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# VOCATIONAL TRAINING AND RETRAINING

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Views regarding the purpose of public education differ. The "change agent" view is that educational programs must be more than reactionary—more than sensitive and more than responsive; they must be agents of change. The "sociological" view holds that public education should not follow along behind society, but should provide direction and leadership in a changing society. The "psychological" view regards public education as a promoter of the learning process—bringing about changes in the behavior of people. The "individual development" view is that public education should help each individual to develop to the fullest of his capacity, irrespective of the area in which the individual's greatest potential may be and irrespective of the depth of his capacity. Programs of vocational education are designed to implement this last view.

The future of vocational education cannot be assessed without considering social trends. Expanding economic activity, increased technology leading toward automation, expanding population, shifting population, and changing employment patterns must be considered.

In 1953, the number of people in this country employed in service and distribution occupations surpassed the number employed in production. This is the first time for such an occurrence in any nation. We have entered "the age of distribution."

Semi-skilled jobs are decreasing, and technical jobs are increasing. An increase of 50 percent in technical personnel will be needed by 1975. The appearance of new industries will call for educational programs for jobs that do not now exist.

Consumer demands exercise increasingly greater control over the type of products produced in our society. The level of consumption could well increase immensely if those who are working below their capacities were educated for more effective production commanding higher incomes.

The implications of projected population increases and movements for educational programs cannot be ignored. Currently, throughout the nation, school reorganization is underway to develop and maintain educationally sound and economically efficient units.

A Bureau of the Census report<sup>1</sup> indicates that for each 100 farmers in the United States who retire or are deceased 168 farm-reared young men 20 years of age are available as replacements. The number available for replacing each 100 deceased or retiring farmers by regions are: Northeast region 134, North Central region 137, Southern region 206, and Western region 135. Even if a one-to-one replacement ratio were required for farming, the surplus would be 68 per 100 nationally, but throughout the nation fewer farmers are needed.

What could or should educational leaders do to promote, retard, or change the direction of the present trends? Merely following trends can be good or bad. We stated earlier that education should provide leadership in bringing about changes rather than following passively the trends in progress.

### **A Newer Concept of Vocational Education in Agriculture**

The production and distribution of farm commodities require many specialized operations, including services to farms. Many of these operations are no longer performed by farmers nor are all of them actually performed on the farm. A broader concept of agricultural occupations is needed.

The technical revolution in farming demands better trained farmers and farm workers. Farms are becoming larger, the operations are becoming more complex, and the need for management training is becoming more critical. The investment per farm worker continues to climb rapidly. The trend toward more efficient units is, of course, sweeping across all areas of economic activity. Farming, in becoming a more selective and specialized facet of agriculture, will offer job opportunities to the well trained at the management, the technician, and the skilled levels as well as opportunities in entrepreneurship.

Agricultural production technologies result in an ever-increasing demand for supplies, machinery, and services. In line with the specialization trend, farm operators depend increasingly on off-farm agricultural industry for ready-to-use technical supplies and complicated machinery. Farming, with a potential for greatly increased productivity, must have supplies and machinery. In order for these to be efficiently introduced, used, and maintained on farms, better trained farmers and increased numbers of trained agricultural business and industry workers will be required. This means potential job opportunities for those workers not needed in farm production. A survey during 1961 of

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<sup>1</sup>*Farm Population—Replacement Ratios and Rates*, U. S. Department of Commerce, Bureau of the Census, Series Census, AMS (P-27) No. 22, August 1956, Washington 25, D. C.

agricultural industry in nine eastern North Carolina counties revealed a need for 186 new workers in farm machinery jobs alone.

The processing and marketing of farm products is a bigger business today than farm production. As the population increases and as farm production rises, job opportunities in agricultural processing and marketing will increase. The trend is toward convenience foods—foods that are partially or totally prepared for serving.

Another part of agriculture is the service provided by professional agriculturists. Modern agriculture is founded on research and education. The roles of the researcher, the teacher, and other professional workers employed in both public and private agricultural work may reasonably be expected to become more important. Increasing job opportunities in such professional agricultural work will be found in farming, in public agencies, in businesses, and in industries.

The newer concept of agriculture should include the work and the job opportunities in agricultural production, in agricultural businesses and industries, and in public agricultural agencies. In this concept agriculture is defined to include:

1. Farmers, who themselves are engaged in the production of crops and livestock. Seven and a half million of these people are employed on farms in the United States.
2. Those industries which provide services and supplies to farmers. This group of industries employs about 6.5 million people and is vital to the emerging concept of nonfarming agricultural occupations.
3. Those industries and commercial enterprises that store, process, and merchandise the products of farms. This group employs about 10 million people.

