewhat difficult to understand because they have such a strong accent. So I try to talk slow, and if I do not understand them, I let them know rather than saying, "yeah I understand . . .".

Supervisors stated that schools and employers need to work on helping students to build confidence levels. Positive self-worth comes from within and is reflected in grooming, lifestyle, behavior, professional accomplishments, and relationships.

Acceptance. Acceptance was defined as favorable reception. Students and supervisors believed strongly that people should let something else prevail in people's thoughts other than the familiar. Students and supervisors stated the importance of people being open-minded to learn new things from different sources--school, work, home/ community, etc. In addition, students and supervisors stated that current knowledge should be weighed against new knowledge learned from different sources.

Students believed that schools should teach more about other cultures so that students become more accepting and open-minded about culturally and ethnically diverse groups. Students should also realize that several ways exist to get the same results, and students should not reject others because varying ethnic groups do things differently.

> The food that Jamaicans eat is totally different from that I am used to. In the northeastern United States, where I am from, everything is bland. You know you do not have any spices whereas his food is is hot, so I had to learn his culture and he is also learning mine. And luckily it has been very successful.

Supervisors felt that when students were in a situation where disagreements occurred, students should try to find out the cause of the disagreement. Supervisors stressed the importance of students letting something else prevail in students' minds besides their own opinions.

Principles. Principles was defined as opinions, attitudes, or beliefs that exercise direct influence on life and behavior; rules or codes of conduct. Many students felt that individuals should not be too quick to judge other individuals based on religion. Individuals should respect and be sensitive to all religions. Students stated that schools and employers should be sensitive to the various religions of their clientele. This relates to students having a strong sense of cultural values and being able to personify those values without offense to others.

> I was in school with someone of a different religion. When we would celebrate holidays they did not believe in, she would leave the room. She understood my religion, and I understood hers. Several people commented when she left the room because they did not understand her religion or respect it. They would ask, "what's wrong with her? Why is she leaving?" A lot of people talked about it.

Interactions. Interactions are defined as mutual or reciprocal actions or influences. Students and supervisors saw a need for students to socialize more with diverse groups. Supervisors recommended that schools support more structured types of group settings where students get together to discuss and ask questions on issues related to cultural and ethnic diversity.

> . . . you have Hispanic, you have African-American, you have Anglo-Saxon, you have everything in the workplace. In school, they are sticking to one

race, and that has been a problem because people do not know how to deal with different races in the workplace.

. . . the best thing for me to do is to communicate and let people know that we are here. Even though we might not believe the same, even though we might not live the same, we can come together and work together.

Both students and supervisors also emphasized the importance of good oral and written communication skills. Supervisors stated that a strong foundation in standard English was imperative because English is the language of business. Students believed that individuals should have a firm belief in behavior styles and customs representing each individual's background.

Implications

Based on the findings from this study, effective interactions between culturally and ethnically diverse groups are imperative. Schools are vital change agents because the literature states that productivity in the workplace is directly related to the ability to interact in a pluralistic society (Loden et al., 1991). The study provides a base for developing educational material in context with emphasis on the five themes that were revealed. Also, this study can serve as the basis for further study.

Recommendations

Based on the findings of this study, the researcher offers the following recommendations for curriculum and instruction development.

1. Schools should incorporate multicultural education and experiences throughout the curriculum where applicable in an effort to enable students to study content, concepts, and events from many viewpoints. This could be done through units in various classes where applicable. Students with multicultural experiences could be allowed to share them in class. Multicultural instructional materials, such as textbooks and readings, could be used in classes, assuring that at least the contributions to society of the diverse groups represented in the schools are mentioned and celebrated in some way. Members of the community should also be invited to classes to share their experiences and ideas when appropriate.

2. Schools should schedule structured times for interaction between diverse groups of people. These structured times could be in classes, during specific events, and/or at selected times during the day. Seminars could be scheduled during the school day for all students. Student organizations could set aside times during their meetings for interactions among members.

3. Case studies and scenarios could be developed based on data generated from this study to be used in helping students learn to interact effectively with diverse groups and individuals from diverse groups. The student experiences cited relating to inaccurate and incomplete media knowledge could be used in scenarios in classes.

4. Cooperative learning should be used more throughout schools so that learning is linked to something tangible and also to assist in preparing students for workplaces. Using the team approach requires employees to know more than one job and also the relationship of their job to other jobs in the organization. When students are allowed to get together during school in an open forum as suggested in this study, students may interact with diverse individuals and ask questions about their cultures. This process can aid students in developing the ability to work cooperatively with diverse individuals.

5. Educators should strive, whenever possible, to build students' self-esteem by confirming uniqueness and encouraging them to develop and maintain high standards for themselves. Areas to emphasize include appearance, lifestyle, and behavior. This could be facilitated through organizations, classes, seminars/workshops, and sports. Many of the experiences cited by students and supervisors in this study could be used as a basis for preparing the material for the sessions.

6. Communication skills should be emphasized throughout the curriculum. Stress should be placed on the importance of strong oral and written communication skills in school and in the workplace. Applied types of activities should be used for reinforcement. Case studies and scenarios could be used in various classes developed from experiences cited by students and supervisors in this study.

7. When applicable, instructors should strive to show the relationship between learning and the workplace. More applied types of exercises should be included with assistance from employers.

8. Knowledge construction should be emphasized and students should be taught ways of analyzing information to determine its validity. Students should be encouraged in classes to look to more than one source for knowledge. Students should be encouraged to challenge textbooks, media, home and community knowledge sources.

In summary, an affirmation of human diversity is simply acting out of respect and appreciation for human differences (Boyle, 1982). Education should include the total experience of humankind (Banks, 1975).

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PERCEPTIONS OF SCHOOL PRINCIPALS IN NORTH CAROLINA CONCERNING AGRICULTURAL EDUCATION PROGRAMS

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Introduction and Theoretical Framework

Changes in vocational education will require the approval and support of school administrators since they have authority and influence in programs and curricula at the school and school system levels. Thompson (1986) reported that administrators' opinions are very important since administrators are in a position to drastically affect program operations and directions. An example of this influence was found in a study of Kansas school districts which did not have agricultural education programs as a part of their school curricula (Parmley, 1982). The study concluded that rural residents and agribusiness representatives wanted programs in agriculture, but the school administrators did not. The administrators cited a lack of student interest, inadequate facilities, inadequate funding, and the lack of a need for agricultural education as reasons for not implementing the programs (Parmley, 1982). A 1979 national study included in its findings that a significant number of school administrators do not support programs providing high school students opportunities to develop salable job skills through vocational and technical education programs, and these administrators will determine whether or not vocational and technical education is available in the secondary schools (United States Department of Education, 1979).

The National Research Council (1988) found that agricultural education programs were essentially existing in isolation and that agricultural education programs were not a part of the communities and businesses in which the schools existed. The Council recommended that formal and informal cooperative efforts between schools and their communities become a top priority for agricultural education program leaders. However, the United States Department of Education (1979) reported that public support for vocational education programs continued to be strong and Jewell (1987) reported that administrators in North Carolina perceived that a majority of the people in their communities regarded agricultural education as an important and essential part of a high school education.

In a study involving Arizona administrators, principals listed teaching technical agriculture and agriculture mechanics as the most important responsibility of agricultural education teachers (Cox, 1986). North Carolina administrators indicated that students who took agricultural education for four years received an adequate high school education although the percentage of the administrators indicating those beliefs decreased between 1978 and 1986 (Jewell, 1987). According to Jewell (1987), principals believed that the programs should be general in nature and should provide a general knowledge of agriculture. Warmbrod and Bobbitt (1987) recommended that the introductory course in

agricultural education be general in nature, followed by courses in succeeding years which increase in specificity. Administrators in an Indiana study also believed that vocational education should be a part of the education of all pupils and that vocational and technical education at the secondary level should be specific, not broad and general (Nasstrom and Baker, 1979). The National Research Council concluded in a 1988 study that systematic instruction about agriculture should begin in kindergarten and continue through the twelfth grade to help Americans become agriculturally literate. Jewell (1987) also recommended that consideration be given to increasing the number of general and/or introductory agriculture courses and that this recommendation might be accomplished by expanding agricultural offerings to the middle and elementary schools. Frantz et al. (1988) recommended that polices should be established at the local and state levels to protect schools' comprehensiveness and student access to vocational education programs.

Administrators are the instructional leaders in their schools and/or school systems and their leadership in curriculum and instructional reform are important. Administrators with negative attitudes toward vocational education and/or reform recommendations will probably not be successful in implementing these initiatives in their schools or school systems. This study provides vocational educators with information that can be analyzed to overcome or improve situations which could have a negative effect on agriculture education. Strategies may also be developed to enhance agricultural education programs so they can continue to be important and viable components of public education.

Purpose and Objectives

The purpose of the study was to determine building-level administrators' attitudes toward vocational programs in agricultural education at their schools. More specifically, the objective of this study was to determine the attitudes of North Carolina secondary school principals concerning issues related to their agricultural education programs.

