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ABSTRACT

This paper reviews and describes the characteristics of successful vocational education programs at Virginia State University. (The paper is aimed at developing institutions and historically black colleges, as well as at vocational educators and administrators who are especially concerned with program improvement.) Virginia State University is a developing institution and historically black college fulfilling its role as one of the two land-grant institutions in the state. The vocational education programs at Virginia State University began on a small scale, but have thrived and grown through the years in spite of many handicaps. The programs now serve the educational needs of the state, nation, and some international areas. The undergraduate vocational education programs include agricultural education, business education, home economics education, industrial arts education, industrial technology, and trade and industrial education. Each of these areas, with the exception of industrial technology, has a graduate counterpart offering master's degrees, and one post-master's degree is also offered (in vocational/technical education). The vocational education programs at the university offer opportunities for success to students with enriched educational backgrounds and to those with some deficiencies because of inadequate prior preparation. (Author/KC)

VOCATIONAL EDUCATION PROGRAMS AT VIRGINIA STATE UNIVERSITY: SUCCESSFUL FEATURES

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Virginia State University

The National Center for Research in Vocational Education
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- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

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FOREWORD

The Title III institutions of higher education and historically black colleges are particularly vulnerable to rapidly changing social and economic forces. They are frequently besieged by a series of problems that often appear insolvable.

While many Title III institutions and historically black colleges are fighting to survive, there are examples of successful vocational education programs in these institutions. The characteristics of these successful programs are not generally well known. Through this paper and four others in this series, the National Center provides institutional personnel with a description of programs and practices they can use to improve vocational education programs at their institutions.

The National Center expresses its appreciation to Dr. W. Vincent Payne the paper author. Dr. Payne is chairman and Professor, Department of Industrial Education and Technology, Virginia State University, Petersburg, Virginia.

In addition, the National Center expresses its appreciation to Dr. Melvin Miller, the reviewer for Dr. Payne's paper. Dr. Miller is Professor and Director, School of Occupational and Adult Education, Oklahoma State University.

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The National Center is indebted to the staff members who worked on the study. The study was conducted in the Information Systems Division, Dr. Joel Magisos, Associate Director. Dr. Floyd L. McKinney, Senior Research Specialist, served as Project Director and Oscar Potter as Graduate Research Associate. Dr. McKinney, a former secondary vocational education teacher, holds a Ph.D. in vocational education from Michigan State University. He has served as a university coordinator of graduate vocational education programs and as a division director in a state department of education. Mr. Potter is a doctoral candidate in agricultural education at The Ohio State University and has a M.A. in agricultural education from the University of Florida and a M.A. in administration and supervision from Florida Atlantic University. Patsy Slone served as project secretary and Janet Ray served as word processor operator. Roxi Liming provided technical editing and final editorial review of the paper was provided by Constance Faddis of the National Center's Editorial Services area.

Other papers produced in this series are as follows:

- o A Prototype Educational Delivery System Using Water Quality Monitoring as a Model

  Richard B. Glazer
  Ulster County Community College

- o Local Area Networks of Microcomputer in Education

  Clifford D. Layton
  Rogers State College

- o Promoting Industry Support in Developing a Computer Technology Program

  Albert Robinson
  Washtenaw Community College

- o Systems Approach to Computer Literacy for Vocational Educators: A Professional Development Seminar for Faculty and Staff

  Mildred F. Johnson
  Cheyney University of Pennsylvania

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

This paper reviews and describes the characteristics of successful vocational education programs at Virginia State University. The primary audience for this paper is developing institutions and historically black colleges. A secondary audience is those vocational educators and administrators who are especially concerned with program improvement. By communicating to readers the successful features of Virginia State University's programs, it is hoped that other institutions will be able to offer programs more relevant to labor market needs and more sensitive to the needs of individuals.

The continuing growth and demand for new technological and vocational education programs in Virginia and the nation have presented a challenge to Virginia State University. Virginia State University is a developing institution and historically black college fulfilling its role as one of the two land-grant institutions in the state.

The vocational education programs at the Virginia State University began on a small scale, but have thrived and grown through the years in spite of many handicaps. The programs now serve the educational needs of the state, nation, and some international areas.

The undergraduate vocational education programs include agriculture education, business education, home economics education, industrial arts education, industrial technology, and vocational-industrial education (trade and industrial). Each of these areas, with the exception of industrial technology, has a graduate counterpart offering master's degrees. A post-master's degree, the Certificate of Advanced Graduate Study (CAGS) in vocational/technical education, is also offered by the Department of Industrial Education and Technology.

The vocational education programs at Virginia State University offer opportunities for success to students with enriched educational backgrounds and to those with some deficiencies because of inadequate prior preparation.