Should public vocational educational opportunities be confined to those desiring to enter certain areas of agricultural work and refused to those desiring to enter other areas of agricultural work?

### **Need for a Broader Educational Foundation**

Those who are in farming or are preparing to enter farming need education for agricultural adjustment. This must include more than education for farming. More emphasis is needed on the scientific, sociological, and economic aspects of agriculture as differentiated from the teaching of specific manipulative skills. We need programs to aid those in farming, but we also need programs which will help keep the number entering farming and remaining in farming in adjustment with the total social structure.

### **Need for Increased Emphasis on Guidance**

Rapid advancement in transportation and communication have led to a highly mobile society. Young men who grow up on farms will no longer necessarily remain on the farms, nor will young men who grow up in textile communities necessarily remain there. The young men who will not be needed in farming or who choose to leave the farm have a right to expect information about other occupational opportunities. Likewise, they have a right to expect educational opportunities to train them for one of the many nonfarming occupations.

### **Need for Increased Emphasis on Adult Education**

As society becomes more complex, more education will be needed. A few generations ago in North Carolina individuals attended school four months per year for four years; later, six months per year for seven years. Prior to World War II, students attended eight months per year for eleven years. Youth now attend nine months per year for twelve years. How far will we move in this direction? Will we have grades thirteen and fourteen? Will we move toward a ten, eleven, or twelve months' school year? We may add another year or two and another month or two, but that will likely be the limit. When young people reach maturity, mentally and physically, they marry, start families, and begin work. Their full-time formal schooling ends. Thus, the only time left is adulthood. Adult education is the "up and coming" area of public education in the world today.

### **Need for Broader and Extended Vocational and Technical Education Opportunities**

North Carolina has a good system of elementary schools, a good system of secondary schools, and a good system of colleges and universities, but an educational gap has existed between the high school diploma and the baccalaureate degree. Many young men and women want and need more education and more specialized education than they get in high school, yet not a baccalaureate degree.

Three years ago North Carolina moved toward filling the educational gap by developing 20 rather strategically located area vocational-technical schools, called industrial education centers. The centers were allocated on a state-wide basis to local administrative units which demonstrated proof of educational need, financial ability, and a desire to support the area school program. Allocation was based on community and area surveys relating to job opportunities in the area served. The potential student population should number 400 (full-time equivalent) each year in order to insure economical operation.

The oldest center is only three years old, yet last year (with only 14 in operation) 25,789 individuals were enrolled. Within five to seven years after all 20 centers are in operation they will enroll more people than are enrolled in all 12 state-supported four-year colleges in the state.

All enrollees are not four-year students—the aim is to train *skilled craftsmen* and *technicians*. These centers have begun to have a tremendous impact in terms of helping the citizens of North Carolina develop their talents to their fullest potential. An *engineer* devotes most of his time, energy, and effort to dealing with ideas and concepts. A *craftsman* devotes most of his time, energy, and effort to the manipulative areas. A *technician* is about half-way between the craftsman and the engineer. He possesses sufficient knowledge and understanding of theory to communicate effectively with the engineer, and sufficient ability in the manipulative area to apply the ideas and concepts of the engineer in the laboratory. The industrial education centers do not train engineers—that is the university's job. The industrial education centers train both of the other types of workers — skilled craftsmen and technicians.

North Carolina has never had a state-wide educational program aimed specifically at training technicians. It has not been making most effective use of its human resources. A skilled craftsman cannot perform the duties and assume the responsibilities of a technician. Thus, many engineers and other college degree holders have actually been doing the work of technicians.

A closer look at the educational spectrum in North Carolina will show the place of the industrial education centers. Only 40 percent of those who began school some twelve years earlier graduated last year in North Carolina—60 percent dropped out along the way. Thirty-seven percent of those who graduated entered college. College personnel tell us that only about one-third of those who enter college graduate. Thus, for each 100 who enter the first grade, 40 finish high school, 15 enter college, and 5 graduate from college.