Research Methods and Procedures

Population. The population for the study included the building-level administrators (principals) in North Carolina who had agricultural education as a part of their school curricula offerings during the 1992-93 academic year. The population was identified by first identifying the schools which offered agricultural education (N = 244) and than identifying the principals of those schools. A random sample (n = 150) was drawn from population utilizing a computer-generated random selection process.

Instrumentation. The data collection instrument for the study was researcher developed and addressed the administrators' attitudes toward agricultural education course offerings and programs. Content validity was assessed by a committee of experts in agricultural education consultants in the North Carolina Department of Public Education and teacher educators at North Carolina State University. The instrument was field tested to determine clarity. The same sample of school administrators selected for the field test were used to determine the reliability of the research instrument using a test-retest reliability procedure. The coefficient of stability was found to be .94 for the instrument.

Data Collection. The instrument, along with a cover letter, was mailed on June 10, 1993. The members of the sample were asked to return the completed survey by June 30, 1993. The vocational directors from the local education agencies who had principals

selected in the research sample were also sent a letter on June 10, 1993 and were asked to contact their principals and urge them to complete and return the survey instruments the principals had received. A follow-up mailing was sent to those members of the sample who failed to respond to the first mailing on June 30, 1993. Those persons receiving a follow-up mailing were asked to return the completed survey by July 9, 1993. The surveys returned by the late respondents (follow-up mailing) were kept separate from those received after the first mailing.

A total of 112 responses were received from the principals with agricultural programs after the first mailing and 20 additional responses were received from the non-responding principals with agricultural education programs after receiving the follow-up mailing. Responses received from the follow-up mailing were statistically compared on all variables with the initial responses using Hotelling-Lawley Trace statistics which is the appropriate multivariate analyses of variance (MANOVA) when using two independent samples and no significant differences were found ($F = 0.543$, $p = 0.4641$). According to Miller and Smith (1983), late responses have been found to be very similar to non-respondents. Therefore, since no statistically significant differences between early and late respondents were found, the data sets were combined for statistical purposes and were assumed to be representative of the population of principals who had agricultural education programs at their schools during the 1992-93 academic year. The combined total usable response from the sample was 132 or 88%.

Analysis of Data

The data for this study were analyzed by descriptive and inferential statistical procedures. Descriptive statistics were utilized for all items in the study and frequencies, means, standard deviations, and percentages were reported. Descriptive statistics were used to answer the research objective.

Analysis and Presentation of Data

Demographic Information

Principals of Agricultural Education Programs. The principals of the agricultural education programs ranged from 32 to 62 years of age and averaged 47.46 years. The administrators' tenure as principals ranged from one to 28 years with a mean of 10.42 years. Approximately 42% ($n = 54$) of the administrators took at least one agricultural education course in high school and 18.95% ($n = 25$) completed four or more credits in agricultural education. Sixty-five percent ($n = 84$) of the administrators took at least one vocational education course other than agricultural education during high school. Administrators who have been vocational education teachers in areas other than agriculture accounted for 7.58% ($n = 10$) of the sample and 7.58% ($n = 10$) of the principals were former agricultural education teachers. An average of 3.04 visits to student SAE programs were made during the period of 1992-1993 academic year by the respondents. Fourteen percent ($n = 18$) of the administrators attended at least one State FFA Convention and 3.04% ($n = 2$) attended at least one National FFA Convention during the period from 1987-1992. Eighty percent ($n = 97$) of the principals indicated they would attend state and national conventions and participate in Supervised Agricultural Experience (SAE) visits if they were invited by their agricultural education teachers to do so. Approximately 74% ($n = 98$) of the principals classified their schools as being in a rural setting, however,

approximately 30% (n = 38) indicated that 1000 or more students were enrolled at their schools.

Attitudes of Building-level Administrators Concerning Agricultural Education Programs and Course Offerings. The administrators were asked to rate each of the statements on the data collection instrument according to the following scale: 1 = Strongly Disagree (Respondent disagreed with the statement without exception); 2 = Disagree (Respondent disagreed with the statement, but was not 100% opposed to the statement); 3 = Slightly Disagree (Respondent disagreed with some elements of the statement, but not the whole statement); 4 = Slightly Agree (Respondent agreed with some elements of the statement, but not the whole statement); 5 = Agree (Respondent agreed with the statement, but not 100% supportive of the statement); or 6 = Strongly Agree (Respondent agreed with the statement without exception). However, for practical interpretation of the data, the mid-points between defined intervals were used. For example, an average rating of 3.50 to 4.49 was interpreted as slightly agree.

The research objective was addressed by categorizing 77 statements, used to obtain the attitudinal data, into 10 categories: Curriculum Issues; Program Accountability Issues; Descriptive Program Issues; Program Image; Technical Content (Agricultural) Literacy; Academic Integration; Vocational Student Organization (FFA); Adult Education; Supervised Agricultural Experience (SAE); and Teacher Performance. Descriptive statistics, means, standard deviations, and frequencies were used to describe the attitudes registered by the principals for each of the statements.

Table 1 contains mean ratings of the attitudes of the principals toward statements designed to address agricultural education curriculum issues. The principals indicated that horticulture courses (M = 5.09, SD = 0.74) were the most appropriate agriculture courses to included in a contemporary high school curriculum. However, as indicated in Table 1, the principals agreed that all the agricultural education course offerings currently being offered in the public schools of North Carolina should be included in a contemporary high school curriculum. The principals also indicated they agreed that "the high school agricultural education curriculum should provide students with a mix of occupational specific skills which are needed to get good jobs or to pursue further training at the post-secondary level" (M = 5.22, SD = 0.93) and that "the high school academic and agricultural education curricula should be integrated so students are well equipped with fundamental academic skills which are enhanced through applied activities in agricultural education courses" (M = 5.18, SD = 1.12). However, principals slightly disagreed (M = 2.68, SD = 1.62) with the recommendation of requiring all students to complete at least one agriculture course as a graduation requirement.

The principals agreed (M = 4.59, SD = 0.87) that a substantial amount of international agriculture should be infused in the high school agricultural education curriculum but only slightly agreed (M = 3.56, SD = 1.42) that students should be encouraged to enroll in programs requiring work experience, like the Agricultural Cooperative program. However, the principals also indicated they agreed (M = 5.08, SD = 1.08) that agricultural education courses should be taught by certified agricultural education teachers.

The principals reported they agreed (M = 5.05, SD = 0.77) that articulation of agricultural education training between secondary and postsecondary institutions should be

increased and principals agreed (M = 5.00, SD = 1.11) that agricultural education programs should be fully articulated with community college programs through TECH-PREP agreements. However, the principals disagreed (M = 2.33, SD = 1.08) with the statement "agricultural education courses should be moved from high schools to community colleges."

Table 1
School Administrator's Attitudes Toward Statements Concerning Agricultural Education Curriculum Issues

Statement	n	Ma	SD
The agricultural education curriculum should provide students with occupational specific skills which are needed to obtain jobs or to pursue further training at the post-secondary level.	130	5.22	0.93
Academic and agricultural education curricula should be integrated so students will be provided fundamental academic skills that are enhanced in agricultural education courses.	132	5.18	1.12
The articulation of agricultural education training between secondary and post-secondary institutions should be increased.	132	5.05	0.77
A substantial amount of international agriculture should be infused into the high school agricultural education curriculum.	128	4.59	0.87
The following types of agricultural education course offerings should be included in a contemporary high school curriculum:			
Agricultural Production and Management	130	4.68	1.20
Agricultural Engineering Technology (Agricultural Mechanics)	130	4.81	1.10
Agricultural Cooperative Training	127	4.35	1.41
Horticulture 130		5.09	0.74
Introduction to Agriscience	128	4.89	1.01
Natural Resources Management	130	4.99	0.98
Specialty Courses (i.e. aquaculture, small animal care, biotechnology, floral design, applied zoology, horse management, swine management, poultry management)	130	4.75	1.04
All students should complete at least one agriculture course in order to meet graduation requirements.	130	2.68	1.62
Students should enroll in programs requiring work experience, such as Agricultural Cooperative, while attending high school.	132	3.56	1.42
Agricultural education courses should be moved from high schools to community colleges.	132	2.33	1.08
Agricultural education courses, such as horticulture or aquaculture, should be taught by certified agricultural education teachers.	132	5.08	1.08
Agricultural education programs should be fully articulated with community college programs through TECH-PREP agreements.	132	5.00	1.11

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

As reported in Table 2, principals agreed that schools with agricultural education programs should have active advisory councils (M = 4.62, SD = 1.25), that employment of high school graduates in jobs that use the skills acquired in high school agricultural courses

should be increased for program accountability (M = 4.57, SD = 1.24), and that one objective of agricultural education programs should be to prepare high school students for gainful employment in agricultural and natural resources (M= 4.76, SD = 1.21). The administrators also indicated they slightly disagreed (M = 3.38, SD = 1.33) with the statement, "the rate of student placement in agricultural occupations should not be a major factor in continuation of agricultural education programs."