CHAPTER 1

INTRODUCTION

This paper reviews and describes the characteristics of successful vocational education programs at Virginia State University. The primary audience for this paper is developing institutions and historically black colleges. A secondary audience is those vocational educators and administrators who are especially concerned with program improvement. By communicating to readers the successful features of Virginia State University's programs, it is hoped that other institutions will be able to offer programs more relevant to labor market needs and more sensitive to the needs of individuals.

Virginia State University

Virginia State University, situated in Chesterfield County at Ettrick, was founded on 6 March 1882, when the Virginia Legislature passed a bill to charter the Virginia Normal and Collegiate Institute (Toppin 1982). In October 1883, eighteen months after the charter became law, classes started in a brick house standing on thirty-three acres of land that had been purchased for $13,500. In its first academic year, the university (then Institute) had 126 students, seven faculty members, and a two hundred-book library (Virginia State University 1983a).

The institution was divided into three departments--academic, normal, and college. The academic department was a two-year college preparatory program, which included work similar to that of a high school. The normal department was a three-year program, combining grade school and high school matters with

emphasis on subjects preparing a person to become a teacher. The four-year college program was much more advanced than the academic or normal and led to a bachelor's degree (Toppin 1983). The curricula at the time included courses in history, Latin, grammar, philosophy, physiology, and music--all of which were designed to serve the academic, personal, and social aspirations of black citizens (Virginia State University 1983b).

Virginia State University now has more than four thousand students enrolled in thirty-two departments, 225 faculty members, thirty buildings, a library of more than two hundred thousand books and some three hundred thousand microfilm items, a $31,000,000 biennial budget, and 600 acres (200 on the main campus, 400 on the University farm) (Toppin 1983). It is fully accredited by the Virginia State Board of Education, the Southern Association of Colleges and Schools (the university has been a member since 1957), and the National Council for Accreditation of Teacher Education.

Many predominantly black institutions of higher education located in southern and border states were granted land-grant status under the Second Morrill Act of 1890. However, Virginia State University (then Virginia Normal and Industrial Institute) did not become a land-grant institution until 1920. In that year the state legislature transferred the one-third portion of land-grant funds for blacks from Hampton Institute, which had been receiving them since 1872, to Virginia State University. The other two-thirds were received by Virginia Polytechnic Institute and State University (then Virginia Agricultural and Mechanical College) (Brunner 1962). Virginia State University initiated land-grant programs in agriculture, mechanical arts, home economics, and commerce (known as business in the initial stage), and directed its resources toward the fulfillment of the land-grant mission (Norbrey 1983).

Each land-grant division contributed significantly to the growth of Virginia State University. Two major factors helped to account for this growth--(1) the designation of the institution as a land-grant college; and (2) the growing need in the nation for persons trained in agriculture, commerce, industries, and home economics (ibid., p. 20).

Mission Statement

America's first fully-supported four-year institution of higher learning for blacks, Virginia State, is a comprehensive university and is one of two land-grant institutions in the Commonwealth of Virginia. Its mission is to promote and sustain academic programs that integrate instruction, research, and extension--public service in a design most responsive to the needs and endeavors of the individuals and groups within its scope of influence. Mindful of its heritage and its tradition of eminent concern for the welfare and progress of all peoples, the university welcomes and extends its resources to all who merit them and to all who would strive for academic excellence, whatever their national, racial, ethnic, or religious affiliation. Ultimately, the university is dedicated to the promotion of knowledgeable, perceptive, and humane citizens--secure in their self-awareness, equipped for personal fulfillment, sensitive to the needs and aspirations of others, and committed to assuming productive roles in a challenging and ever-changing global society (Virginia State University 1983c).

Vocational Education Programs

As indicated in its mission statement, Virginia State University is a comprehensive university. Thus, it offers varied curricula and programs to its constituents and, of necessity, has many components with unique

characteristics and objectives. In a similar manner, the comprehensive vocational education program is composed of varied disciplines with distinct identities. The successful features of each of these disciplines--namely, agriculture, business education and office management, home economics, industrial arts, industrial technology, and trade and industrial education--will be described separately. All programs are housed in the School of Agriculture and Applied Sciences, with the exception of business education and office management, which is housed in the School of Business. The teacher education aspects of the programs are coordinated through the Center for Teacher Education Services in the School of Education.

CHAPTER 2

DEPARTMENT OF AGRICULTURE

The Department of Agriculture offers four-year professional degree programs designed to serve highly motivated individuals, male or female, from rural or urban centers. The faculty members are highly trained professionals who conduct research and teach at both undergraduate and graduate levels.

An important aspect of the Department of Agriculture at Virginia State University is the close student-faculty relationship, which greatly enhances the teaching-learning process. Research and demonstration projects are conducted on a 416-acre farm, which is also utilized for practical instruction in agriculture.

The department goal is to offer students the most up-to-date and relevant knowledge possible that will enable them to become highly employable in their special fields and become enlightened and responsible professional leaders in society.

