AN EVALUATION OF WORK EXPERIENCE PROGRAMS AS AN ELEMENT OF AGRICULTURAL EDUCATION IN A PANAMANIAN SCHOOL OF AGRICULTURE

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

William Allen Householder

1965

This is to certify that the

thesis entitled

AN EVALUATION OF WORK EXPERIENCE PROGRAMS
AS AN ELEMENT OF AGRICULTURAL EDUCATION
IN A PANAMANIAN SCHOOL OF AGRICULTURE

presented by

William Allen Householder

has been accepted towards fulfillment
of the requirements for

PhD. degree in Education

R. M. Byram
Major professor

Date May 11, 1965

ABSTRACT

AN EVALUATION OF WORK EXPERIENCE PROGRAMS
AS AN ELEMENT OF AGRICULTURAL EDUCATION
IN A PANAMANIAN SCHOOL OF AGRICULTURE

by William Allen Householder

Purpose. -- (1) To determine the effectiveness of individual work experience programs at the National School of Agriculture, Divisa, Panama; (2) To determine some of the factors relating to the graduate's satisfaction with his work; and (3) To determine if the agricultural leaders of the country react favorably to the school.

Method. -- Data for the study were collected from 121 Panamanians who graduated from the National School of Agriculture since 1960, and from fifty-one of their employers. Of these, 83 percent of the graduates and 71 percent of the employers responded to questionnaires.

One part of the graduate questionnaire included an experience rating scale through which graduates compared new individual work experiences, those introduced into the program of instruction since 1958, with the older and more traditional agricultural field practices and academic experiences. The questionnaire also included a scale which indicated job satisfaction.

The employer questionnaire included a series of agreement-disagreement statements which ascertained how employers felt about the school.

Chi square and testing the difference between means, utilizing "t", were the major statistical tests in analyzing the data.

Findings. -- Regardless of how the data were classified, the graduates' mean rating scores of their individual work experiences were significantly higher than mean scores for either traditional vocational or academic experiences.

Graduates rated those experiences in which they participated on an individual basis consistently higher than those experiences that required group participation.

Graduates were more dissatisfied with their jobs than average U.S.A. workers but less dissatisfied than workers in some other cultures including Mexico and European countries.

Factors relating to job satisfaction commonly found among American workers are applicable to young Panamanians launching work careers in agriculture.

Agricultural leaders of Panama emphasized the need for more skill training in agricultural production and industrialization and they believed that there should be more opportunities in adult farmer education.

Conclusion. -- Individual work experience programs, such as those described in this study, improved the program of instruction and benefited the graduates more than traditional agricultural field practices commonly associated with Latin schools of agriculture.

Factors significantly associated with job satisfaction fell into two categories: (1) those related to work conditions and (2) those related to the nature of the work in which graduates were employed.

Agricultural leaders in Panama would support considerably more out-of-school youth and adult farmer education if educators were willing to take the initiative in providing it.

Work experience programs are one way of breaking through traditional, neo-colonial and usually aristocratic patterns of education in Latin America. Experiences oriented to the individual strengthen educational programs for the masses and they challenge old value orientations. Placement for work experience should be considered by general educators as well as vocational educators.

AN EVALUATION OF WORK EXPERIENCE PROGRAMS AS AN ELEMENT OF AGRICULTURAL EDUCATION IN A PANAMANIAN SCHOOL OF AGRICULTURE

By

William Allen Householder

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

College of Education

1965

This thesis is dedicated to my daughter, Julie Ann, who accompanied me to Panama. She served as a valuable research assistant during the data collection phase of the study. She proved herself as an efficient, conscientious young worker, equally adept in either the Spanish or English language.

ACKNOWLEDGMENTS

The writer wishes to express his sincere appreciation to those persons who contributed in the development of this study.

To Doctors Harold M. Byram and Raymond M. Clark, advisors, for their guidance and assistance in conducting the study and to Doctors Troy Stearns, Ernest O. Melby and John Useem, committee members, for their counsel and encouragement.

To Nationwide Insurance Company, Columbus, Ohio, and CARE, Inc., New York, who made this study possible through a grant of money which covered the cost of travel, collection of data, data processing and a modest subsistence while the thesis was being written.

To Jose Blandon, of Panama, who provided valuable services as a research assistant.

To Señors Felix Aguila, Ruben D. Arosemena, Menalco Solis, and Raul Luacas, officials of the Ministry of Agriculture, Republic of Panama, and of the National School of Agriculture, Divisa, Panama. This group of distinguished Panamanians helped to make the collection of data possible by providing innumerable favors and services which expedited this phase of the study.

To the staff of the Michigan State University Computer Center who rendered valuable service through their assistance in using the data processing machines and the prepared programs utilizing the CD 3600 Computer.

To Mrs. William Pierce who served as a consultant and editor throughout the writing of this thesis.

Finally, to my family whose patience with a rigorous and disciplined graduate student's life has allowed the maximum utility of these years of professional improvement.

William Allen Householder

TABLE OF CONTENTS

TABLE OF CONTENTS--Continued

LIST OF TABLES

LIST OF APPENDICES

CHAPTER I

INTRODUCTION

Background for Study

There is a need to search Latin America for patterns of agricultural education at the secondary level and to describe them. Studies that evaluate the effectiveness of these programs in training youth to become successful farm operators, laborers, managers, or technicians in agriculture are essential to the overall development of agricultural education.

Purposes of the Study

The National School of Agriculture (NSA) at Divisa, Panama, has experimented with patterns of vocational agriculture throughout its twenty years of existence. In 1958 it introduced instructional programs which were completely different from anything tried in the past in that they introduced an instructional program which emphasized work experience on the basis of individual interests and needs. The major purpose of this study is to evaluate the effect of these individual work experience programs on the graduates who participated in them.

In addition to the major purpose, stated above, there are two minor purposes which complement it. First, the study will determine the extent to which the Divisa graduates were satisfied with their jobs held at the time the study was conducted, and to determine some of the factors relating to job satisfaction. Second, the study will determine the reaction of employers of Divisa graduates to the National School of Agriculture.

The study is limited to agricultural education at the National School of Agriculture, Panama, and more specifically to the program of instruction as it has developed since 1958. No graduate before the class of 1960

was questioned. While opinions and attitudes of teachers and parents are important in the evaluation of a school's program, they were not involved in this study because it would have made it too burdensome.

There was no easy way of measuring the effectiveness of Divisa's experimental work experience programs. First, the Divisa school was the only specialized school of agriculture in Panama. Even though some secondary schools offered courses in general agriculture there was no group comparable to Divisa graduates which could be used as a control. The fact that the school's academic program and administrative policies did not change during this period of experimentation serves as a form of a control. Administration procedures remained constant over the past ten years; the last major change occurred in 1953-54.

Importance of Study

Rural Latin America is characterized by (1) a rapidly increasing population, (2) generally low agricultural production, per capita, and (3) an inadequate system of agricultural education. Singularly, these characteristics represent serious problems which in time will be solved but the three problems are interwoven and present an ominous threat to every Latin American citizen. The essence of hopelessness suggests the need for constructive action as rapidly as possible. Contingent to these basic problems, Latin countries lack technically-trained people in agriculture, especially at the farm level. The educated person's apparent disdain for manual labor results in his leaving decision-making required in agricultural production and farm management to illiterate or poorly educated farm workers and traditional farmers.

Evidence is by no means conclusive that the educated rural youth, those having at least ten to twelve years of education, dislike farm work. Some no doubt do but others who have studied modern agriculture and approve its practices may not have had the opportunity to learn and master the corresponding farm skills. Therefore, while they understand modern agriculture and have formed greater expectations of it, their lack of work

experience leaves them on a verbal, academic, and non-functional plateau. Thus, their apparent manifestation of a disdain for manual labor may only spuriously relate to traditional cultural values associated with the hacienda system of the land barons who considered physical work as undignified. This suggests that the role of the secondary school in agricultural education is doubly important: first, to provide a modern curriculum in agricultural education, and second, to provide related experiences usually unattainable in the environment of the rural home.