The principals only slightly agreed that the primary focus of secondary agricultural education programs should be for occupational training (M = 3.92, SD = 0.99) or that agricultural programs should consist of individual courses rather than multi-course, multi-year programs (M = 3.69, SD = 1.24). The principals also indicated they only slightly agreed (M = 4.48, SD = 1.04) that VoCATS will be an effective means of assessing the vocational competence of students enrolled in agricultural education courses.

Table 2
School Administrator's Attitudes Toward Statements Concerning Agricultural Education Program Accountability Issues

Statement	n	Ma	SD
Employment of graduates in jobs requiring skills acquired in agricultural courses should be increased for accountability.	130	4.57	1.24
Agricultural education programs should consist of individual courses rather than multi-course, multi-year programs.	130	3.69	1.24
School administrators should have an in-depth knowledge and understanding of agricultural education programs.	132	3.76	1.37
One objective of agricultural education programs should be to prepare students for gainful employment in the fields of agriculture and natural resources.	130	4.76	1.21
Each school with a program in agricultural education should have an active advisory council.	130	4.62	1.25
The primary focus of secondary agricultural education should be occupational training.	130	3.92	0.99
School administrators should be held accountable for the success of agricultural education students and consequently, agricultural education programs.	130	3.65	1.58
The rate of student placement in agricultural occupations should not be a major factor in continuation of agricultural programs.	130	3.38	1.33
Funds currently spent on agricultural education programs would be better spent on other vocational and/or academic programs.	130	2.46	1.16
When fully implemented, VoCATS (Vocational Competency Achievement Tracking System) will be an effective vehicle to assess vocational skills of agricultural education students.	132	4.48	1.04

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

The administrators indicated they disagreed (M = 2.46, SD = 1.16) with the opinion that funds currently being spent on agricultural education programs would be better spent on other vocational and/or academic programs. Though the principals implied that funding for agricultural education programs should continue, principals only slightly agreed (M = 3.65, SD = 1.58) that school administrators should be held accountable for the success of agricultural education students and consequently, agricultural education programs. Principals also only slightly agreed (M =3.76, SD = 1.37) with the statement "school administrators should have an in depth-knowledge and understanding of agricultural education programs."

Table 3 presents the attitudes of the principals toward selected statements concerning descriptive issues about agricultural education programs. The principals agreed (M = 5.05, SD = 0.79) that when setting the future course for agricultural education, educational leaders should consider employment opportunities in the service or business sectors related to agriculture.

The principals disagreed (M = 2.49, SD = 1.28) with the statement that "only students who wish to pursue a career/job in agriculture should enroll in agricultural education courses." The principals also slightly disagreed (M = 2.62, SD = 1.50) with the statement that agricultural education teachers should have smaller teaching loads than other teachers because of extra duties with FFA, SAE, laboratory management, and adult education. The administrators slightly disagreed (M = 3.35, SD = 1.68) that provisions should be made so that agricultural education courses receive recognition to meet admission requirements for the University of North Carolina system. However, principals agreed (M = 4.64, SD = 1.09) with the opinion that agricultural courses are appropriate for college bound students.

Table 3
School Administrator's Attitudes Toward Statements Concerning Descriptive Program Issues About Agricultural Education

Statement	n	Ma	SD
In setting the future course for agricultural education, educational leaders should consider employment opportunities in the service or business sectors related to agriculture.	130	5.05	0.79
Agricultural education teachers should have smaller teaching loads than other teachers because of extra duties with FFA, SAE, laboratory management, and adult education.	128	2.62	1.50
Only students who wish to pursue a career/job in agriculture should enroll in agricultural education courses.	130	2.49	1.28
Agricultural courses are appropriate for college bound students.	132	4.64	1.09
Provisions should be made so that agricultural education courses receive recognition to meet admission requirements for the University of North Carolina system.	132	3.35	1.68

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Table 4 displays the attitudes of the principals toward statements concerning the image of agricultural education programs. The administrators also indicated they slightly disagreed (M = 2.77, SD = 1.33) with the statement "the curriculum in agricultural education has kept pace with the changes in agricultural technology" and principals strongly disagreed (M = 1.00, SD = 0.00) with the statement that agricultural education is an exemplary model of the educational reform movement. However, principals also disagreed with the statements "agricultural education courses are not important components of the high school curriculum, " (M = 2.08, SD = 1.05) "agricultural education is no longer needed in the public schools," (M = 2.13, SD = 1.18) "instruction in agriculture does not support or enhance the goals of general secondary education," (M = 2.45, SD = 1.13) and "the benefits students derive from agricultural education are no longer important" (M = 1.96, SD = 1.07).

Table 4
School Administrator's Attitudes Toward Statements Concerning the Image of Agricultural Education Programs

Statement	n	Ma	SD
Agricultural education is an exemplary model of the educational reform movement.	132	1.00	0.00
Agricultural education is no longer needed in the public schools.	130	2.13	1.18
Instruction in agriculture does not support or enhance the goals of general secondary education.	130	2.45	1.13
Agricultural courses should be credited toward satisfying high school graduation requirements for science courses.	132	3.28	1.58
The majority of the people in my community regard agricultural education as an important part of the high school program.	130	3.89	1.21
The benefits students derive from agricultural education are no longer important.	130	1.96	1.07
The curriculum in agricultural education has kept pace with the changes in agricultural technology.	128	2.77	1.33
Agricultural education courses are not important components of the high school curriculum.	130	2.08	1.05
Students who enroll in agricultural education courses compromise their social status among students not enrolled in agricultural education courses.	128	2.80	1.38
Agricultural education provides motivation for students to continue their education beyond high school.	130	4.25	1.15

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

The principals indicated they slightly agreed (M = 4.25, SD = 1.15) with the statement "agricultural education provides motivation for students to continue their education beyond high school." Principals also indicated they slightly disagreed (M = 2.80, SD = 1.38) with the opinion that students who enroll in agricultural education courses compromise their social status among students not enrolled in agricultural education courses.

The findings of the study indicated that the principals slightly agreed (M = 3.89, SD = 1.21) that the majority of the people in my community regard agricultural education as an important part of the high school program. However, they slightly disagreed (M = 3.28, SD = 1.58) with the statement "agricultural courses should be credited toward satisfying high school graduation requirements for science courses."

Table 5
School Administrator's Attitudes Toward Statements Concerning Technical Content (Agricultural) Literacy

Statement	n	Ma	SD
Students in kindergarten and continuing through the twelfth grade, should receive some systematic instruction about agriculture to increase agricultural literacy of US citizens.	132	4.22	1.24
Schools are expected to do too much already. Adding an agricultural literacy emphasis (as a part of social studies, science, math, reading, English) is unreasonable.	132	3.45	1.53
State education leaders, school administrators, and school boards should develop and implement a plan to foster instruction about the food and fiber system.	132	4.20	1.04
All teachers should be encouraged to incorporate materials about the economic aspects of agriculture.	132	4.55	1.04
School administrators, teachers, state department personnel, and teacher educators should participate in professional development activities focused on the integration of agriculture into the curricula from kindergarten through twelfth grade.	132	3.97	1.19
Science teachers and agriculture teachers should jointly examine existing curricula and instructional materials to identify opportunities to incorporate agricultural subject matter.	132	4.89	0.97
Instructional materials in elementary and secondary science courses should be designed to provide students opportunities for increased understanding of the agricultural industry.	132	4.55	0.93
Agricultural education courses should be included in the curriculum for all high schools, regardless of whether they are located in rural, urban, or inner cities.	130	3.88	1.34

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, S=Agree, and 6=Strongly Agree

Table 5 displays the attitudes expressed by the school principals toward technical content (agricultural) literacy. From reviewing the different mean scores; apparently, principals tend to agree with the need to increase agricultural literacy. This belief is exhibited by their agreeing (M = 4.55, SD = 0.93) that teachers in all grade levels and subject areas should be encouraged to incorporate materials about the economic aspects of agriculture. The principals also indicated they slightly agreed (M = 4.22, SD = 1.24) with the statement "beginning in kindergarten and continuing through the twelfth grade, all students should receive some systematic instruction about agriculture to increase

agricultural literacy of US citizens. The principals indicated that it was not unreasonable to add an agricultural literacy emphasis as a part of social study, science, math, reading, and English courses. The administrators also indicated they slightly agreed (M = 3.88, SD = 1.34) with the statement "agricultural education courses should be included in the curriculum for all high schools, regardless of whether they are located in rural, urban, or inner cities."