Degree Offerings in Agriculture

The department offers bachelor of science degrees in five options: (1) agricultural business and economics; (2) agricultural education; (3) agricultural mechanization; (4) animal and pre-veterinary science; and (5) plant, soil, and environmental science. A master of science or master of education degree can be earned in agricultural education.

Agricultural Business and Economics

This curriculum emphasizes public policy, rural development, and environmental economics in addition to the economics of production, processing, and marketing of agricultural products. Graduates in this field are prepared to take a variety of jobs in business management, wholesale and retail marketing, banking, and research, as foreign service officers, communication specialists, and other types of positions with governmental agencies and private organizations that require expertise in economics and statistics.

Agricultural Education

The agricultural education curriculum is designed to prepare undergraduate students for careers as teachers of vocational education in agriculture. The broad foundation of required technical and supporting courses also qualifies students for positions in agricultural business, in industry, and in agencies of state and federal governments, such as the Cooperative Extension Service.

Agricultural Mechanization

This curriculum emphasizes the practical application of technology to agriculture. It prepares students for careers in technical and managerial positions with mechanized agricultural industries, and as secondary school teachers of agricultural mechanics. The program of study includes general agricultural mechanics, agricultural power and machinery, agricultural buildings, soil and water management, rural electrification, and processing agricultural products.

Animal and Pre-Veterinary Science

This curriculum offers students courses in animal husbandry, dairy science, poultry science, animal nutrition, and related courses that emphasize

the application of scientific principles to livestock production, processing, marketing, and research. There is sufficient flexibility in the program to assist the student preparing for a scientific career in veterinary medicine, as well as the student seeking immediate employment in such positions as research specialists, extension agents, or other positions in government or private industry.

Plant, Soil, Water, and Environmental Science

This curriculum provides preparation in the production and management of field crops, the conservation of soil and water resources, and for careers as soil scientists with the U.S. Department of Agriculture. The environmental science option enables students to prepare for educational and public service positions dealing with environmental quality and protection.

Students who pursue master of science or master of education degrees in agricultural education may choose a minor field that is justified by their educational objectives.

Recruitment in the Agricultural Program

An Agriculture Alumni Chapter was established in 1982 to raise funds to strengthen and support agricultural programs at Virginia State University. Objectives adopted by the chapter are (1) to recruit agricultural students; (2) to establish a scholarship fund for agricultural students with contributions from alumni, the corporate sector, and other sources; (3) to provide funds for agricultural program development; and (4) to recognize achievements of agricultural alumni at an Annual Recognition Banquet. Thus far, more than $15,000 has been donated by agriculture alumni and friends toward an initial fund-raising goal of $25,000.

The Agricultural Alumni Chapter is also a major component of the agricultural student recruitment strategy for the Commonwealth of Virginia. The state is divided into alumni recruitment districts, each having a recruitment team comprised of volunteer agricultural alumni and a designated team leader. These district recruitment teams are supported by material, information, and personal appearances of agricultural faculty members. The Agriculture Alumni Recruitment Network refers potential agriculture students to the U.S. Department of Agriculture. An alumnus of Virginia State University who received a bachelor's degree in agricultural education from this institution and who currently is president of a community college in the state is also president of the local Agriculture Alumni Chapter. His dedication and influence are positive factors in the recruitment effort for the agricultural program.

Retention in the Agricultural Program

Retention in the program is a problem with certain high-risk freshmen and with some upper-level students. Due to a functional counseling program and student advisement plan, many students who probably would discontinue their education remain in the program and graduate.

Student Placement

Many graduates of the Virginia State University agricultural programs have been highly successful in obtaining responsible positions of leadership in agriculture-related or other fields. Some are teachers of vocational agriculture at the secondary level; many are college professors. One graduate is a president of a community college in Virginia; one is a former state director of the Farmers Home Administration, and one is deputy director of the Rockefeller Foundation. Many graduates are employed by the federal government as

scientists or administrators, and a number of graduates are employed by private industries.

CHAPTER 3

DEPARTMENT OF BUSINESS EDUCATION AND OFFICE MANAGEMENT

The Department of Business Education and Office Management provides experiences to students enrolled in its various programs so that they can acquire competence in basic office practices. Opportunities to work with electronic typewriters, word processing equipment (including the IBM display writer), computer terminals, microcomputers, and attendant software are provided.

Students preparing for teaching and/or occupational practice in secretarial/administrative support careers are provided with an intensive culminating simulation program entitled Model Office. Here, students become involved in the office systems and procedures studied in prior years.

Although all business education and office management majors develop computer literacy competencies, those preparing to teach data processing take a minimum of eighteen semester hours of courses in the field, including at least three programming languages and business applications.