Some people may argue that the lack of secondary schools deters agricultural education. But, for example, in Panama thirty-two government and 105 private schools at the secondary level enrolled 44,500 students in 1962.[1] Even though many of these schools offer a general course in agriculture, scarcely 3 percent, or 1,200 students, were enrolled in some type of vocational training program and the number of vocational students enrolled in agriculture was less than other vocational curricula. Some may argue that the dearth of trained teachers of agriculture accounts for so little agricultural education. However, the low demand for them discourages Latin youth from seeking this type of training.

The unsuitability of existing programs of agricultural education, itself, is a valid reason why Latin schools do not offer more vocational farm training. Many administrators reason that their curricula should offer no more than general agriculture because history tells them that only a small fraction of their graduates return to the farm. If vocational programs in agriculture could demonstrate that they encourage rural youth to seek the business of agricultural production and if programs assisted them in becoming established in the business of farming, no doubt more administrators would be encouraged to consider vocational training for farm boys.

The investigator believes that the lack of emphasis on individual work experience programs, both in school and out of school, indicates a structural weakness in programs of agricultural education in Latin America.

---

[1] Panama en Cifras, Direccion de Estadistica y Censo, Contraloria General de la Republica, Panama, 1963.

Definitions

Work Experience Program

A work experience program is defined as a realistic experience through which the Divisa graduates practiced basic agricultural skills related to agricultural production and marketing. These programs were planned and directed by the National School of Agriculture administrative and teaching staffs and sanctioned by the Ministry of Agriculture. The entire student body participates in each program; the programs are broad enough to offer all students general experience and specific enough to allow individual students to gain skill proficiency. The major work experience programs include:

1. Work experience in a newly established high grade dairy herd.
2. Individual student in-school project program.
3. Participation in the Student Multi-Purpose Cooperative.
4. On-the-farm training, an eight-week summer work experience.

Job Satisfaction

Hoppock's definition of "job satisfaction" is used in this study; job satisfaction is "any combination of psychological, physiological and environmental circumstances that cause a person to truthfully say, 'I am satisfied with my job.' Job satisfaction is not the same as vocational interest; one may be interested in his work but very dissatisfied with his job."[2]

Names Used for the School in this Study

The text will refer to the National School of Agriculture, appropriately known as Escuela Nacional de Agricultura, as (1) the school, (2) Divisa, (3) the Divisa School, or (4) by its initials NSA. The school is a part of a broader institution known as Instituto Nacional de Agricultura (INA) or the National Institute of Agriculture. The Director of INA is administrator of both the school and an agricultural experiment station, while the Sub-Director is assigned only to the school.

---

[2]Robert Hoppock, Job Satisfaction (New York: Harper and Brothers, 1935), p. 47.

Use of Spanish Words in the Text

Some Spanish words have no single word English translation, thus the use of the Spanish word itself is more meaningful.

A CAMPESINO is a Latin farmer who operates a small farm, he may own the farm outright or operate it through the practice of "squatter's rights."

PERITO AGROPECUARIO was a title which NSA gave its earlier graduates; it signifies a "practical agriculturalist."

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter reviews the literature specifically related to the purposes of the study. The three major areas include:

1. A review of related studies of agricultural education at the secondary level in Latin America and other similar areas in the world.
2. A review of literature which evaluates the effectiveness of work experience in agriculture education in the United States.
3. A review of literature describing factors relating to job satisfaction.

Related Studies

Systematic instruction in agriculture is not well developed in Panama nor in Latin America in general. In a study of six selected Latin countries 2 percent of the primary students and less than 2 percent of the secondary students received systematic agricultural instruction.[1] Of the five Central American countries four have schools of agriculture similar to Divisa, and the other, Costa Rica, has seven schools in which agriculture is taught; six depend on the Ministry of Education for their support and the seventh is directed by the Benedictine Fathers.[2]

There is little published information concerning these schools. Most of them publish a brochure or school catalog which provides prospective

---

[1]Fernando Del Rio, "Agricultural Education in Latin America and Its Promise for the Future," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), pp. 202-207.

[2]Arnoldo Escobar, La Educacion Vocacional Agricola En Centro America, Instituto de Investigaciones y Mejoramiento Educativo, a staff document, University of San Carlos, Guatemala, 1964, p. 65.

students and their parents information covering admission, program of instruction, schedule, rules and regulations and cost. School directors are required to submit annual reports to their Ministries but these, for the most part, justify what was done in a factual and quantitative manner. Some schools have made cursory follow-up studies of their graduates but these are not readily available in the literature. Letters were written requesting results from two schools known to have made such studies; however, neither replied.

Byram states that the first thorough study of needs for vocational education has yet to be made in any of the Central American countries. The countries reported no such studies nor studies in the planning stage at the time he made his investigation of vocational education in 1963.[3]

In 1958, the investigator, in cooperation with NSA, made a follow-up survey of graduates of the school from its first graduating class to 1958. A total of 303 graduates were questioned.[4] This study described many characteristics of the Divisa graduates including type of work, job tenure, continuing education, and mobility. Reference to this study will be made by calling it the "1958 study" or "the study of 1958."

One of the most complete follow-up studies of vocational agriculture graduates in a country other than the United States was conducted by O. Donald Meaders in Taiwan in cooperation with Taiwanese educators. Through the technique of interviewing, a sample of 902 graduates from Junior Vocational Agriculture and Senior Vocational Agriculture schools were questioned concerning their jobs and job descriptions, and their perceptions of the program of instruction conducted by the schools. The following findings of Meader's study have relevance to this study.

---

[3]Harold M. Byram, Informal Report on Observations of Vocational Education in Central America, An unpublished IIME report, Michigan State University, East Lansing, and University of San Carlos, Guatemala, 1963.

[4]Felix Aguila, Sra. Hilma de Mayo, and W. A. Householder, A Follow-up Study of 303 Divisa Graduates, An unpublished report that may be found in the files of the National School of Agriculture and of the Ministry of Agriculture, Republic of Panama, 1958.

1. Of 736 respondents, 41.7 percent were employed in various types and levels of government work and 58.3 percent were employed or self-employed in private enterprise. However, only 27 percent of the 736 respondents were engaged in farming as owners, renters, foremen and laborers.
2. Over 60 percent of the graduates were employed in occupations classified as agriculture.
3. Most of the graduates were employed in the service area of the school from which they graduated.
4. Of 902 respondents 13.4 percent were college students.[5]

Only a few educators in agricultural education in the United States have attempted to study the characteristics of vocational agriculture students. One of these, Orville E. Thompson, found that there did not appear to be a stereotype of the "ag. student" in California. He was not necessarily a farm boy; almost half came from towns. Only one-third of the fathers were full-time farmers and four times as many students planned to go to college as planned to go directly into farming.[6]

Effectiveness of Work Experience Programs

One of the purposes of this study was to determine the effectiveness of work experience programs related to adjustment to a life of work of the Divisa graduate. What might one expect to find? What has agricultural education in the United States experienced? The search of literature attempting to answer these questions was confined to (1) the value of work experience in agricultural education and (2) evidences of the need for work experience programs in Central American schools of agriculture.

Value of Work Experience

General and vocational educators alike recognize the need of youths

---

[5]O. Donald Meaders, Description of Agricultural Jobs Most Frequently Held by Taiwan Vocational Agricultural Graduates, unpublished manuscript, Michigan State University, College of Education, East Lansing, 1965.

[6]Orville E. Thompson, "Characteristics of California Vo-Ag Students," Agricultural Education Magazine, Vol. 35, No. 7 (January 1963), pp. 144-145.

for other than academic training. Most educators or groups of educators concur that occupational training is related to general education. The Michigan Association of Secondary School Principals published this principle dealing with occupational training, in 1959: "To develop abilities, attitudes and skills that make a person an intelligent, occupationally competent participant in the changing economic life."[7] Most lists of objectives for general education will include a similar objective.