Based on the findings presented in Table 6, public school principals in North Carolina agree (M = 4.67, SD = 1.07) that agricultural education courses provide an effective vehicle for integrating academic and vocational education skills and principals slightly agree (M = 3.90, SD =1.45) that agricultural courses provide an effective vehicle for developing computer literacy competencies. Yet, principals also agree that ongoing efforts should be expanded and accelerated to upgrade the scientific content of agricultural courses (M = 5.04, SD = 0.84) and that a substantial amount of applied science principles and concepts should be infused into the high school agricultural education curricula (M = 5.15, SD = 0.75). However, the principals indicated they slightly disagreed (M = 2.94, SD = 1.31) with the statement "there should be less emphasis on the teaching of technical agriculture content/skill courses to high school students."

Table 6
School Administrator's Attitudes Toward Statements Concerning Academic Integration in Agricultural Programs and Course Offerings

Statement	n	Ma	SD
Agricultural teachers should serve on committees for selecting math and science instructional materials and math and science teachers should serve on committees for selecting instructional materials for agriculture.	130	3.88	1.42
Ongoing efforts should be expanded and accelerated to upgrade the scientific content of agriculture courses.	130	5.04	0.84
Teacher education programs in agriculture should stress applied learning, but should also strengthen instruction in science, marketing and management, and international agriculture.	130	5.14	0.81
A substantial amount of applied science should be infused into the high school agricultural education curricula.	130	5.15	0.75
The emphasis of secondary school should be on developing basic academic skills; therefore, there should be less emphasis on the teaching of technical agriculture content/skill courses.	132	2.94	1.31
Agricultural education courses provide an effective vehicle for the integration of academic and vocational education skills.	132	4.67	1.07
Agricultural education courses provide an effective vehicle for developing computer literacy competencies.	131	3.90	1.45
The agricultural education program needs to more effectively meet the needs of special population groups.	132	4.17	1.03

a .Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Principals in North Carolina public schools appear to be supportive of the FFA component of agricultural education programs as indicated by reviewing the findings displayed in Table 7. The principals disagreed (M= 2.26, SD = 1.22) with the statement, "vocational student organizations such as the FFA are out dated ideas whose time have passed," and agreed (M= 4.61, SD = 1.06) with the statement, "vocational student organizations, like FFA, should be part of every high school's co-curricular activities." Further, the principals indicated they slightly agreed with the statements, "all schools with agricultural education programs should have FFA chapters" (M = 4.38, SD = 1.40) and "the primary purpose of the FFA is to develop leadership among agricultural education students" (M = 3.98, SD = 1.30).

Table 7
School Administrator's Attitudes Toward Statements Concerning the Vocational Student Organization (FFA) Component of the Agricultural Program

Statement	n	Ma	SD
Changing the name of the student organization in agriculture from the "Future Farmers of America" to "FFA" broadened the public perception of the organization to one with a contemporary, forward-looking image.	128	3.65	1.32
All schools with agricultural education programs should have FFA chapters.	130	4.38	1.40
The FFA should revise the nature and focus of its contests and activities to open new categories of competition in addition to those in production agriculture and leadership.	130	4.68	1.07
The FFA should encourage membership of students unable or unwilling to enroll in a 4-year program of agricultural education.	130	4.57	1.05
Vocational student organizations such as the FFA are out dated concepts whose time have passed.	130	2.26	1.22
Agricultural education teachers are unduly driven by FFA contests and activities and place little emphasis on instruction in technical agriculture content or curriculum reform.	130	3.42	1.44
A substantial amount of agricultural marketing and distribution techniques should be infused into agriculture courses.	130	4.55	0.99
The FFA is the primary reason students enroll in agricultural education courses	130	2.60	1.20
The primary purpose of the FFA is to develop leadership.	130	3.98	1.30
Vocational student organizations, like FFA, should be part of every high school's intra-curricular activities.	130	4.15	1.35
Vocational student organizations, like FFA, should be part of every high school's co-curricular activities.	130	4.61	1.06

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

The findings displayed in Table 8 indicate that North Carolina public school principals tend to be supportive of continuing the adult education component of the agricultural education program. The principals indicated they slightly disagreed with both statements on the survey which suggested that the adult education component of the program was an out-of-date concept that should be discontinued.

Table 9 indicates that North Carolina public school principals also tend to be supportive of the SAE component of the agricultural education program. The principals slightly disagreed (M = 2.88, SD = 1.47) with the statement indicating that SAE is an out dated idea whose time has passed. They also indicated they slightly agreed with the statements " all students should participate in worthwhile SAE while enrolled in agricultural education programs" (M = 4.38, SD = 1.12) and "school administrators should occasionally accompany agricultural education teachers on SAE visits" (M = 4.26, SD = 1.07).

Table 8
School Administrator's Attitudes Toward Statements Concerning the Adult Education Component of the Agricultural Program

Statement	n	Ma	SD
Agriculture teachers conducting programs for adults is an out-of-date concept.	130	3.27	1.04
Agricultural education teachers are one of only two groups of secondary teachers charged by the State Board of Education to to provide educational opportunities for adults. This responsibility is an out-of-date practice and should be discontinued.	128	3.46	1.59

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Table 9
School Administrator's Attitudes Toward Statements Concerning the Supervised Agricultural Experience (SAE) Component of the Agricultural Program

Statement	n	Ma	SD
All students should participate in worthwhile Supervised Agricultural Experiences (SAE) while enrolled in agricultural education programs.	128	4.38	1.12
Supervised Agricultural Experience is an out dated idea whose time has passed.	130	2.88	1.47
School administrators should occasionally accompany agricultural education teachers on SAE visits.	128	4.26	1.07

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

As indicated in Table 10, the North Carolina public school principals tend to agree that agricultural education teachers are doing an above average to superior job in each of the eight areas identified by the State's Teacher Performance Appraisal System. However,

principals only slightly agreed that teachers were performing at an above average to superior level for six of the eight area. This indicates that principals agree with some elements of the statements, but not the whole statement. The principals agreed that agricultural education teachers were performing at above average to superior level in the areas of managing the behavior of students (M = 4.99, SD = 1.52) and performing non-instructional duties (M = 4.65, SD = 1.20). The principals also indicated they slightly agreed (M = 3.95, SD = 1.45) that agricultural education teachers were performing at an above average to superior level in the area of housekeeping and classroom/laboratory organization and management. This mean score was lower than that for either of the eight performance areas measured by the North Carolina Teacher Performance Appraisal System instrument.

Table 10
School Administrator's Attitudes Toward the Teaching Performance of Agricultural Education Teachers

Statement	n	Ma	SD
The agriculture teacher(s) at my school does an above average to superior job:			
Managing his/her instructional time.	132	4.22	1.40
Managing the behavior of his/her students.	132	4.99	1.52
With his/her instructional presentations.	132	4.33	1.23
With his/her instructional monitoring of student performance.	132	4.33	1.27
Providing his/her students with instructional feedback.	132	4.37	1.25
With his/her housekeeping and classroom/laboratory organization and management.	132	3.95	1.45
Facilitating instruction.	132	4.32	1.29
Communicating within the educational environment.	132	4.39	1.26
Performing non-instructional duties.	132	4.65	1.20

a. Means were based on responses to a six-point scale where 1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Agree, and 6=Strongly Agree

Conclusions

The following conclusions were formulated as a result of the findings of this study:

1. In general, principals were very supportive of the agricultural education programs being offered in the public schools of North Carolina. Principals felt that the agricultural education teachers were doing an excellent job in the areas of managing the behavior of their students and performing non-instructional duties.

2. North Carolina principals felt that articulation of agricultural education training between secondary and postsecondary institutions should be increased, and secondary agricultural education programs should be fully articulated with community college programs through Tech Prep agreements. However, principals

felt that agricultural education courses should remain at the secondary level and not be moved to the community colleges. Principals tended to support the notion that current agricultural education course offerings are appropriate for the curriculum of today's high schools. Yet. Principals felt that agricultural education courses should be taught by fully certified agricultural education teachers.

3. North Carolina principals felt that school system with programs in agricultural education should have active advisory councils for their programs. Representatives from business should also be utilized to help school officials identify ways of infusing more instruction about agriculture into public school curricula.

4. While the secondary school principals did **not** feel that the agricultural education program should be viewed as an exemplary model of the educational reform movement, principals agreed that funds being spent on agricultural education programs would not be better spent on other vocational and/or academic programs. Principals also indicated that agricultural education courses were appropriate for college bound students, and that there is a need for agricultural education programs in the public schools of North Carolina.

5. The benefits students derived from agricultural education were still deemed important by public school principals, and principals felt that teachers in all grade levels and subject areas should be encouraged to incorporate materials about the economic aspects of agriculture in their instruction.

6. The principals stated that the FFA was an important component of the secondary agricultural education curriculum and that FFA was an appropriate co-curricular activity for today's contemporary high schools. However, the administrators felt the contests and awards used by the organization needed to be revised to opened up in more areas of competition which are not tied to agricultural production or leadership.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are suggested:

1. Local vocational directors should work with local principals in establishing teams consisting of agricultural education and general academic teachers to identify opportunities for increasing the instructional content about agriculture in the academic curricula and for increasing integration of science content into the agricultural education curricula.