In addition to the specialized skills, all students are provided with a solid foundation in the business administration common body of knowledge. Objectives of the Department of Business Education and Office Management include the following:

- Preparation of students for service as business education teachers, with opportunity to become certified in the following areas: general office procedures, stenography, and data processing
- Preparation of students for careers in administrative support services

- Increase in students' awareness of employment opportunities and career qualifications in business teacher education and office administration

Degree Offerings in Business Education and Office Management

The department offers four undergraduate programs, each of which leads to the bachelor of science degree, and two options for a master's degree. For persons interested in teaching business subjects, the department provides undergraduate majors in (1) business education/general office procedures; (2) business education/stenography; and (3) business education/data processing. For persons interested in careers in support areas, the department provides a fourth major in office administration. A graduate student may work toward a master of science or master of education degree in business education.

Business Education/General Office Procedures

This curriculum prepares students for service as business education teachers, with the opportunity to become certified in the areas of general office procedures, stenography, and data processing. In the second semester of the sophomore year, observation and field experiences are provided to give the business education student an opportunity to survey the field of business teacher education. This professional educational activity allows the prospective teacher of business subjects to have a supervised, on-the-job, teaching-learning experience.

Business Education/Office Administration

This curriculum provides a comprehensive foundation in business administration, capped by specialized studies in office administration, systems, and practices. Through office simulation in a model office classroom, the student

is provided the opportunity to apply knowledge and skills to practical work situations. Students are encouraged to participate in work experience programs in order to acquire needed experience for entrance into the field of office administration.

The office administration program is structured to permit students to pursue employment in a variety of business settings, such as banking, public administration, education, or others.

The graduate offerings in the Department of Business Education and Office Management are flexible enough to meet the individual student's professional and personal needs. Students may take courses that will prepare them (1) to teach in secondary and vocational schools, community, junior, and senior colleges; (2) to coordinate and supervise business and office education in a state, city, or county school system; (3) to teach or supervise a business and office education program in an adult education school or in a nonschool environment; and (4) to teach office occupations education programs for in-school youth with special needs.

Recruitment in the Business Education and Office Management Program

Students are recruited by faculty members who work closely with the Future Business Leaders of America (FBLA), the business education student organization, in the surrounding area of the campus. Faculty members also maintain contact with former students, who assist in the recruiting effort.

Retention of Students in Business Education

Students in the Business Education and Office Management Program are given intensive individualized counseling as they progress in their respective programs. Additionally, the department has been successful in retaining students

by placing them on jobs via a cooperative education arrangement with businesses, industries, and governmental installations through the University Cooperative Education and Placement Office. In addition to acquiring experiences in the real world of work, the students earn money to help support their education.

Placement of Business Education and Office Management Graduates

The success rate in the placement of graduates from this department has been excellent. The responsible positions that many of the graduates hold are indicative of this. One graduate is the director of vocational education in a nearby county. Others hold teaching positions at several levels of education--secondary, vocational-technical centers, and institutions of higher education.

CHAPTER 4

DEPARTMENT OF HUMAN ECOLOGY

The Home Economics Education Program at Virginia State University, administered through the Department of Human Ecology, prepares students for careers in education, business, and research. In preparation for the teaching of vocational home economics, students must understand the relationship of all aspects of family living, including child development. Therefore, the child development laboratory is a vital component in the department. This laboratory operates as an integral part of the training of students majoring in the area. The laboratory offers an opportunity for students to study and understand the interrelationships of the physical, mental, emotional, and social growth of young children. The program is enhanced significantly by the participation of the preschoolers' parents in programming efforts.

The general objectives of the Department of Human Ecology are as follows:

- To prepare students capable of ameliorating the psychological, sociological, and physiological development and well-being of individuals and families
- To offer opportunities for students to develop professional competencies that will aid them in improving and utilizing available human and non-human resources to enhance individual and family life
- To prepare students with professional competencies necessary for employment in certain aspects of social services, secondary schools, cooperative extension, industry, and business-related areas of human ecology
- To develop and engage in research activities related to human ecology in fulfilling the mission of a land-grant institution

Degree Offerings in Human Ecology

The department offers two undergraduate degrees, with several concentrations in one--(1) the home economics education curriculum; and (2) the home economics and business curriculum with concentrations in (a) family, child, and community services; (b) foods and nutrition; (c) housing and interior design; (d) management dietetics; and (e) textiles and clothing. Graduate programs leading to the master of science or master of education degrees are also offered in home economics education with options in teacher education, and extension education.

Home Economics Education

This curriculum prepares students to meet requirements established by the Vocational Division of the U.S. Department of Education as well as the standards of the Virginia Department of Education. The Department of Human Ecology cooperates with the university's Center for Teacher Education Services for the implementation of its student teaching program. Recommendations for student teaching are contingent upon students successfully completing all prescribed courses in home economics education, as well as meeting the same university prerequisites as listed under admission to the teacher education program. The students who complete this program are prepared for employment in secondary schools, the Cooperative Extension Service, and other governmental and private agencies.