Work experience has been regarded as the key factor from the beginning of vocational agriculture programs. Supervised farming programs adequately served this purpose for farm boys and to a lesser extent non-farm boys. More recently, agricultural educators including Clark of Michigan, Juergenson of California, Coster of Purdue, Scarborough of North Carolina, and others are searching for new and unique work experience programs which might assist an even greater number of vocational students to find work experience.

Homer Judge found that work experience among students of agricultural education in Michigan was widespread. From this statement one may generalize that the statement would hold true throughout the United States. Judge determined that 50 percent of his sample had both farm and off-farm work experience; 41 percent had only farm experience; 6 percent had only off-farm experience and only 3 percent reported no appreciable experience.[8] Judge stated and his writings revealed that these findings were in line with what other researchers have discovered as they study populations of vo-ag students.

The universality of work experience in programs of agricultural education in the United States leaves little doubt of the validity of work experience

---

[7] Philosophy and Objectives of Vocational Education, Report of Task Force Number One, Michigan Vocational Education Evaluation Project, Michigan State University, College of Education, East Lansing, Research Bulletin No. 6 (June 1962), p. 2.

[8] Homer V. Judge, "Work Experiences of Michigan School Students of Vocational Agriculture and Their Relation to Occupational and Educational Plans," unpublished Ph.D. dissertation, Michigan State University, East Lansing, 1963.

in similar programs in Panama. Activities which teach boys to work and to appreciate good work habits greatly enhance the education of youth.[9] But what is not well understood in Panama is the relationship of work experience at the secondary level to job opportunities, occupational choice and the pursuit of higher education.

Judge also found that the more hours a boy worked on a farm the more likely he would be to choose farming or an agricultural occupation as a career. Of one group that experienced over 1,800 hours of farm work per year, 70 percent aspired to work in the field of agriculture, but of those who worked 200 hours or less no more than 25 percent chose agricultural work.[10]

The association between work and vocational choice reported by Judge is not a new trend. George Deyoe, in 1939, found high amounts of farm work experience significantly associated with the likelihood that young men would select agriculture as a career.[11] Considering these findings, it is not surprising that Butler, while studying guidance concerns in vocational agriculture, reported that employers believed that 68 percent of the agricultural jobs included in his survey required farm experience.[12]

Of 246 former Indiana vocational agriculture students, Paul Hemp found that 170 said their instruction had been helpful to them in their present jobs. Those who were farming (full-time or part-time) or in related occupations rated their vocational training the most useful. Only 50 percent

---

[9] Harold M. Byram and Ralph C. Wenrich, Vocational Education and the Practical Arts (New York: The Macmillan Company, 1959), pp. 263-265.

[10] Judge, op. cit., p. 126.

[11] George P. Deyoe, Young Men from Michigan Farms, a study of farm-reared men, State Board of Control for Vocational Education, Bulletin 256, Lansing, 1939.

[12] Jimmy J. Butler, "Some Guidance Concerns in Vocational Agriculture," unpublished Master's thesis, University of Tennessee, 1959; Summaries of Studies in Agricultural-Education, Supp. No. 13, Bulletin 282 (Washington: U. S. Government Printing Office, 1960), p. 147. Also cited in "What Happens to Vo-Ag Graduates," American Vocational Journal, Vol. 34, No. 23 (December 1959).

of those in nonrelated occupations or who were in the military service or colleges believed their training had been helpful.[13]

Juergenson, of California, studied opportunities for work experience projects for non-farm vocational agriculture students with limited resources. He found a wide scope and range of work experiences available to students. His study suggests that imagination and creative thinking among teachers and students may be the most essential ingredient in developing types of work experiences suitable to any boy's need. He states that the use of work experience, with all its implications to vocational education, is only in its infancy.[14]

Wilbur Ball studied the effectiveness of farm mechanics instruction on performance of these skills on the farm. Iowa farmers enrolled in veteran's farm training classes and who had been enrolled in vocational agriculture were compared with veterans who had not been enrolled in vocational agriculture. Ball found that farmers with a vo-ag background were performing a proportionately greater number of recommended farm mechanics activities than those who did not study agriculture in high school.[15]

Establishment of graduates in significant numbers in either farming—the original objective of the National School of Agriculture—or in agriculturally related businesses has not been realized. Furthermore, factors affecting establishment have not been carefully studied. This study will relate work experience with the adjustment to work by Divisa graduates. How do individual work experiences during the school years assist graduates in becoming established?

---

[13]Paul E. Hemp, "What 246 Former Students Think About Vocational Agriculture Training," Agricultural Education Magazine, Vol. 34, No. 5 (November 1961), pp. 114-115.

[14]E. M. Juergenson, "Providing Occupational Experiences for Boys with Limited Experiences," Agricultural Education Magazine, Vol. 35, No. 2 (August 1963), pp. 40-41.

[15]Wilbur P. Ball, "How Do Vo-Ag Graduates Perform in Farm Mechanics," Agricultural Education Magazine, Vol. 31, No. 7 (January 1959), p. 49.

Robert Mitchell reported that the goal of the vocational agriculture department at Ripley, Oklahoma, was to establish young men in farming but that in fourteen years not a single student had stayed in the Ripley community to farm. However, when the department undertook the following five-step program over one-half of the graduates became established:

1. Interest — teaching the boy how he can be successful in a farming business if it is operated correctly and efficiently.
2. Selection of proper enterprises — those which hold promise for the future.
3. Financing — assistance in securing credit.
4. Land — assistance in its selection, management, and use.
5. Continuing education — after high school through young farmer training.[16]

Arthur Ahalt, who studied how young farmers in Maryland became established, concluded that one-half came into the business through a father-son agreement of one kind or another.[17]

Felix Aguila, Director of NSA, and the investigator interviewed thirty Panamanian agricultural employers in 1959 to determine their interest in cooperating with a summer on-the-farm placement program for Divisa students. Seventy-five percent were willing to cooperate. The rest were hesitant and wished to watch the program in action before committing themselves.[18]

Juergenson and Davis in a study of employer cooperation found a high receptivity within agricultural industries in California for cooperation in work experience programs. Only four of sixty employers interviewed said

---

[16]Robert Mitchell, "Our Graduates Operate Dairy Farms," Agricultural Education Magazine, Vol. 35, No. 2 (August 1963), pp. 29-30.

[17]Arthur H. Ahalt, "How Young Farmers Become Established," Agricultural Education Magazine, Vol. 30, No. 10 (April 1959), pp. 220-221.

[18]It was on the basis of this informal study that the Divisa On-The-Farm training program was started. See pages 38 and 39 of Chapter III of this study for an explanation of this program. Data are from the investigator's own files.

they would not participate in cooperative programs with agriculture education departments. The investigators concluded that these kinds of opportunities exist and that this phase of vocational education should be expanded and refined.[19]

As establishment in farming becomes progressively more difficult, students of vocational agriculture are turning more to agriculturally related occupations. Ray Agan found that owners of farm-related businesses who hired young men with vocational agriculture training were well satisfied with the effect which their vocational training had on them. Most rated their young employees as exceptional or outstanding. Supervised farming programs were mentioned most often as the beneficial phases of the program.[20]

Conclusion

The literature reveals that while work experience programs are an effective means of teaching youth about the habits and characteristics of work and that they provide considerable skill training, work experience does not guarantee a student establishment in the vocation of his choice. This conclusion may be as logical for programs of vocational agriculture in Panama as for those in the United States.

Evidence of the Need of Work Experience Programs in Central America

Studies concerning work experience programs in Central America and Panama are extremely few in number; indeed, work experience programs themselves are rarely found outside vocational or technical schools. However, evidence that programs are needed has been widely cited. Margarita Dobles, who studied the Costa Rican youth, found that student problems were closely related to the country's social, cultural, and economic problems and more specifically to rigid school curricula and traditional teaching

---

[19]E. M. Juergenson and J. T. Davis, "Work Experience," Agricultural Education Magazine, Vol. 37, No. 2 (August 1964), pp. 43-44.