2. If not in place, fully articulated Tech Prep agreements should be developed for all agricultural education programs.

3. Local vocational education directors should monitor the hiring of agricultural education teachers and insist that only fully certified teachers be hired by local school systems.

4. Local advisory councils should be established at the school building-level for all agricultural programs. Local teachers should provide leadership on the organization and establishment of advisory councils, but principals and local directors of vocational education should be heavily involved in the creation of the councils.

5. Agricultural education teachers should increase the number of computer literacy competencies in theilocal curricula. If computers are not available for instructional purposes, Agricultural education teachers should work with vocational education directors to address the possibility of obtaining appropriate computer equipment and software.

6. Agricultural education teachers should extend invitations to principals and vocational education directors to accompany them to state and national vocational student organization (FFA) activities. Agricultural education teachers should also extend invitations to their principals and vocational education directors to accompany them on selected SAE visits.

7. Agricultural education teachers should give more attention to addressing the instructional areas evaluated by the North Carolina Teacher Performance Appraisal System and should make an effort to improve their housekeeping and classroom/ laboratory organization and management skills.

8. Agricultural education teachers should work closely with their guidance counselors to encourage the counselors to direct college-bound students to enroll in their courses.

9. Additional research should be conducted to determine the attitudes of school level administrators for vocational programs other than agricultural education. Attitudes toward vocational education programs and course offerings by administrators other than principals, such as local directors of vocational education, superintendents, and guidance counselors, should also be investigated.

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PERCEPTIONS OF THE NORTH CAROLINA VOCATIONAL COMPETENCY ACHIEVEMENT TRACKING SYSTEM (VoCATS)

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INTRODUCTION

Hoachlander and Rahn (1994) indicated that in order to establish national skill standards for vocational education programs, tasks need to be completed such as reaching consensus on what constitutes an industry, settling how specific the lists will be, determining how to set standards, and ascertaining how to assess students and what certification signifies. McCaslin and Headley (1993) reported on a national study which examined the system of performance measures and standards that had been approved in each of the 50 states, the District or Columbia, Puerto Rico, Guam, and the Virgin Islands in response to the 1990 Perkins Act. Most states (30) have developed a single set of measures to assess both basic and advanced academic skills at the secondary level. Rabinowitz (1995) stressed that flexible systems for assessing job readiness needs to be used in conjunction with national skill standards projects. The Division of Vocational and Technical Education Services within the North Carolina Department of Public Instruction developed the Vocational Competency Achievement Tracking System (VoCATS) as a vehicle for assessing the competencies being acquired by vocational education students in North Carolina. VoCATS is an instructional process designed to aid teachers in planning and conducting classroom instruction. Teachers document student achievement through the use of pre/interim/post assessments. Each VoCATS test consists of a series of evaluation measures generated from a computerized competency/test item bank. Data gathered per student, class, and course in terms of the competencies should enable the teacher to diagnose student learning needs and direct classroom instruction more effectively.

VoCATS began as a competency or outcomes-based instructional management model in the early 1970s with a foundation in an individualized approach to instruction. The original model included a competency listing or blueprint, a printed competency/test-item bank, and a curriculum guide for each vocational and technical education course. Mastery learning and criterion-referenced evaluation were keywords in the system. The process included teacher use of a planning calendar, pre/interim/post testing, and a student competency record. Throughout the 1980s, the model evolved to include an emphasis on higher order thinking skills, an integrated approach to teaching and learning, and articulated reporting. During the mid and late 1980s, 26 software packages were

examined for suitability as the computerized basis for the system. In 1989-90, an off-the-shelf package from CTB MacMillan/McGraw-Hill was designated for use and VoCATS was on its way to computer-managed implementation (Vocational and Technical Education Services, 1993).

In North Carolina, The School Improvement and Accountability Act of 1989 allows local school systems and individual schools to develop plans for school improvement which allow decisions, once made by the state or local board of education, to be made at the school building level. Decisions affecting funding, staff certification, and school organizational structure are among many that local school administrators and/or faculties can make. With increased autonomy at the local level, a need exists to determine how various vocational and technical education teachers and administrators view the various components of the vocational and technical education programs in the schools or school systems since these areas are more subject to change with the implementation of legislation such as North Carolina's School Improvement and Accountability Act. School administrators and teachers have had influence on educational programs at the school and school system levels in the past, but legislation such as North Carolina's School Improvement and Accountability Act of 1989 may present the opportunity for school level decisions to be made which significantly affect all components of the vocational and technical education program, including the Vocational Competency Achievement Tracking System (VoCATS).

Along with technological and instructional management development, legislative incentives and Perkins II have created a demand for a system to structure vocational and technical education locally to assess, teach, and track each vocational student's performance or achievement based on core outcome competencies. Since the early 1970s, vocational and technical education in North Carolina has focused on individualized instruction tied to competency-based education. In recent years, instructional management techniques and technological developments have evolved to a point at which computer-managed and computer-assisted instruction is increasingly possible. This evolution is making it feasible for local personnel to better manage the instructional environment of competency-based vocational and technical education, with the potential of positive results in student learning. This study is designed to provide vocational and technical education leaders with information regarding the perceptions of agricultural education teachers, business and office education teachers, principals, VoCATS coordinators, and local directors of vocational and technical education towards the towards the VoCAT system.

PURPOSE AND OBJECTIVES OF THE STUDY

The major objective of this study was to determine the perceptions of secondary agricultural education teachers, business and office education teachers, principals, VoCATS coordinators, and local directors of vocational and technical education towards the Vocational Competency Achievement Tracking System (VoCATS) component of the vocational and technical education program in North Carolina. The objective was addressed by examining the following research questions.

Do secondary agricultural education teachers, business and office education teachers, principals, VoCATS coordinators, and local directors of vocational and technical education in North Carolina perceive:

- A need to continue the VoCAT system?
- A need to train all teachers on the utilization of the VoCAT system?

- A need to make the technology utilized with the VoCAT system more available to vocational and technical education teachers and students?
- That it would be appropriate to utilize the VoCATS pre/post assessments as official evaluation instruments for students enrolled in vocational and technical education courses?
- That VoCATS is an appropriate tool to assist with the integration of core academic and vocational and technical education courses?
- That the development of VoCATS materials is being done properly?
- That the appropriate individuals are providing the leadership for development of VoCATS materials?
- That the implementation of VoCATS has resulted in an improvement in the instructional program of vocational and technical education classes?

METHODS AND PROCEDURES

Population and Sample

The population for this study included secondary agricultural education teachers (N = 290), secondary business and office education teachers (N = 894), secondary principals who had vocational and technical education courses as apart of the school curricula (N = 507), VoCATS coordinators (N = 215), and the local directors of vocational and technical education (N = 117) in North Carolina during the 1995-96 academic year. The population subgroups were identified using directories available through the Workforce Development Section of the North Carolina Department of Public Instruction. The list of names and addressed identified in the directories served as the frame for the study. Random samples of agricultural education teachers (n = 165), business and office education teachers (n = 317), secondary principals (n = 196), VoCATS coordinators (n = 138), and the local directors of vocational and technical education (n = 89) were selected by a computer generated random selection process. Cochran's Formula for Sampling for Proportions with a confidence level of .95 and a .50 population proportion was used to determined the sample sizes needed (Cochran, 1977).

Instrumentation

Data collection instruments were developed for this study to determine the perceptions of the five groups of professional educators towards the Vocational Competency Achievement Tracking System (VoCATS) component of the Vocational and Technical Education instructional program in the state. The questions included in the instrument were based on the recommendations from the VoCATS Long Range Planning Task Force. Content validity of the instruments was assessed by a committee of experts including local level VoCATS Coordinators, Local Directors of Vocational Education, and VoCATS consultants from the North Carolina Department of Public Education.

The instrument for this study was sent to 20 randomly selected agricultural education teachers, 20 business and office education teachers, 20 secondary principals, 20 local directors of

vocational and technical education, and 20 VoCATS coordinators in North Carolina as a field-test. The individuals selected to participate in the field-test were asked to review the instrument and to make necessary comments or suggestions to improve the clarity of the instrument. Minor changes in the instrument were made on the recommendation of the field-test respondents.

Data Collection

Data was collected via a mail survey. Follow-up mailings were sent to those members of the sample who failed to respond to the first mailings. The surveys returned by the late respondents (follow-up mailing) from each subgroup were kept separate from those received after the first mailing. Responses received from the follow-up mailing were statistically compared on all variables with the initial responses using Hotelling-Lawley Trace statistics which is the appropriate multivariate analyses of variance (MANOVA) to use when using two independent samples and no significant differences were found between the early and late respondents of either group According to Miller and Smith (1983), late respondents have been found to be very similar to non-respondents. Therefore, since no statistically significant differences between early and late respondents were found, the data sets from the initial and follow-up mailings were combined for statistical purposes and were assumed to be representative of the population of agricultural education teachers, business and office education teachers, secondary principal, VoCATS coordinators and local directors in North Carolina during the 1995-96 academic year. The combined total of usable responses received were 139 or 84.24% of the agricultural education teachers, 195 or 61.51% of the business and office education teachers, 134 or 68.37% of the secondary principals who had vocational and technical education courses as a part of their school curricula, 103 or 74.64% of the VoCATS coordinators, and 74 or 83.15% of the local directors of vocational and technical education.