Home Economics and Business

This curriculum prepares students for positions in business, research, industry, cooperative extension, and certain aspects of social services. Concentrations and management dietetics in foods and nutrition meet the academic

requirements of the American Dietetics Association. In addition, graduates in foods and nutrition are eligible for appointment to dietetic internships approved by the American Dietetics Association.

Research in the Human Ecology Department

Faculty members of the department and researchers employed by Cooperative Agricultural Research are actively involved in research concerned with nutrition and housing. Research activities have also been instituted in the international arena through the Bureau of Economic Research and Development (BERD). These research activities have been conducted primarily in West and Central Africa (Ghana and Malawi). The major emphasis of the research programs has been on facilitating the involvement of women in development issues. Undergraduate and graduate students are afforded opportunities to work with researchers on domestic and international projects.

Recruitment in Human Ecology

A systematic approach to recruitment has been in operation within the department for many years. An annual career day is sponsored on the campus for high school and university students to inform them of the program offerings and career opportunities in human ecology. Also, faculty members and students visit high schools with members of the university's Office of Admissions, or upon requests from schools, to discuss the role of home economics in the world of work. Brochures and fact sheets describing the various programs are distributed to interested students on these visits. Additionally, home economics education students are actively involved in the Future Homemakers of America Student Federation. This activity affords opportunities for high

school students to visit the campus and interact with students preparing to teach in public schools.

Retention of Students in the Human Ecology Programs

After students enter a program, they are assigned advisors who work with them to ensure successful placement and adjustment. Within the past ten years, the department has been able to retain between 50 to 90 percent of the students entering as freshmen. Additionally, within that same span of time, fifteen to twenty-seven students per year have graduated at the undergraduate level, and four to seven students per year at the graduate level.

Placement of Students Who Complete Human Ecology Programs

Many former students have moved into successful careers in teaching, merchandising, food service, dietetics, community service, cooperative extension, and other areas. A follow-up study was conducted by the department in 1982. The purpose of the study was to determine employment status, location of employment, and graduate data.

Two hundred sixty-three questionnaires were sent to human ecology majors who graduated from the department between 1968 and 1980. Of this number, ninety-two, or 34.9 percent, responded. Analysis of the data revealed that 39 percent had earned the master of science, master of arts, or master of education degrees. One percent had earned a doctoral degree. Further, of those responding, 28.4 percent were enrolled in graduate school on a full-time or part-time basis, with 2 percent enrolled in doctoral programs. It was interesting to note that 14 percent were engaged in business careers with large corporations, such as General Mills, Xerox Corporation, Marriot, Aetna Insurance Company, and others. Twelve percent were employed in health services and

consumer services. Other areas of employment included federal and state governments. The data also revealed that 73 percent of those responding were employed in the state of Virginia, and 14.1 percent in the District of Columbia and the Virgin Islands (Virginia State University 1983d).

Implications of this study are as follows: (1) graduates who received education at Virginia State University in the Department of Human Ecology are making worthwhile contributions to the state and nation as eivdenced by the positions they hold in education, health services, business, and state and federal governments; and (2) the mission of the institution and the objectives of the department are being met, as evidenced by the broad areas of employment in which the graduates are engaged.

CHAPTER 5

DEPARTMENT OF INDUSTRIAL EDUCATION AND TECHNOLOGY

The Department of Industrial Education and Technology at Virginia State University offers three undergraduate degree programs. The undergraduate degree programs are in industrial arts education, industrial technology, and trade and industrial technology. The department also offers two programs leading to graduate degrees--master of science or master of arts in industrial education. The Certificate of Advanced Graduate Study (CAGS) in vocational-technical education is the only post-master's degree program offered at the university. The remainder of this chapter will discuss these degree programs.

Industrial Arts

Industrial Arts Education Curriculum

The Industrial Arts Education Program is designed to prepare persons to teach industrial arts at the junior and senior high school levels. The competencies developed during the four-year period of study include knowledge and understanding of industry and technology--two major components of our society. The laboratory courses include the development of skills and understanding in such areas as metals, plastics, woodworking, construction, manufacturing, electronics, drafting, and graphic communications. Students have the opportunity to be creative and innovative as they learn the art of teaching.

The primary objectives of the industrial arts program are as follows:

o Prepare students for teaching careers in junior and senior high schools.

- o Provide students with experiences to make them knowledgeable about recent developments in the industrial/technological field.
- o Prepare capable students who desire to do advanced study.

Recruitment in the Industrial Arts Education Program

A variety of techniques are employed in the recruitment of students for the industrial arts program. These include visits to schools in the proximity of the university by faculty members and by students who are currently enrolled. During these visits, the nature of the program, advantages of the teaching profession, and prospects for employment after graduation are discussed with interested students. Brochures and fact sheets are also distributed to students and guidance counselors at these schools.