[20]Roy J. Agan, "Success of Agricultural Graduates in Farm-Related Businesses," an unpublished study, Kansas State University, Summaries of Studies in Agricultural Education, Supp. No. 14, Vocational Division, Bulletin No. 291, Office of Health, Education and Welfare, Washington, D. C., 1960, p. 8.

methods. She recommended improved guidance programs and youth welfare programs in which work experience would be a vital element.[21]

Joseph Di Franco made an analytical study of the agricultural extension system in Panama in 1963. It was evident to him that the extension agents lacked a sound base in technical agriculture. He recommended that this deficiency could be improved through in-service training, short courses and leaves of absence for study. He also noted that only one-half of the extension agents received help from Ministry Agricultural specialists.[22] These findings parallel those of other evaluators who studied Latin American systems of agricultural extension; most reiterate DiFranco's recommendations.[23] Evaluators appear reluctant to urge secondary schools to play a greater role in training the agricultural technician. Perhaps they feel a futility in asking secondary school administrators to change their programs of instruction. Again, Irma Salas states, "...secondary schools are devoted to preparation for the bachillerato, leading to the university; or preparing students for the highly competitive examinations required by many universities."[24]

Another expression of the need for work experience programs by Latins themselves came during a Regional Extension Seminar held in Mexico in 1963. The delegates recommended that extension systems should intensify adult short course training for both farmers and rural women and that this training should consist of farm skills immediately applicable to the home situation. A second recommendation stated that extension staffs should include people qualified to organize and conduct adult short courses.[25]

---

[21] Margarita Dobles, "Identification of Youth Problems in Costa Rica," unpublished thesis, Stanford University, 1958, University Micro. 58-3597, reported in Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), p. 228.

[22] Joseph DiFranco, Analytical Study of the Extension System of Panama (Turrialba, Costa Rica: Organization of American States, IIAC, 1964), p. 64.

[23] Fernando Del Rio, "The Professional Needs of Costa Rican Extension Workers," unpublished thesis, Cornell University, 1958, p. 264.

[24] Irma Salas, "Secondary Education in Latin America," Phi Delta Kappan, Vol. LXV, No. 4 (January 1964), pp. 173-178. Quotation p. 175.

[25] Seminario Regional de Extencion Agricola, Para la Zona Norte de America Latina, Considerando y Recomendaciones, a conference report, Secretary of Agriculture and FAO, Mexico City, 1963, p. 18.

As a method of implementation, the delegates recommended that training centers be organized to train extension personnel in the methods and techniques of mass agricultural education.[26] The latter recommendation clearly indicates that the conferees placed little credence in the ability of the secondary high school or the university to train teachers to work with adult farmers and rural women.

Relationships between work experience programs and the cultural and social values of Latin Americans are also important. How compatible is work experience with the Latin social order? H. W. Burns, a student of Latin social values, reminds us that the independence movements throughout Latin America (such as San Martin and Bolivar) merely threw off the yoke of Iberian suppression; there were few basic changes in social organization. New republics, therefore, were founded on the colonial assumption that the proper social order included an elite minority, born to rule, and a mass majority, born to serve.[27]

Burns suggests that because of a two-class society, Latin schools have traditionally imposed aristocratic, upper-class values on all who seek an education beyond the primary level. These values constitute a set of standards and beliefs unrealistic to the masses.[28] We experience a somewhat similar situation in the United States when we impose middle-class values on low-economic status people or on the culturally deprived.

William Benton, publisher of Encyclopedia Britannica, also states that only the better families who share these upper-class values can take advantage of the education system through to the university degree. The failure to provide an adequate public secondary instruction serves to reinforce class distinction.[29] Latin America clamors for a new curriculum for its rapidly emerging middle-class citizens.

---

[26] Ibid., p. 19.

[27] H. W. Burns, "Social Values and Education in Latin America," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), pp. 198-199.

[28] Ibid., p. 200.

[29] William Benton, "Education: The Key to Latin America's Future," The Voice of Latin America (New York: Encyclopaedia Britannica, Inc., 1961), p. 47.

Chiappetta summarizes the situation nicely when he states:

> Latin America has no choice; modernization is already upon it. New cities have been born and the migration patterns in every country tell the story of the future. Latin countries have a really simple choice: They can throw their power into the development of the new tomorrow and salvage a role in the new society, or they can throw down the gauntlet and go down fighting. They cannot survive in their present form. With the change of institutions will come the change of philosophy inherent to the technology of the modern time. A new philosophy will be born.[30]

Job Satisfaction

One of the considerations of this study is job satisfaction. Are the Divisa graduates, by and large, satisfied with their work and is job satisfaction a measure of determining the effectiveness of work experience programs?

Job satisfaction has been a controversial study for many years. In 1935, Robert Hoppock defined job satisfaction as any combination of psychological, physiological, and environmental circumstances that causes a person truthfully to say, "I am satisfied with my job."[31] Most investigators agree that job satisfaction is an individual matter. Haller Gilmer, in an industrial study, concludes that job satisfaction or dissatisfaction is the result of various attitudes which a person holds toward his job, toward related factors and toward life in general. Morale, he continues, is generated by the work group.[32]

What are some of the common factors that relate to job satisfaction? O. E. Thompson studied the beliefs of a group of vocational agriculture students in an effort to isolate occupational values contributing to job satisfaction. Among these were: interesting work, appreciation from fellow workers, job security, a chance to help people, and opportunity for

---

[30] Michael Chiappetta, "Philosophy of Education in Latin America," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), p. 216.

[31] Robert Hoppock, loc. cit.

[32] Haller Gilmer, Industrial Psychology (New York: McGraw-Hill, 1961), p. 198.

self-expression. Of lesser value were: salary, making a name for yourself, being the leader or the boss.[33]

Juan Robles in a job satisfaction study of Puerto Rican teachers of vocational agriculture found that salary, teaching experience, type of school contract, farming opportunities in the community and technical preparation were significantly associated with job satisfaction at the 1 percent level. Health, marital status, number of dependents, shopping and recreation centers, water supply, post office, and other lesser factors showed no relationship to job satisfaction. It is interesting to note that in Robles' study job satisfaction scores increased after teachers of agriculture were given an in-service training program in teaching methods and community improvement.[34] This indicates that experience and technical know-how may positively correlate with job satisfaction.

Thomas reviewed the research of many investigators, including Uhrbrock, Hoppock, Super, Roper, and others, between the years of 1935 and 1950. From their work he compiled this list of factors most commonly associated with job dissatisfaction:

1. The younger more so than older people
2. Single men more than married men
3. Women more often than men
4. The inexperienced worker more often than the experienced
5. More often by people with personal adjustment problems
6. By workers whose aspiration levels are above their present level of employment.[35]

---

[33]Orville E. Thompson, "How Important are Occupational Values of Students of Agriculture," Agricultural Education Magazine, Vol. 35, No. 11, p. 238.

[34]Juan Robles, "The Effects of a Special Program of Teacher Education and Supervision Upon Job Satisfaction of Vocational Agricultural Instructors of Puerto Rico," unpublished thesis, Pennsylvania State University, 1959, Chapter VI.

[35]Lawrence Thomas, Occupational Structure and Education (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956), Chapter 9.

Rosen and Rosen associated job satisfaction with the desires of a worker. They state, when a worker sees occurring what he wants to occur in a given situation he feels satisfied and he feels dissatisfied when the reverse is true. They admit that these findings do not mean much unless an analysis of dissatisfactions is made.[36] Their opinion seems valid only when one considers a worker's state of satisfaction at any given moment; logically, desires are constantly changing.