No society can remain in a leadership position long by developing its college graduates alone. A democracy is concerned with all the people, not just the 5 percent who comprise the intellectually elite. The other 85 percent who do not enter college have as much right to educational opportunities as the college-bound. Our greatest potential for increasing per capita income, raising the level of living, and improving citizenship lies with the 85 percent. If an individual has talents in electronics, he has as much right to expect educational opportunities

for his development as someone who has talents in medicine or agriculture. Thus, educational opportunities must be extended to *all* the people, irrespective of the area in which their talents may lie and irrespective of whether they have five talents or three. The industrial education centers add depth and breadth to the educational spectrum in North Carolina.

Now, to answer some specific questions:

1. WHO MAY ENROLL IN THE INDUSTRIAL EDUCATION CENTERS?

Any North Carolina citizen may enroll if he meets the minimum admission requirements.

2. WHAT ARE THE MINIMUM ENTRANCE REQUIREMENTS?

Entrance requirements vary among courses and curricula. A student must have the ability to enter and advance in the area in which he desires to enroll. Tests to determine areas of interest, aptitudes, and levels of achievement are administered as a basis for counseling and admission. A student must be 16 years of age or older.

3. WHAT IS THE COST TO THE STUDENT?

No tuition is charged. A student is expected to purchase his books and to pay reasonable laboratory fees. Costs for books will usually not exceed \$25 per year for a full-time student. Laboratory fees will vary, but in no case may exceed \$10 per month. Thus, for a full-time student, in a curriculum with expensive laboratory fees, for a twelve-month school year, the total costs will be less than \$145. In most cases it is less than \$100.

4. WHEN ARE CLASSES HELD?

These centers operate from 7:30 a.m. to 10:30 p.m., five days a week, twelve months a year. This operating schedule insures continuous use of equipment and facilities and thus results in maximum use of tax dollars spent for providing quality vocational and technical education. The schedule also provides citizens an opportunity to take advantage of educational opportunities during their nonworking hours.

5. HOW ARE THE CENTERS ADMINISTERED?

An industrial education center, under the immediate supervision of a director, is administered by the local superintendent of schools and board of education under a state-wide plan supervised by the State Department of Public Instruction, according to regulations established by the State Board of Education.

## 6. WHAT COURSES AND CURRICULA ARE OFFERED IN THE CENTERS?

A wide variety of courses and curricula are offered. Courses and curricula may be added when area surveys indicate educational needs. The centers are community and occupation oriented. If job opportunities are available, people can be trained for them. Examples of programs offered are:

### a. Technician areas:

- Air conditioning and refrigeration
- Agricultural equipment
- Drafting design
- Electronics
- Dental laboratory
- Production engineering
- Poultry services
- Industrial chemistry
- Agricultural chemistry (planned)
- Data processing
- Agricultural business

### b. Trade areas:

- Air conditioning and refrigeration
- Auto mechanics
- Bricklaying
- Cutting (furniture fabric)
- Drafting
- Farm machinery
- Knitting machine fixing
- Machine shop
- Radio and TV
- Sewing (furniture)
- Upholstery

A recently completed state-wide study of technical and skilled manpower requirements in North Carolina revealed a need for 6,800 technicians in 54 specialized areas and 20,000 skilled craftsmen in 34 different areas by 1966. This study not only gives us an over-all direction, but to a considerable extent indicates what courses and curricula should be offered in each of the 20 centers.

## 7. HOW IS THE PROGRAM FINANCED?

The 1957 General Assembly appropriated \$500,000 as a challenge fund for developing this new concept in education for North Carolina. Local administrative units provide the buildings and one-half the



operating costs (janitorial and utilities). The equipment, teachers' salaries, library books, and half the operating cost are borne by the state. The State Board of Education holds title to the equipment and library books. Thus, if a need is met in one area, the equipment and library books for that particular curriculum can be moved to another area of the state.

As of July 1, 1962, capital outlay has amounted to 11.1 million dollars. The value of equipment was approximately 11.3 million dollars. The smallest center has about 25,000 square feet of floor space, while the largest has 123,000 square feet.

The industrial education center program in North Carolina fills a gap in our educational system and provides our citizens an opportunity to improve themselves and keep up to date in this rapidly changing society. The industrial education center system could well be termed the "working man's university" because it is meeting the needs of the masses of North Carolina's labor force.

Each student is considered as a unique individual; thus, guidance and counseling are regarded as important functions of the industrial education centers.

The struggle for the domination of human minds in the underdeveloped areas of the world places new demands on all types of education. The future of this nation, and that of the Free World, depends upon how effectively we meet our obligations to the citizens of our respective areas. In North Carolina we believe that revitalized, broadened, and extended programs of vocational and technical education are a key to our future.