Another effective method of recruitment is the cooperation of the department with other institutions of higher education in the state that offer industrial arts programs, through the Virginia Industrial Arts Teacher Education Council. This organization prepares and distributes brochures providing information on industrial arts teacher education programs at the member institutions.

The Industrial Arts Education Service of the state department of education has also been helpful in recruitment through public service announcements concerning industrial arts teaching on radio and television. Additionally, the university annually hosts a regional conference of the American Industrial Arts Student Association (AIASA). The conference brings several hundred industrial arts high school students to the campus, and some of these students enroll in the industrial arts program after they graduate from high school.

Retention in the Industrial Arts Program

As in other programs in the department, each industrial arts education student is assigned an advisor, who works closely with the student throughout his or her period of study at the university. Between 1970 and 1980 there were 163 students enrolled in the program. Of these, 80 students, or 49 percent, received the bachelor of science degree in industrial arts education. There are currently 41 students enrolled in the program.

Placement of Industrial Arts Education Graduates

The placement rate of industrial arts majors upon graduation is excellent. There are generally several job offers for each graduate. This is due to the fact that the students have completed a program of high calibre, and the fact that there is a chronic shortage of industrial arts teachers in Virginia and nationwide.

Within recent years, five graduates of Virginia State University who were industrial arts teachers were nominated as the Virginia Industrial Arts Teacher of the Year (in different years). Two were selected for that honor.

Industrial Technology

The industrial technology program, which leads to a nonteaching bachelor of science degree, has the highest enrollment in the Department of Industrial Education and Technology. With a department enrollment of 258 undergraduate students, 156 students (or 60 percent) are enrolled in some area of industrial technology. The curriculum provides for three options--automotive technology, drafting technology, and electronics technology. It is not unusual for graduates of the industrial technology program to find positions as junior

engineers, technical advisors, and supervisors, and to move rapidly into middle-management situations in industry and government.

The objectives of the program are as follows:

- o Provide fundamental theories and practical experiences for students planning careers as professional technologists in automotive, drafting, and electronics areas
- o Introduce new concepts and developments through courses in industrial technology
- o Provide required elective courses in business administration for developing managerial and supervisory skills
- o Meet the general educational requirements for the Bachelor of Science degree

Laboratory courses are stressed in each technology. Students are required to spend one summer, or not less than nine weeks during a regular semester, as an intern in their speciality field.

Students enrolled in industrial technology may participate in the Cooperative Education Program at the university. Although cooperative education is not mandatory, it is strongly recommended to technology majors. The opportunity to use theory and to practice techniques in actual situations enhances the students' ability to apply their skills after graduation.

Curriculum Offerings in Industrial Technology

Automotive Technology

This curriculum is designed to qualify graduates as junior engineers and production managers in the automotive industry. The major technical courses are lecture and laboratory oriented to give the student a sound theoretical background and hands-on experiences in the most recent automotive developments.

Drafting Technology

The drafting technology curriculum is designed to qualify graduates as drafting technologists in major industries and governmental agencies. The content of the drafting technology curriculum is structured to provide the student with a balance of knowledge and skills in the mechanical and architectural phases of drafting. Through laboratory exercises and problems, the student develops competencies in multiview projection, graphical solutions, materials selection, and use of critical fits for interchangeability, creative design, development of working drawing sets, and other topics required to prepare the individual with a sound base for application.

Electronics Technology

This curriculum is designed to qualify graduates as field engineers, researchers, and production managers in the electronics industry. The major area of concentration is to investigate the basic theories and practices in communication devices and systems using vacuum tubes and solid state technology. Experience in instrumentation, industrial electronics, and digital computer principles are provided as a major unit of the electronics program. Individual design projects are required in circuit analysis and other instructional units.

Recruitment of Industrial Technology Students

Many students in the industrial technology program are recruited through the normal channels, such as faculty visits to high schools and community colleges, distribution of brochures and fact sheets to high school guidance counselors, and in conjunction with activities of the university's Office of Admissions. A high percentage of the students are recruited from the pool of

undeclared majors, who have not decided upon a major field of study when they enter the university. Other students transfer from other departments on the campus when they learn about the program and the success of its graduates.

Retention in the Industrial Technology Program

In spite of the higher level of mathematics required for the industrial technology program, the retention rate has been very good. Between 1970 and 1980, there were 277 students enrolled in the several areas of concentration. Of these, 131 (or 47 percent) completed the requirements for the Bachelor of science degree.