In Robinson's and Connors' review of job satisfaction researches of 1961, they noticed that researchers used job productivity synonymously with performance, accomplishment, achievement and success. Though researchers tend to accept this similarity, years of research indicate that these are not positively related. Robinson and Connors stated that job satisfaction appears to be closely related to the work itself, to responsibility, and to advancement. On the other hand, dissatisfaction seems more closely related to company policy, administration, supervision and work conditions.[37]

They also stated that factors affecting job satisfaction vary between occupations.[38] This being the case, if the Divisa graduates work at different types of jobs they will probably need to be studied by groups. Following this, Yuzuk positively related job satisfaction to level of skill, experience, and tenure and he reported a negative correlation between supervisory ratings and job satisfaction.[39] Accordingly, the Divisa graduates with the higher grades in field work and those who rate their work experience programs the highest may prove to be the more satisfied.

---

[36] R. A. Rosen and H. Rosen, "A Suggested Modification in Job Satisfaction Surveys," Personnel Psychology, Vol. 8 (1955), pp. 303-314.

[37] H. A. Robinson, R. P. Connors, and A. H. Robinson, "Job Satisfaction Researches of 1963," Personnel and Guidance Journal, Vol. XLII, No. 4 (December 1964), p. 360.

[38] Ibid.

[39] R. P. Yuzuk, Assessment of Employee Morale, Research Monograph No. 99, Bureau of Business Research, OSU, Columbus, Ohio, 1961, p. 12.

Several researchers studied salaries as a factor affecting job satisfaction. Most agreed that it was not an independent factor but that low salaries usually accompanied other negative factors. Zaleznik reported that management rewards, including salary, did not tend to increase the overall satisfaction of the group he studied. But satisfaction did increase when individuals were rewarded by their own work groups.[40] Stein, in his study "Love Your Job?" reported that low pay coupled with chaotic work conditions and too few workers invariably reduced job satisfaction.[41]

Gilner's study offers a caution for the study of the Divisa graduates. He reports that job satisfaction is high among young workers and tends to go downward during the first few years of employment. The low point, he reports, is reached in the late twenties or early thirties and then it increases until middle age revolt sets in. He also found that satisfaction was low among young workers who fail to get ahead.[42]

Conclusion

The task of summarizing the data, beliefs and notions of hundreds of researchers in the area of job satisfaction is an endless one. However, some guidelines do emerge.

First, Hoppock, who has contributed much to this field of research, states that satisfaction fluctuates between 87 and 88 percent among the workers of the United States, and that in other countries (chiefly European) dissatisfaction may run as high as 29 percent.[43]

Second, Lawrence Thomas, who has coupled the study of occupational structure with job satisfaction, states that job satisfaction is limited to two principal interests. First there are the intrinsic or the natural influences

---

[40] A. Zaleznik and C. R. Christensen, The Motivation Productivity and Satisfaction of Workers (Boston: Harvard University Press, 1958), pp. 394-399.

[41] H. B. Stein, "Love Your Job?," Rotarian, Vol. 96 (1960), pp. 43-44.

[42] Gilmer, op. cit., p. 199.

[43] Robert Hoppock, "Job Satisfaction Researches of 1960," Personnel and Guidance Journal, Vol. XL, No. 4 (December 1961), p. 373.

which include skills, experience, the access of the worker to training, and the appeals that motivate workers to accept a job—such as salary, prestige, securities, and opportunities for advancement. The other principal interest, the extrinsic influences, affects the free operation of the labor market. These factors include: reluctance to be mobile, traditions of job tenure, influences of organized workers, inter-personnel relationships, political implications for hiring and firing and government intervention. The list in either case, of course, is not complete.[44]

A final guideline states that factors affecting job satisfaction may logically be divided into three major categories:

1. Economic factors — including income, security and opportunity for advancement.
2. Personnel relations — including considerations received from superiors, congenial associations, and opportunity to render services.
3. Direct work satisfaction — including varying routines, work conditions, interest in job, degree of independence and opportunity for self-expression.[45]

Job satisfaction appears to be highly personal. A person may be satisfied with one aspect of his job and dissatisfied with another and between them the individual finds a satisfaction level. Considering the design of the study (presented in Chapter IV), the review of literature on job satisfaction suggests this study should be limited to (1) determining some of the intrinsic factors related to satisfaction, and (2) to determine which of these might relate to work experience programs.

Chapter Conclusion

The review of literature in Chapter II was confined to three major areas: (1) related studies, (2) the effectiveness of work experience, and (3) job satisfaction. Few related studies were found. This suggests the Divisa

---

[44] Thomas, op. cit., p. 220.

[45] Ibid.

study may be pioneering the way for similar Central American studies. Literature pertaining to the latter two areas was abundant, in fact, overwhelming. That which was cited had the greater relevance for this study.

In a sense Chapter III is a continuation of the review of literature. This portion will be confined to a historical review of the National School of Agriculture and to the agricultural situation prior to the time the School was founded. This chapter is important to the study in that it shows that both agriculture and agricultural education are relatively new to the Republic of Panama.

CHAPTER III

HISTORICAL REVIEW OF THE NATIONAL SCHOOL OF AGRICULTURE

The Agricultural Situation Prior to the Founding of the School

Columbus, on his voyage of 1502, crossed the Atlantic and touched on the islands off the coast of what is now the city of Colón.[1] Balboa followed Columbus in 1515 to explore the tiny neck of land connecting two great land masses in the hope of discovering the fabled water route to the East Indies. He sailed into each large inlet and up every river along the coast, but each attempt ended in an insect-infested swamp or he found himself in the headwaters of the rain-drenched highlands of the Isthmus. Balboa learned that a continental divide rising to heights of 1,500 feet dashed any hope of a water passage. On foot he explored inland and from a promontory he became the first European to gaze over the expanse of the Pacific Ocean.

The fifty miles across the Isthmus were not so formidable that a trail could not be hacked out of the jungle. The trail became well established, and whoever controlled the trail controlled the Isthmus of Panama. Balboa, Pedrarias and the pirate Morgan used Las Cruces Trail to pack gold and silver which they had plundered. The trail served as an overland portage for goods arriving by ship from the west to ships waiting to carry it on to Europe. The history and the romance of Las Cruces is a fascinating and little known story. Over it a thriving commerce developed and years of intermittent prosperity followed until the great depression of the 1930's struck the republic of Panama.

The California gold rush was a boon to Panama during which the local

---

[1] "Panama," World Book Encyclopedia, 1959 ed., Vol. 13, p. 6068.

merchants and producers waxed fat from innocent and unknowing travelers. The Isthmus provided an alternate route for those who did not care to travel overland to the goldfields. Many gold miners and adventurers sailed in comparative comfort from the East coast of the U.S.A. to Portobello, the trail's Atlantic terminus. Next they rode horseback or walked the fifty-mile trail to the Pacific where waiting ships carried them on to California.

Close on the heels of the Barbary pirates and the exodus to the goldfields came a new adventure. The dream to dig a large ditch to let ships pass from one ocean to another was conceived by Balboa as early as 1517. Cortez was convinced that an artificial waterway was possible and the German explorer, Alexander von Humboldt, wrote in 1800 that he believed an international waterway through Nicaragua was as feasible as one across Panama.[2]

The French, in 1878, under the leadership of De Lesseps were the first to attempt digging the famous waterway. Their plan was a sea level canal, but De Lesseps and his engineers did not reckon correctly with the physical elements of the task that lay before them; malaria, yellow fever, the incessant rain and heat along with the quick recovery of the jungle presented insurmountable barriers. Landslides took a heavy toll on the ill-equipped and poorly-financed French Canal Company. After years of struggle, the French sold their concession and equipment to the United States government for $40,000,000. The latter assumed the responsibility and finished the canal.[3] The first vessel passed through the Panama Canal in 1914.