Analysis of Data

Interval data were collected on each of the dependent variables in this study. The data for this study were analyzed by descriptive and inferential statistical procedures. Descriptive statistics were utilized for all items in the study and frequencies and means were reported. Wilk's Lambda multivariate analyses of variance (MANOVA) was used to determine if significant differences existed between the perceptions of the various groups. The difference among the groups was found to be significant ($F = 3.981$, $p = .0001$). Subsequently, analyses of variance were used on the perceptions of the individual statements listed on the survey to determine which groups had significantly different perceptions. Those items found to contain significantly different responses by the ANOVA were tested using Fisher Least Significant Difference post hoc test to determine which groups of the professional educators responded statistically differently for the given statements.

ANALYSIS AND PRESENTATION OF DATA

A significant difference existed in the perceptions of the various groups toward the idea that VoCATS should continue to be the number one priority of Vocational and Technical Education in North Carolina. As seen in Table 1, the agricultural teachers were significantly lower in the perceptions of the importance of VoCATS than the principals, business teachers, Local Directors, or VoCATS coordinators. Also, while the business teachers were significantly more supportive of VoCATS than the agricultural teachers, business teachers were significantly less supportive than either the principals, local directors, or VoCATS Coordinators. Further, the VoCATS Coordinators and Local Directors were significantly more supportive of the importance of VoCATS than were the high school principals.

Table 1
Perceptions Toward The Importance Of VoCats In North Carolina

Grouping	Professional Groups	M	N
A	Agricultural teachers	2.80	139
B	Business teachers	3.36	195
B	Principals	4.21	131
C	Local directors	4.93	74
C	VoCATS coordinators	5.18	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference in the perceptions of the various groups was found toward the perceived need for a VoCATS "technical assistance" person at the state level to provide consulting assistance to the LEAs when needed. As seen in Table 2, the agricultural teachers, principals, and business teachers were significantly lower in their perceptions of the need for the "technical assistance" person than the local directors or VoCATS coordinators.

Table 2
Perceptions Toward The Employment Of A Technical Assistance Person At The State Level

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.63	139
A	Business teachers	4.91	195
A	Principals	4.95	131
B	VoCATS coordinators	5.36	103
B	Local directors	5.65	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the agricultural teachers were significantly lower (see Table 3) than the other groups toward the use of an interactive on-line learning approach as an integral part of the teaching/learning process for every Vocational and Technical Education classroom in North Carolina. However, all five groups slightly agreed with the use of interactive on-line learning.

The perceptions of the agricultural teachers were significantly lower (see Table 4) than the other groups toward the use of an interactive on-line testing approach as an integral part of the teaching/learning process for every Vocational and Technical Education classroom in North Carolina. However, all five groups slightly agreed with the use of interactive on-line learning.

While the perceptions of the various groups were favorable toward the perceived need to make integrated academic/vocational test-item banks available to all secondary teachers and instructional specialists through their LEAs, significant differences were found between the perceptions of the different groups. As seen in Table 5, the agricultural teachers were significantly lower in their perceptions toward this issue than the business teachers, principals, local directors or

VoCATS coordinators. However, the perceptions of the business teachers and principals were found to be significantly lower than those exhibited by the local directors or VoCATS coordinators.

Table 3
Perceptions Toward Using An Interactive On-Line Learning Approach As An Integral Part Of The Teaching/Learning Process

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.25	139
B	Local directors	4.74	74
B	Principals	4.79	131
B	VoCATS coordinators	4.80	103
B	Business teachers	4.93	195

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 4
Perceptions Toward Using An Interactive On-Line Testing Approach As An Integral Part Of The Teaching/Learning Process

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.39	139
B	VoCATS coordinators	4.76	103
B	Principals	4.80	131
B	Local directors	4.85	74
B	Business teachers	4.87	195

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 5
Perceptions Toward Making Integrated Academic/Vocational Test-Item Banks More Available

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.68	139
B	Business teachers	5.06	195
B	Principals	5.18	131
C	Local directors	5.49	74
C	VoCATS coordinators	5.53	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the various groups were favorable toward the perceived need to develop an electronic crosswalk between vocational and academic competencies in the Standard Course of Studies to be made available to every LEA through on-line dissemination. However, significant differences were found between the perceptions of the different groups. As seen in Table 6, the agricultural teachers were significantly lower in their perceptions toward this issue than the business teachers, principals, local directors or VoCATS coordinators. The perceptions of the

business teachers were also found to be significantly lower than those exhibited by the principals, local directors or VoCATS coordinators.

Table 6
Perceptions Toward The Need To Develop An Electronic Crosswalk Between Vocational And Academic Competencies In The Standard Course Of Studies

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.49	139
B	Business teachers	4.85	195
C	Principals	5.12	131
C	Local directors	5.18	74
C	VoCATS coordinators	5.35	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the agricultural teachers were significantly lower (see Table 7) than the other groups toward the availability of technology and software, including voice activation, voice response, touch screen response, large print, interactive video, and virtual reality for on-line teaching and testing of special population students. However, all five groups slightly agreed with this issue.

Table 7
Perceptions Toward Making Technology And Software Available For On-Line Teaching And Testing Of Special Population Students

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.14	139
B	Business teachers	4.59	195
B	Principals	4.63	131
B	Local directors	4.68	74
B	VoCATS coordinators	4.75	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the agricultural teachers were significantly lower (see Table 8) than the other groups toward the use of portfolios and portfolio assessments as a part of VoCATS in the exit evaluation for every vocational and technical education student in North Carolina. The perceptions of the business teachers were found to be significantly lower than the principals, VoCATS coordinators and local directors toward the use of portfolios and portfolio assessments. The local directors were also found to have a significantly higher perception of the use of portfolios and portfolio assessments than either the VoCATS coordinators or principals.

Table 8
Perceptions Toward The Use Of Portfolios And Portfolio Assessments As A Part Of VoCats

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.65	139
B	Business teachers	3.96	195
C	Principals	4.57	131
C	VoCATS coordinators	4.76	103
D	Local directors	5.20	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference existed in the perceptions of the various groups toward the expansion of VoCATS test-item banks to include additional performance items. As seen in Table 9, the agricultural teachers and business teachers were significantly lower in their perceptions of the inclusion of additional performance items than the principals, local directors, or VoCATS coordinators. Also, while the principals were significantly more supportive of the expansion of the test-item banks to include additional performance items than the agricultural teachers and business teachers, they were significantly less supportive than the local directors or VoCATS Coordinators.

Table 9
Perceptions Toward The Inclusion Of Additional Performance Items In The VoCats Test-Item Banks

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.74	139
A	Business teachers	3.97	195
B	Principals	4.52	131
C	VoCATS coordinators	5.11	103
C	Local directors	5.35	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference existed in the perceptions of the various groups toward providing students a profile of competencies mastered. As seen in Table 10, the agricultural teachers were significantly lower in their perceptions of providing the profiles than the other four groups. The business teachers were significantly lower in their perceptions of providing the profiles than the principals, local directors or VoCATS coordinators. The local directors were significantly more supportive of providing each student a profile of the competencies he/she mastered upon exit of his/her program.

While the perceptions of the various groups were favorable toward the perceived need to provide profiles of competencies mastered to potential employers and/or post-secondary educational institutions, significant differences were found between the perceptions of the different groups. As seen in Table 11, the agricultural teachers and business teachers were found to be significantly lower in their perceptions toward this issue than the principals, local directors, or VoCATS coordinators. The perceptions of the principals were also found to be significantly lower than those exhibited by the local directors.

Table 10
Perceptions Toward Providing Students Profiles Of Mastered Competencies

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.13	139
B	Business teachers	4.40	195
C	Principals	5.05	131
CD	VoCATS coordinators	5.26	103
D	Local directors	5.53	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 11
Perceptions Toward Providing Profiles Of Competencies Mastered To Potential Employers And/Or Post-Secondary Educational Institutions

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.09	139
A	Business teachers	4.14	195
B	Principals	4.70	131
BC	VoCATS coordinators	4.89	103
C	Local directors	5.20	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference existed in the perceptions of the various groups toward implementing an on-going process for developing and delivering curriculum packages for teachers and administrators. As seen in Table 12, the agricultural teachers were significantly lower in their perceptions of this issue than the business teachers, principals, local directors, or VoCATS coordinators. However, the VoCATS coordinators and local directors were significantly more supportive than the principals and business teachers.