Placement of Industrial Technology Graduates

Students who graduate from the industrial technology program are in high demand by business, industry, and government. For example, a student who completed the automotive technology program in the summer of 1983 was employed by a major automobile manufacturer at a beginning salary of $26,713. It should be pointed out that he had previously been affiliated with the corporation as a cooperative education student during his period of study at the University. A few of the firms and agencies that employ graduates of the industrial technology program are: Allied Chemical Corporation, DuPont, E.I. deNemours and Company, International Business Machines Corporation, Newport News Shipbuilding and Dry Dock Company, Inc., Norfolk and Western Railway Company; Phillip Morris USA, Reynolds Metals Company, Buick Division of General Motors Corporation, Kennedy Space Center, and many others.

Trade and Industrial Education (Vocational-Industrial Education)

The vocational-industrial education program is the other undergraduate offering for the preparation of teachers in the Department of Industrial

Education and Technology. A student in this program may earn a bachelor of science degree in vocational-industrial education with a concentration in either automotive mechanics education, cosmetology education, drafting education, or electronics education. The curriculum for the program is designed to develop competencies for the graduates to teach trade or technical subjects in their respective areas of concentration in vocational-technical centers, industry, or governmental installations.

The students enrolled in this program take the same technical courses as those enrolled in the technology program, with the exception of those in cosmetology education. All of the concentrations are designed to help students develop a sound educational philosophy, effective methods and techniques of teaching, and techniques for evaluating the effectiveness of their teaching.

The cosmetology program is unique in that it is the only four-year program at an institution of higher education for the preparation of teachers of cosmetology. Many of the students who enter the program as freshmen hold a license issued by the Virginia State Board of Examiners of Professional Hairdressers (received while still in high school). If they do not hold such a license, they are required to obtain it prior to their field experience as a student teacher.

Many of the courses in vocational-industrial education are offered for practicing teachers who have technical skill and knowledge but lack the methods and techniques for effective teaching. Also, the state board of education requires that teachers who do not hold a degree take a specified number of college courses to be endorsed in their field of specialization. The department offers courses for this purpose.

Another way in which the department serves vocational teachers of trade and industrial education is through cooperation with the university's School of Continuing Education, which offers a bachelor of individualized study (BIS) degree based on previous college work, courses taken in the military service, and on life experiences related to the teacher's specialized area. Faculty members evaluate portfolios prepared by such vocational teachers in terms of the quality of the courses taken previously, and of the life experiences. Several teachers have earned the BIS degree and are currently enrolled in the master's program in industrial education.

Recruitment and Retention in Vocational-Industrial Education

Students for this program are recruited by visits of faculty members to vocational-technical centers, comprehensive high schools, and community colleges. Although there is not a formal articulation agreement with the community colleges, the majority of the courses taken there are accepted in one of the concentrations.

Due to the fact that they are counseled carefully and are highly motivated, the majority of the students who enroll in the program remain to receive a degree.

Placement of Vocational-Industrial Education Graduates

Many of the students who complete this program take positions as teachers in vocational-technical centers. This is particularly true of the students who complete the program with a concentration in cosmetology. The fact that they have earned a bachelor of science degree and have the technical skills and knowledge gives them a definite advantage for employment.

Graduate Programs in Industrial Education and Technology

The Department of Industrial Education and Technology offers two programs leading to graduate degrees--(1) master of science or master of education in industrial education or (2) the Certificate of Advanced Graduate Study (CAGS) in vocational-technical education.

The graduate program in industrial education is designed to assist persons in the fields of industrial arts, vocational, and technical education to upgrade themselves as teachers, to qualify for positions of a supervisory nature, or to qualify as industrial cooperative training coordinators.

The objectives of the industrial education program are as follows:

- o Assist industrial education teachers in the formulation of a philosophy consistent with the current concepts and objectives of the educational program and with current developments in technology
- o Aid teachers of industrial education to upgrade themselves professionally in their technical specialization and in the general areas of research and creativity
- o Assist professional industrial educators who desire further study to enhance their opportunities for advancement

On the basis of a strong master's program (and undergirding undergraduate program) in industrial education, in May 1981, the State Council of Higher Education for Virginia granted final approval to the university to offer a Certificate of Advanced Graduate Study (CAGS) in vocational/technical education. This post-master's degree is the highest degree offered at the university. No other school or department has been granted approval to offer such a degree. The program was initiated in September 1981, with the enrollment of twelve students. Two persons completed the program in May 1983--one a local director of vocational education, and the other an industrial arts teacher who held two master's degrees prior to beginning study toward the CAGS. This degree is offered to persons in vocational education, including agriculture

education, business education, health occupations education, home economics education, industrial arts education, technical education, and trade and industrial education.

The Certificate of Advanced Graduate Study is designed to provide advanced graduate-level specialization, with emphasis on the development or strengthening of leadership skills, by completing a prescribed program of study. A minimum of thirty semester hours beyond the master's degree is required to complete the program. Persons entering the program must hold a master's degree. However, the bachelor's degree or the master's degree must have been in some area of vocational education.