The construction and operation of the Canal brought additional years of prosperity to the Republic and World War I, and the peace that followed, kept commerce at a high level. For centuries, first Las Cruces trail, then the trans-isthmus railroad, and finally the Canal were the bulwark of Panama's economy; agriculture played a very minor role.

---

[2] Ibid., p. 6072.

[3] "The Fifty Years Since Construction Commenced," Panama Canal Review, Vol. 4, No. 10 (May 4, 1954), p. 2.

The great depression came during the 1930's on the heels of prosperity and the entire Western Hemisphere reeled under its impact. For decades, rural people had migrated to the Canal Zone where they found unskilled work at either terminus of the canal. For most it meant a substantial improvement in their standard of living. During the depression this rural to urban migration no longer proved a blessing. As employment opportunities slackened, government officials became alarmed with increased unemployment, developing slum areas, diminishing amounts of money in circulation and the deteriorating economic conditions in general.[4]

The Agricultural Situation, 1930

Prior to 1932, agriculture was limited to two types of farming: production of cattle on the large haciendas and traditional farming practiced by the native campesino. Over the years, a curious symbiotic relationship developed between the large hacienda owner and the campesino.[5] While the cattlemen needed his land cleared of brush and forest, the campesino needed fertile land on which to grow his crops of rice, corn and beans. The former allowed the campesino to slash and burn his land and to use it to plant his crops. Their methods of farming have changed but little through the years to the present day; the campesino plants rice the first year, corn the second and abandons the land the third year. Native grasses and other cover plants then take over and, provided the cattleman prevents the return of woody plants, he has suitable pasture for his cattle.

"Machete farming" has been the outgrowth of this practice. The campesino uses his machete, a wide-bladed, knife-like tool eighteen to twenty-four inches long, to clear his land, weed his crops, harvest his rice and for scores of other purposes. The other common tool is the planting stick. The farmer's investment, therefore, is very low. He relies on no

---

[4]Menalco Solis, "Fifty Years of Agriculture," Fiftieth Anniversary of the Republic of Panama, Imprenta Nacional, Panama, 1953.

[5]Much of the history reported in this section was given to the investigator by Glaister Baxter, one of the founders of the Divisa School, through a series of interviews, August 1964.

form of farm power or machinery simply because his method of farming is conducive only to hand tools, principally the machete. The observation that the Panamanian farmer does not traditionally use ox or horse power nor any form of simple machine, as the walking plow, often puzzles the North American observer. The reasons, however, clearly manifest themselves once he understands the principles of "machete farming."

This is a subsistence type of farming. One man with the aid of his family can produce little more than the food and fiber necessary to sustain the family. One of the reasons Panama annually imports rice and corn, its staple crops, is that the small farmer produces so little over what he consumes. With a population increase of over 3 percent annually, with 88 percent of the rice still produced by traditional methods and with no substantial increase in annual crop yield per acre, the situation is serious.

An Agricultural Conscience Evolves

It is not unfair to state that an agricultural consciousness was born during the 1930's. Armodio Arias, elected president in 1932, realized the severity of the on-coming depression, and being of *campesino* stock, he also noted that during periods of a declining economy it was advantageous to the economy to keep the farmer and his family on the farm.[6] He conceived the idea that guaranteed markets would motivate rice production; if farmers knew in advance that they would receive a suitable price, they would be encouraged to produce more, thus alleviating the need for importing rice and, at the same time, curbing rural migration. The government's entry into the subsidized rice business is reported as one of the earliest government involvements in agriculture.[7] It is interesting to note that at the time when the United States government was facing its most serious farm crisis and low prices and overproduction threatened to ruin the farmer, the Government of Panama was only beginning to take some responsibility in agricultural development.

---

[6] *Ibid.*

[7] *Ibid.*

Dr. Arosemena, who became president in 1936, continued the development of a national consciousness to agriculture. He sought informed men for important agricultural posts. One of these, Anibal Rios, was appointed Secretary of Education and Agriculture.[8] Secretary Rios, already well acquainted with the rural situation, believed that Panama had to find new resources other than commerce. He expressed this belief when he wrote:

> The rural area, with its almost virgin agricultural riches, should and can provide the possibilities for national development for which we strive and the moment has arrived to exploit it. If we can do so, we will remove the dead weight of our rural population and integrate them into our national economy as assets rather than liabilities.[9]

Secretary Rios became impressed with Jamaica'a rapidly developing agriculture and suggested to the president that a Jamaican agricultural expert be brought to Panama to assess the situation and recommend new methods for agricultural development. The Arosemena administration ultimately accepted Rios' suggestion and Mr. Glaister Baxter was brought to Panama to conduct the Republic's first comprehensive study of agriculture. Baxter was well qualified for this job. Prior to coming to Panama, he was National Executive Secretary of the Jamaican Agricultural Societies, a job which increased his awareness of the role of the small farmer in the development of a country's agriculture.

During his first year in Panama, Baxter made a thorough study and wrote his recommendations.[10] Among these he emphasized development of markets, dry season irrigation, introduction of new breeds of animals and varieties of field crops, and parasite and disease control. More important, he recommended the establishment of a dual-purpose agricultural

---

[8]The official name of this position was changed to Minister of Agriculture, Commerce and Industry in 1940. In 1965 it was again changed to Minister of Agriculture.

[9]Glaister Baxter, El Problema Agricola de Panama, a memorandum to the Secretary of Education and Agriculture, with an introduction by the secretary himself, Anibal Rios, Imprenta Nacional, Panama, 1957, page v.

[10]Ibid., p. 63.

station; first, for investigating new farming techniques and second, to offer facilities for agricultural education. Baxter hoped that a new program of instruction would be more advanced and more practical than that presently offered by the normal training schools. He perceived the agricultural station as a demonstration farm. In his final recommendation he noted the need for training agricultural instructors to work directly with adult farmers. No doubt, the latter recommendation was influenced by Baxter's association with the Jamaican agricultural societies which employed this technique of adult education.

Using the prerogative of hindsight, these constituted a remarkable set of recommendations. Few "experts" of the time would have stressed the need for agricultural education for both the youth and adult farmers.

Baxter submitted his recommendations to the Secretary of Agriculture in 1937, and in an appendix he outlined a $115,000 budget for the construction of the National Institute of Agriculture.[11] The Secretary read it with favor and issued an order to print and distribute the report; undoubtedly it was the most important agricultural document for Panama ever printed prior to 1940. The irony of Baxter's request for $115,000 lies in the fact that the Department of Agriculture operated on a biennial budget of $60,000. And equally ironically, Baxter was instructed to look for a suitable site of land that would serve the needs of the proposed institute.

Secretary Rios had inherited a slush fund which had been building up over the years from the profits of the government rice mills. Since no precedent for the use of this fund existed, the government decided to use the money to purchase the land selected as the site of the New Institute.[12] Six hundred hectares of land, at a cost of $33,000, cradled alongside the Santa Maria River were purchased.[13] The site was located near a junction in the Interamerican Highway leading out of Panama City; one road continues

---

[11] Ibid.

[12] Ibid., p. 65.

[13] Six hundred hectares are equivalent to 1,430 acres.

on to the Costa Rican border, the other turns toward the Peninsula area. A small settlement located in the vee of the junction is named Divisa. The name signals the approaching traveler that the road divides.

The Department of Agriculture now had a national farm but no funds to develop it. Interestingly, at about the time of the land purchase, the national police confiscated a hoard of contraband gold worth over $30,000. Rios, astute as well as a dedicated government official, claimed a large part of this windfall to buy a bulldozer, machinery and other equipment needed to clear both building sites and fields.[14] Shortly thereafter, the legislature approved a special budget for the construction of Institute buildings and facilities, including school buildings, experimental facilities, residences, offices, shops, livestock facilities, electric power and a water system.