Table 12
Perceptions Toward Implementing An On-Going Process For Developing And Delivering Curriculum Packages For Teachers And Administrators

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.62	139
B	Business teachers	4.93	195
B	Principals	5.10	131
C	VoCATS coordinators	5.55	103
C	Local directors	5.62	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

While all five groups indicated a rather high degree of support toward aligning VoCAT materials with vocational student organization competitive events, a significant difference existed in the perceptions of the various groups. As seen in Table 13, the agricultural teachers were significantly lower in their perceptions regarding this issue than the local directors or VoCATS coordinators.

A significant difference existed in the perceptions of the various groups regarding whether coordinated planning efforts between academic and vocational and technical education teachers have improved as a result of the implementation of VoCATS. As seen in Table 14, the agricultural teachers and business teachers were significantly lower in their perceptions of this issue than the principals, local directors, or VoCATS coordinators.

Table 13
Perceptions Toward Aligning VoCats Materials With Vocational Student Organization Competitive Events

Grouping	Professional Groups	M	N
AB	Agricultural teachers	4.61	139
B	Business teachers	4.76	195
B	Principals	4.86	131
BC	VoCATS coordinators	5.04	103
BC	Local directors	5.07	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 14
Perceptions Toward The Improvement Of Coordinated Planning Efforts Between Academic And Vocational Teachers Resulting From The Implementation Of VoCATS

Grouping	Professional Groups	M	N
A	Business teachers	3.46	195
A	Agricultural teachers	3.53	139
B	Principals	4.09	131
B	Local directors	4.23	74
B	VoCATS coordinators	4.26	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

All the groups express agreement toward the need to upgrade the Vocational and Technical Education Program of Studies annually or as curriculum packages are delivered rather than every five year as is currently being done. However, as seen in Table 15, the agricultural teachers expressed less of a need to have the publication updated on a more frequent basis.

Table 15
Perceptions Toward Upgrading The Vocational And Technical Education Program Of Studies

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.46	139
AB	Local directors	4.74	74
B	Business teachers	4.87	195
B	Principals	4.88	131
B	VoCATS coordinators	4.95	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference existed in the perceptions of the various groups toward developing and disseminating curriculum materials using the most current and cost-effective technology available, including electronic downloading and the use of the Information Highway. As seen in Table 16, the agricultural teachers were significantly lower than the other four groups in their perceptions of this issue. However, the business teachers were also found to hold a significantly lower opinion than that of the VoCATS coordinators.

Table 16
Perceptions Toward Developing And Disseminating Curriculum Materials

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.49	139
BC	Business teachers	4.90	195
B	Principals	5.00	131
B	Local directors	5.11	74
BD	VoCATS coordinators	5.19	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the agricultural teachers were significantly lower (see Table 17) than the other groups toward having LEAs who, offer specialized courses, be responsible for developing blueprints, test-item banks, curriculum guides, and pre-post assessment for all such courses offered for accountability and instructional management purposes.

Table 17
Perceptions Of Responsibility For Developing All Curriculum Materials For Specialized Courses

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.94	139
B	Business teachers	4.41	195
B	Principals	4.41	131
B	Local directors	4.43	74
B	VoCATS coordinators	4.51	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference was found to exist in determining who should be responsible for developing and disseminating VoCATS materials. As can be seen in Table 18, the VoCATS coordinators and local directors were found to have a significantly higher opinion than the agricultural teachers, business teachers, or principals regarding this issue. Agricultural teachers, business teachers, and principals perceived that vocational and technical education consultants within the State Department of Public Instruction should develop and disseminate blueprints, test-item banks, curriculum guides, and pre-post assessments used for accountability and instructional management purposes for all vocational and technical education courses.

Table 18
Perceptions Toward Who Should Develop And Disseminate VoCATS Materials

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.39	139
A	Business teachers	4.40	195
A	Principals	4.57	131
B	VoCATS coordinators	5.39	103
B	Local directors	5.41	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

While all five groups in the study tended to agree that business people should serve in an advisory capacity for the VoCATS process, significant differences existed in the perceptions of the various groups. As seen in Table 19, the agricultural teachers were significantly lower in their perceptions of the need to involve business people than the business teachers, principals, local directors, or VoCATS coordinators. Also, the business teachers were significantly lower in their perceptions than the local directors or VoCATS coordinators. The VoCATS coordinators and local directors expressed the highest opinion toward the need to involve business people in the VoCATS process.

Table 19
Perceptions Toward Involving Business People In An Advisory Capacity For The VoCats Process

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.39	139
BC	Business teachers	4.80	195
B	Principals	5.00	131
BD	Local directors	5.24	74
D	VoCATS coordinators	5.29	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

As seen in Table 20, all five groups in the study tended to agree that the VoCATS communication network should include principals, superintendents, and school board members at the secondary level and appropriate personnel at the post-secondary level. However, the agricultural teachers and business teachers were significantly lower in their perceptions of the need to expand the network.

Table 20
Perceptions Toward Expanding The VoCats Communication Network

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.07	139
A	Business teachers	4.16	195
B	Principals	4.86	131
B	Local directors	4.88	74
B	VoCATS coordinators	5.05	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The principals, local directors, and VoCATS coordinators expressed a significantly higher perception of the need to make the training for teachers related to VoCATS a priority for services and personnel development activities provided by VoCATS coordinators within the local education agencies. As seen in Table 21, the business teachers also expressed a significantly higher perception regarding this issue than did the agricultural teachers.

Table 21
Perceptions Regarding The Need For VoCats Coordinators At The Local Level To Provide Training On VoCats To Their Teachers

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.44	139
B	Business teachers	4.72	195
C	Principals	5.07	131
C	Local directors	5.34	74
C	VoCATS coordinators	5.46	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference in the perceptions of the various groups was found toward the perceived need for university vocational teacher educators to provide preservice training on VoCATS for vocational teachers in respective program areas to ensure initial competence of the teachers upon entering the classroom. As seen in Table 22, the agricultural teachers and business teachers were significantly lower in their perceptions of the need for the preservice training than were the principals, VoCATS coordinators, or local directors. The local directors expressed a significantly higher perception toward this issue than did the two groups of teachers or the principals.

As can be seen in Table 23, all five groups of educators involved in the study agreed that all "new teacher training" provided by the vocational and technical education personnel within the State Department of Public Instruction should continue to include an introduction to the VoCATS systems, including curriculum structure, blueprinting, use of curriculum guides, test generation, scanning, individualized instruction, integrated learning, and aligned curricula. While all five groups agreed with the need for the training, the VoCATS coordinators and local directors expressed significantly higher perceptions toward the need for the training then did the agricultural teacher, business teachers, or principals.

Table 22
Perceptions Toward Providing Preservice Training For Vocational And Technical Education Teachers

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.86	139
A	Business teachers	4.90	195
B	Principals	5.20	131
BC	VoCATS coordinators	5.38	103
C	Local directors	5.53	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 23
Perceptions Toward The Need To Include VoCats Training In All New Teacher Training

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.96	139
A	Business teachers	5.10	195
A	Principals	5.19	131
B	VoCATS coordinators	5.59	103
B	Local directors	5.65	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the agricultural teachers were significantly lower (see Table 24) than the other groups toward the need to make arrangements for the involvement of personnel from other appropriate divisions within the State Department of Public Instruction, LEAs, and/or other agencies in the development and implementation of VoCATS. While the business teachers expressed a significantly higher view than did the agricultural teachers toward the need for this involvement, business teachers' and agricultural teachers' perceptions were significantly lower than those expressed by the principals, VoCATS coordinators, or local directors. The local directors expressed the highest need for the involvement of various groups in the development and implementation of VoCATS. Local directors' perceptions were found to be significantly higher than those expressed by the principals, business teachers, and agricultural teachers.

The perceptions of the various groups were very positive about the need for every vocational and technical education teacher to have reasonable access to generate interim tests, scan tests, and utilize test results for instructional management. However, the perceptions of the local directors or VoCATS coordinators were found to be significantly higher regarding this issue than were those expressed by the principals, business teachers, or agricultural teachers.

Table 24
Perceptions Toward The Involvement Of Individuals In The Development And Implementation Of VoCats

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.84	139
B	Business teachers	4.13	195
C	Principals	4.53	131
CD	VoCATS coordinators	4.81	103
D	Local directors	5.11	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 25
Perceptions Toward The Need For VoCats Materials To Be Assessable

Grouping	Professional Groups	M	N
A	Agricultural teachers	5.28	139
A	Principals	5.32	131
A	Business teachers	5.41	195
B	Local directors	5.68	74
B	VoCATS coordinators	5.68	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the various groups were mixed (See Table 26) on the issue of whether the State Board of Education should recognize VoCATS pre/post assessments as official evaluation instruments for determining documentation for student achievement in vocational and technical education courses. The two groups of teachers slightly disagreed with using the VoCATS assessments in this manner while the principals, local directors, and VoCATS coordinators tended to agree with the utilization of the assessments in this manner. The perceptions expressed by the agricultural teachers toward recognizing the VoCATS assessments as official evaluations for vocational and technical education courses were significantly lower than the other four groups in the study. While being significantly higher than the agricultural teacher perceptions, the perceptions expressed by the business teachers were significantly lower than the principals, local directors, or VoCATS coordinators toward using the VoCATS assessments as official course evaluations.