The CAGS is designed specifically for persons who hold or are preparing for positions as state and local directors, supervisors, assistant supervisors, and department heads of vocational, technical, and adult education; for principals and administrators in public and private schools, or other institutions where vocational preparation is a primary objective; for persons engaged in labor development; and for other vocational and technical education practitioners interested in organizing and administering vocational and technical programs. The central core of the program is structured around state requirements for administrative positions in vocational education, in accordance with the Virginia Plan for Vocational Education.

In addition to completing a minimum of thirty semester hours of course work in the CAGS program, a student must meet other requirements, which include the following:

1. Taking a qualifying examination that is diagnostic in nature
2. Being admitted to candidacy after successfully ("B" average or above) completing twelve semester hours in the CAGS program

3. Spending one semester, or a summer, in an internship or externship experience

4. Performing satisfactorily on a final comprehensive examination in two parts--written and oral

Recruitment in the Graduate Program

The graduate program in industrial education has been largely successful because of the persons who completed the program and recommended it to others. It was the first (and for many years the only) "pure" master's program in the field. Other institutions offered the degree as a concentration in a general professional field of education. When faculty members attend statewide teachers' conferences or vocational teachers' conferences, promotional materials are distributed to those in attendance; this brings attention to the program and often results in a follow-up by interested persons. In addition, personal contact is made with practicing teachers during visits to schools where student teachers have been placed. Recruitment for the CAGS program is conducted mainly through the mailing of brochures. Informal discussions have been held between members of the graduate faculty in the department and representatives of another institution that offers the doctorate in vocational/technical education. It is conceivable that an articulation agreement can be arranged to accept credits from the CAGS program toward the higher degree being granted by the other institution. This should have a positive impact on the enrollment in this program.

Retention in the Graduate Program

The master's program in industrial education was initiated in 1968. Since that time, 249 persons have completed work for and received their degrees. There are currently 18 students enrolled on a part-time basis. Twelve

students are enrolled in the CAGS program, which began in 1981; however, only 5 students are taking courses this semester (Fall 1983).

Placement of Recipients of Graduate Degrees

Several students who have received master's degrees have continued their studies and earned doctorates at other institutions. Many students have become vocational directors, principals, or assistant principals of vocational-technical centers, and supervisors of vocational education services in the Virginia State Department of Education.

CHAPTER 6

PROGRAM TRANSPORTABILITY

Due to the variety of offerings, and the fact that the vocational programs at Virginia State University have been in existence for a great length of time, it is difficult to provide precise information on the cost of conducting them. There are many variables that would have to be taken into consideration. However, the following data provide information on the costs for the combined (i.e., agriculture education, business education, home economics education, industrial arts education, and trade and industrial education) undergraduate vocational teacher education programs at the university over the past five years. These figures do not include costs for nonteacher preparation programs. As indicated in table 1, the totals include costs for salaries, travel, and equipment.

TABLE 1

COSTS FOR UNDERGRADUATE PROGRAMS

	1978-79	1979-80	1980-81	1981-82	1982-83
SALARIES	$374,924.29	$487,310.61	$516,300.18	$316,854.29	$313,111.92
TRAVEL	12,200.00	12,400.00	14,300.00	18,300.00	17,550.00
EQUIPMENT	106,665.00	48,250.00	145,709.04	106,120.00	--
TOTALS	$489,789.29	$558,160.61	$676,309.22	$441,274.29	$330,661.92

The costs for travel include local, conference, and out-of-state expenses. Equipment costs are for replacement and additional equipment.

The unique aspects of the programs would include some of the methods of recruitment, retention, and placement. The four-year cosmetology program and the BIS degree are unique and transportable.

Conclusions

The vocational programs at Virginia State University have been in existence for nearly as many years as the university. The programs have undergone many changes, as has the university. This is as it should be, for if the programs had not changed with the developments that have come about in an ever-changing technological society, they would be useless or nonexistent.

The following conclusions are based on the data in the study:

- Virginia State University reaches out to other parts of the nation and the world through the students that it serves and through the service of those students to others.
- All vocational departments have several degree options from which a student may choose.
- The flexibility built into some of the programs enhances the employability of students upon graduation.
- Small classes and effective counseling are positive factors in the retention of students.
- The vocational programs enable the University to meet the functions of instruction, extension service, and research.
- Students who have potential but who are educationally deficient in their prior preparation are given an opportunity to succeed.
- There is a trend for students to major in areas other than teacher education because of the higher salaries paid by business, government, and industry.
- The curricula that are technology-related have higher enrollments than many of the traditional curricula.
- Students who participated in the University Cooperative Education Program are frequently employed by the business, industry, or governmental agency where they received on-the-job experiences.

- There is evidence that students in vocational programs are receiving instruction of a high quality. The firms and agencies that employ them and the positions to which they rise bear this out.

- The graduate program in industrial education is a positive force in the development of leadership skills in the vocational teachers who enroll in the program.

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