Thus, the Instituto Nacional de Agricultura, INA, became the Republic's first agricultural development institution. The objectives of the Institute were simple but exacting:

1. To demonstrate agriculture as a means of living.
2. To provide farmers agricultural improvement services in improving their livestock and crops.
3. To educate young men in practical agriculture. (This objective was further divided into three sub-objectives.)
   a. To develop a two-year training course in practical agriculture for young farmers, farm and dairy managers and nurserymen.
   b. To develop a three-year course by adding a third year for the training of specialists.
   c. To develop a four-year course for training teachers of agriculture who would work with adult farmers as well as teach school.[15]

Sub-objectives a and c never developed. The program of instruction started as a three-year program and remained unchanged until 1960 at which time the school initiated its adult farmer short course program.

---

[14] Glaister Baxter, interviews.

[15] Baxter, op. cit., p. 75.

The Formative Years, 1940-1952

In 1939, after the first Institute buildings had been started, President Arosemena approved the plans for building the National School of Agriculture and construction started soon after. Unfortunately, Arosemena died before the school was finished and Samuel Boyd succeeded him, serving the one year of the unexpired term. In view of his short tenure of office, Boyd made every effort to complete and dedicate the school while still in office. Fortune again smiled on the Divisa school in an ironic manner: the Boyd administration, desiring to leave an impressive remembrance of the administration, decided to increase the size of the building and to appropriate additional money for better construction materials. The school building is destined to stand many years.

The Institute was officially named in 1941 and Baxter served not only as its founder but interim director until June 1941 at which time he was requested to organize the first Agricultural Credit Agency in the province of Chiriqui. Dr. Menalco Solis, Panamanian born and graduate of Cornell University, was selected to succeed Baxter and in July 1941 he became the first full-time director of the Institute.[16] This included both the experiment station and the school.

Organization of the School

The first forty students enrolled in March of 1941 to pursue the three-year curriculum in practical agriculture.[17] In subsequent years, however, the second and third year students started the scholastic year on the first Monday in January while the first year students started in March. This unique arrangement enabled the first year students to finish their last year

---

[16] Mr. Baxter now lives in retirement on the Santa Rosa Sugar Plantation, where he has served as a production technician for the last twenty years.

[17] The source of the data used to describe the early years of the school is: Roy W. Roberts (ed.), Recommendations for Reorganizing the Resident Teaching Programs of the National Institute of Agriculture, Divisa, Panama, November 1951. This typewritten publication, bound in hard covers, was limited to five copies in English and five copies in Spanish. One copy of each may be found in the files of the Divisa School.

of public school (May through January) and the older students to study and practice irrigation and dry season farming (January to May).

The school year, consisting of forty weeks, was divided into four ten-week terms with a two-week vacation occurring between the second and third terms. This system made it possible to offer any one course in agriculture for a period of ten weeks or multiples thereof.

Eight forty-five-minute class periods were scheduled between the hours of 7:00 a.m. and 4:00 p.m.; however, there was a two-and-one-half hour break between 11:00 and 1:30. All students took the same program; there were no electives. The students had no free periods or study halls during the daily schedule but at night they studied for two hours under supervision. When possible an educational or entertaining movie was shown once a week.

The Curriculum

During the first ten years, the school offered a wide variety of courses in agriculture and general education. For example, the first year students studied general agriculture, agricultural engineering, animal husbandry, entomology, irrigation and drainage, mechanical agriculture, plant pathology and surveying. Their academic subjects included algebra, arithmetic, biology, geometry, grammar, mathematics, physics, Spanish, and zoology. All courses were offered with regularity provided that instructors were available.

The second year program consisted of a continuation of many of the first year courses plus the addition of agricultural chemistry, agronomy, fruit culture, gardening, industrial crops, rural construction, rural sanitation and veterinary science. Bookkeeping, chemistry, civics, and meteorology were new academic courses.

Most of the course titles in the third year were continuations of those offered the first two years. However, advanced subjects including agricultural economics, animal nutrition, animal breeding, bee culture, cooperatives, farm management, and national agricultural problems were added.

Roberts reported that a total of forty-eight different course titles were offered in the three year program with an average of about sixteen different titles each year. Some extended over four terms while a number of them were scheduled for only ten weeks. Concerning their field work, Roberts gives this account:

> Each student in 1951 completed an average of eighteen hours of practice work per week in the fields and laboratories. This work is designed to supplement class instruction. However, it frequently consisted of farm labor in clearing land, cutting grass and keeping up the school farm. In many cases it had little instructional value.[18]

The Instructional Staff

The National Institute of Agriculture maintained a staff of eight technicians, each having the obligation to teach and to conduct agricultural experimentation. In addition to these people, four other staff members provided the academic instruction. A person designated as the "subdirector" was in charge of the school. His duties were similar to a high school principal in the United States, while the responsibilities of the Institute Director corresponded closely to those of a superintendent of schools.

The academic training of these instructors varied widely. Roberts gives this account of the instructors who taught at least one term in 1951:

1. Five instructors had no college preparation.
2. One was a graduate of a vocational school in Cuba.
3. Two instructors had the equivalent of two years training at the University of Panama.
4. Two were graduates of colleges of agriculture in the U.S.A.
5. One was a graduate of the University of Puerto Rico.
6. One had a Master's degree from the University of Florida.
7. The instructor of Veterinary Science held a D.V.M. degree from Central University, Ecuador.[19]

During this period, 1940-1952, the instructional staff was never stable. An assignment at Divisa was often used as a stepping stone to some better

---

[18] Ibid., p. 6. [19] Ibid., p. 7.

job; the Institute was a good place to gain experience and prestige for better jobs.

The teacher load varied. In 1951, the number of hours spent in the classroom varied from 0.38 to 17.88 per week, with an average of 8.07 hours.[20] Presumably the difference between time spent in teaching and the normal forty-hour week was spent in agricultural research or in teacher planning.

The Students

The National School of Agriculture required its student candidates to have at least six years of schooling and to be fourteen years of age. There were no upper age limits, and for this reason wide ranges in age and years of education existed. Roberts reported that those enrolled in 1951 ranged in age from fourteen to twenty-six and six to ten years of education. The averages were eighteen years of age and seven years of education.[21]

The school registers show that a total of 420 students enrolled in the National Institute of Agriculture during the first decade of the school's history. Of this number 219, or 54.5 percent, graduated, while 211 dropped out of school. Roberts stated that the major cause of dropout was failure to pass the required examinations which eliminated them from the school. Interestingly, approximately 70 percent of those who graduated had no more than six years of primary education. Records of educational backgrounds are not available on the first classes, but the class entering in 1951 illustrates the heterogeneity of educational backgrounds:

Of 40 students who enrolled in 1951	17	graduated
11 had finished the 6th grade and	10	graduated
5 had finished the 7th grade and	3	graduated
8 had finished the 8th grade and	3	graduated
12 had finished the 9th grade and	1	graduated
4 had finished the 10th grade and	0	graduated.[22]

---

[20] Ibid., p. 8. [21] Ibid. [22] Ibid., p. 9.

This same trend occurs during the years before 1951. The investigator interviewed several INA professors who taught during this period and while their opinions varied, many thought that they geared their instruction to the students with the least education. They were also the younger and more aggressive students. The students with more years of education were older and more definite in what they wanted out of a practical program of agricultural training. When the program did not come up to their expectations, motivating them was more difficult and many found it profitable to drop out and to return to regular secondary schools or return to their homes.

Upon completion of his three years of work the student received a certificate entitled, "Perito Agropecuario," which translates into "practical agriculturalist." For all practical purposes this certificate terminated a boy's education, inasmuch as it was not honored as an admission prerequisite at universities in Panama, other Latin countries, or the United States. If a student wanted a college education he had to first complete the last three years of regular high school; known as the second cycle of the Ministry's approved program for secondary education, tenth, eleventh, and twelfth grades. Therefore, the time at INA was largely wasted if one considered college. Moreover, students usually needed to repeat ninth grade in order to pick up such courses as music appreciation before they could be admitted into second cycle. This unwitting feature of terminal education was widely controversial. Students loudly protested it and the reorganization occurring in 1952 and 1953 centered around accrediting the National School of Agriculture.