A significant difference in the perceptions of the various groups in the study was found toward the perceived need for the Department of Community Colleges to be encouraged to develop a continuum of the VoCATS process for post-secondary articulation to include performance measures. As seen in Table 27, the agricultural teachers and business teachers were significantly lower in their perceptions of the need for the development of a continuum than were the principals, VoCATS coordinators, or local directors. The local directors expressed a significantly higher perception toward this issue than did the two groups of teachers or the principals.

Table 26
Perceptions Regarding The Use Of VoCats Assessments As Official Course Evaluation Instruments

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.23	139
B	Business teachers	3.70	195
C	Principals	4.55	131
C	Local directors	4.60	74
C	VoCATS coordinators	4.70	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

Table 27
Perceptions Toward Developing A Continuum For Post-Secondary Articulations Of VoCats

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.97	139
A	Business teachers	4.21	195
B	Principals	4.95	131
BC	VoCATS coordinators	5.18	103
C	Local directors	5.34	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

The perceptions of the various groups were positive (See Table 28) about the need for education personnel at the state level to arrange for group purchase prices with software and hardware vendors for products used in VoCATS. However, the perceptions of the local directors or VoCATS coordinators were found to be significantly higher regarding this issue than were those expressed by the principals, business teachers, or agricultural teachers.

Table 28
Perceptions Toward The Need To Arrange For Group Purchases

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.75	139
A	Business teachers	4.86	195
A	Principals	4.99	131
B	VoCATS coordinators	5.56	103
B	Local directors	5.69	74

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference existed in the perceptions of the various groups toward whether the instructional programs in vocational and technical education courses have improved as a result of using the VoCATS materials. As seen in Table 29, the agricultural teachers and business teachers were significantly lower in their perceptions toward the improvement in their instructional

programs as a result of using the VoCATS materials than the principals, local directors, or VoCATS coordinators. Also, while the principals were significantly more supportive of this concept than the agricultural teachers and business teachers, they were significantly less supportive than the local directors or VoCATS Coordinators.

Table 29
Perceptions Toward The Effects Of VoCATS On Instructional Improvement

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.81	139
A	Business teachers	4.03	195
B	Principals	4.79	131
C	Local directors	5.23	74
C	VoCATS coordinators	5.28	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

While all five groups in the study tended to agree that every LEA should employ at least one VoCATS coordinator to coordinate and monitor the VoCATS program in that LEA, significant differences existed in the perceptions of the various groups. As seen in Table 30, the agricultural teachers were significantly lower than the business teachers, principals, local directors, or VoCATS coordinators. Also, the business teachers were significantly lower in their perceptions toward the need to employ VoCATS coordinators for every LEA than the local directors or VoCATS coordinators. The VoCATS coordinators and local directors expressed the highest opinion.

Table 30
Perceptions Toward The Need For A VoCats Coordinator At Every LEA

Grouping	Professional Groups	M	N
A	Agricultural teachers	4.35	139
BD	Business teachers	4.65	195
B	Principals	4.92	131
BC	Local directors	5.22	74
C	VoCATS coordinators	5.63	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference in the perceptions of the various groups in the study was found toward the issues of whether the implementation of VoCATS had resulted in improved levels of student achievement for vocational and technical education students. As seen in Table 31, the agricultural teachers and business teachers were significantly lower than were the principals, VoCATS coordinators, or local directors. The VoCATS coordinators expressed a significantly higher perception toward this issue than did the two groups of teachers or the principals.

Table 31
Perceptions Toward The Effects Of VoCATS On Student Achievement

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.59	139
A	Business teachers	3.77	195
B	Principals	4.59	131
BC	Local directors	4.93	74
C	VoCATS coordinators	5.18	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

A significant difference existed in the perceptions of the various groups toward whether the implementation of VoCATS has resulted in a greater understanding of classroom expectation by students. As seen in Table 32, the agricultural teachers and business teachers were significantly lower in their perceptions than the principals, local directors, or VoCATS coordinators. Also, while the principals were significantly more supportive of this concept than the agricultural teachers and business teachers were significantly less supportive than the local directors or VoCATS Coordinators.

Table 32
Perceptions Of Whether The Implementation Of VoCats Has Resulted In A Greater Understanding Of Classroom Expectations By Students

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.71	139
A	Business teachers	3.94	195
B	Principals	4.60	131
C	Local directors	5.01	74
C	VoCATS coordinators	5.09	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

As seen in Table 33, the five groups of educators in the study expressed different perceptions about whether the implementation of VoCATS has resulted in improved instructional validity of student grades. The agricultural teachers and business teachers were significantly lower in their perceptions toward this issue than the principals, local directors or VoCATS coordinators.

Table 33
Perceptions Of Whether The Implementation Of VoCats Has Resulted In Improved Instructional Validity Of Student Grades

Grouping	Professional Groups	M	N
A	Agricultural teachers	3.52	139
A	Business teachers	3.69	195
B	Principals	4.53	131
B	Local directors	4.82	74
B	VoCATS coordinators	4.84	103

Note. Means with different grouping letters differ significantly at $p < .05$, $df = 637$.

CONCLUSIONS AND/OR RECOMMENDATIONS

The following conclusions were formulated as a result of the findings of this study:

1. Agricultural education teachers, business and office education teachers, principals, VoCATS coordinators, and local directors of vocational and technical education in North Carolina tend to support the Vocational Competency Achievement Tracking System (VoCATS).

2. VoCATS coordinators, local directors, and principals were found to be significantly more supportive of several aspects of the VoCAT system than were agricultural education or business and office education teachers.

3. Agricultural education teachers, business and office education teachers, principals, VoCATS coordinators and local directors all support the addition of a "technical assistance" person at the state level and tend to agree that every LEA should employ at least one VoCATS coordinator. However, the agricultural education and business education teachers perceive less of a need to employ this individual than do the principals, VoCATS coordinators or local directors.

4. Agricultural education teachers, business and office education teachers, principals, VoCATS coordinators and local directors all feel that vocational and technical education personnel at the state level should arrange for group purchase prices with software and hardware vendors for the various VoCATS products.

5. North Carolina agricultural education teachers, business and office education teachers, principals, VoCATS coordinators and local directors all agree that the technology utilized with the VoCAT system should be made readily available to vocational and technical education teachers and students, including special hardware and software, when needed, for special populations students.

6. Local directors and VoCATS coordinators appear to be in favor of utilizing the VoCATS pre/post assessments as official evaluation instruments for students enrolled in vocational and technical education courses. However, agricultural education and business education teachers expressed significantly less support for this issue.

7. Agricultural education teachers, business and office education teachers, principals, VoCATS coordinators and local directors all feel that the development of VoCATS materials should be an on-going process, and that, when feasible, the materials should be aligned with state-adopted textbooks and vocational student organization activities.

8. Agricultural education teachers, business and office education teachers, principals, VoCATS coordinators and local directors tend to support using the most current and cost-effective technology available including electronic downloading and the use of the Information Highway to develop and disseminate VoCATS materials. However, the VoCATS coordinators and local directors appear to be much more supportive of this concept than do principals or agricultural education or business education teachers

9. Principals, VoCATS coordinators and local directors perceive that the instructional program of vocational and technical education classes at their schools has improved and that the level of student achievement has improved in their classes since VoCATS was implemented. However, the agricultural education and business education teachers have significantly lower perceptions of the impact that VoCATS has had on the performance of their students that do the principals, local directors or VoCATS coordinators.

RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are suggested:

1. Educational leadership within the State Department of Public Instruction should take the necessary steps to employ a state-level consultant to serve as a technical assistance person for local education agencies who have problems or concerns about VoCATS.

2. Vocational and technical education personnel at the state level should arrange for group purchase prices with software and hardware vendors for the various VoCATS products.

3. Vocational teacher educators should provide preservice training on VoCATS for their students, by respective program area, to ensure their initial competence for using the system prior to their initial appointment as a vocational and technical education teacher. Personnel from within the State Department of Public Instruction and local VoCATS Coordinators should also continue to provide personnel development activities for teachers who are not comfortable with using the VoCATS materials so the system can be utilized by all the vocational and technical education teachers.

4. Efforts should continue by vocational and technical education leaders to secure the necessary funds to establish computerized learning stations in every vocational and technical education classroom to be used with VoCATS.

5. When feasible, individuals involved with the development of VoCATS materials should attempt to align the materials with state-adopted textbooks and vocational student organization activities.

6. When teams are put together to develop VoCATS materials, it would be desirable to include individuals from business and industry, personnel from divisions other then that of vocational and technical education within the State Department of Public Instruction, individuals from Local

Education Agencies other then vocational and technical education personnel, and individuals from other related agencies.

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