Raising the School's Academic Standards, 1952-1957

The second epoch in the history of the Divisa School started in 1952 with the advent of the Arkansas University Agricultural Mission to Panama. The Arkansas Mission became a part of the Servicio Interamericano de Cooperacion Agricola en Panama (SICAP) with the signing of an agreement creating the Servicio. This agreement was between the Government of Panama and the Institute of Inter-American Affairs (IIAA) of the AID program.[23]

[23]Menalco Solis, "Eleven Years of Technical Cooperation in Agriculture and Natural Resources," A SICAP Publication, July 1953, located in the library of the Ministry of Agriculture, p. 53.

The work of the Mission was formalized as a part of the total cooperative agricultural program of SICAP. The agreement gave the Mission the responsibility for (1) organizing, developing, and teaching an appropriate curriculum in agriculture at the National School of Agriculture, (2) organizing, developing, and operating a national research program in agriculture, and (3) organizing, developing, and operating a program of agricultural extension throughout the Republic of Panama.[24]

The Mission, in cooperation with the director and staff of the National Institute of Agriculture, planned the reorganization of the program of instruction during the first year that it was in Panama. The plan was outlined in detail in a typewritten report titled, "Recommendations for Reorganizing the Resident Teaching Program of the National Institute of Agriculture, Divisa, Panama."[25] It described recommendations for altering the course of studies, modernizing methods of teaching and introducing an in-service teacher training program. These recommendations stemmed from state-side educational procedures and from the vocational education philosophy of meeting the needs of students.

The most significant change resulting from the reorganization of the school was the elevation of the school to the level of an escuela bachillerata or accredited high school. In order for this to happen the following occurred.

Selection of Students

Candidates were now required to be at least fifteen years of age, to have the equivalent of nine years of education, to have a transcript of grades, and three letters of recommendation from responsible citizens who knew them. Each candidate took a series of five standard tests including mental ability, reading, natural science, social studies, and language; these were prepared by the Educational Testing Service, Princeton, New Jersey. A personal interview determining the candidate's interest in agriculture, leadership ability, and personal qualities terminated the selection procedure.

---

[24] Ibid., p. 56. [25] Roberts, loc. cit.

The School Year

The scholastic year was changed to coincide with that of other secondary schools in Panama, meaning that the school year now commenced the first week in May and finished in February. This change eliminated the opportunity to conduct classes and field practice during the important dry period season and made teaching irrigation practically impossible. It also extended classes through the months of October and November, the months of intense rain which permits little field work.

The Program of Studies

The reorganizers believed that course content should be organized along the departmental lines of agronomy, animal husbandry, horticulture and farm shop and that school farming operations should relate to classroom work. They selected enterprises (corn, rice, dairy, poultry, and so forth) for instruction on the basis of their importance to Panama. Copying the system practiced in the State of Arkansas, planners grouped crop enterprises for instruction during the first year, livestock enterprises the second, and horticulture and farm management the third year. They tried to coordinate classroom work with the time of year it applied to actual field work. Finally, they assumed that inasmuch as boarding students could not develop home projects, they would at least have the opportunity for work experience on the school farm through the media of class projects.

Fifty percent of the revised curriculum was devoted to courses in agriculture; academic courses consumed the other half. The latter were limited to mathematics, physics, chemistry, social studies, Spanish, biology, and later, NSA introduced a course in English. This series of courses made it possible for graduates to meet college entrance requirements in Panama as well as in some foreign universities.

The Class Schedule

Class periods were increased from 45 minutes to 55 minutes which lengthened the school day by one hour, from 4:00 to 5:00 p.m. This was necessary to incorporate the extra academic courses required to qualify the school as an accredited institution.

Teachers

Heretofore, the director of the Institute had tailored the program of instruction to the availability of his technical staff. Likely as not, if no horticulture technicians were working at Divisa, the horticulture course was not taught. This situation prompted the Mission to recommend two or three full-time teachers of agriculture. The Mission director hoped qualified vocational teachers could be found. As the situation developed qualified teachers were not easily located and more often than not the school had to settle for college graduates having a Bachelor of Science degree in agriculture.

The Methods of Teaching

Major problems occurred in the area of adapting stateside vocational agricultural practices to the teaching situation in the Divisa School. The teachers' lack of experience in vocational education made it difficult for Mission advisers to introduce new methods. Through in-service training they had moderate success in introducing and demonstrating improved teaching techniques, but teacher turnover was high and the effect on individual teachers was immediately lost if one resigned.

The training procedure needed to be repeated for each new teacher. In spite of the Mission's in-service training programs, the traditional lecture method of teaching tended to prevail. Supervised study, question and answer and discussion periods, day-to-day planning, and coordinating field and classroom activities and laboratory techniques were alien and often incomprehensible to new teachers of agriculture.

Other Minor Changes

The Mission attempted to improve the facilities of the school by developing a library and visual aids program. It encouraged policy changes in student regulations which brought a greater amount of order to the classroom scene. Lastly, the school developed pupil personnel records, a necessity in preparing credentials for college admission.

Considerable progress was made during the time the Arkansas Mission

worked at Divisa. The school became an accredited high school and the University of Panama and other Latin institutions of higher learning began accepting its students. However, accreditation deemphasized work experience programs. More time was devoted to academic work, and even the classes in agriculture became more academic. Teachers placed a higher value on the examination grade as a means of evaluating student progress than they did on the student's skill ability. In fact, field work became an obstacle to some students who considered their high school diploma their only reward for three years of study at NSA.

The Vocational Reaffirmation, 1959-1964

After completing six years of work at the National Institute of Agriculture, the University of Arkansas terminated its contract in 1957. US/AID continued technical assistance at the school by employing a vocational agriculturalist. However, this position was terminated in March 1962 and since then AID has provided no more than financial assistance.

An analysis of the school's situation, starting with the school year 1958, found students poorly trained in the basic skills of agriculture. In fact, neither the Ministry of Agriculture nor private agriculture readily sought the graduates for employment, and because graduates lacked capital, credit, breeding stock and equipment, they did not have the means to establish themselves in farming.[26] It was a situation where students were not easily motivated, where teachers lacked the ability to challenge and inspire students, and where the Ministry felt that each expenditure of money was a poor investment. It was the kind of situation where everyone was at fault but nobody was to blame.

School administrators agreed that a revision of the school's objectives was necessary. They first conducted a survey of graduates to gather baseline data to determine how well the school was meeting the needs of the students. Of the 300 graduates included in the survey, they discovered

---

[26]W. A. Householder, End of Tour Report, March 1962, an unpublished report located in the files of US/AID, Washington, D. C., p. 2.

7 percent in farming, 27 percent working for a salary in private agriculture, and 66 percent in government. The study revealed that becoming established in farming was difficult and that the objective of training farmers was unrealistic.[27] As a result of the survey the administration decided to revise the school's major training objective; it now reads, "To train students to be readily employable in agriculture; in so doing, students will be prepared for eventual opportunities to become established in farming." The key word in the revised objective is "employable."[28] It left little doubt in the minds of the administrators that students would need more practical and less academic agricultural training; meaning, work experience programs.

Summer Placement Program

The first work experience program involved summer placement of students on reputable Panamanian farms for a period of eight weeks between their second and third year of instruction. The program gave students an opportunity to study actual farmer problems, to share in work experiences, and to assume responsibilities not possible on the school farm. Exposed to real farm living, they discovered conditions different from those in their own homes. Each participating farmer boarded and lodged his trainee, gave him a little pocket money (fifteen to twenty dollars per month), and the opportunity to work at as many farm jobs as possible during the eight weeks. In return, the student agreed to the work conditions stipulated by the farmer. To some students, a ten to twelve hour work day was a rude awakening.

The students returned to the school after their on-the-farm training with an air of maturity seldom observed among third year students. Each felt a sense of accomplishment. The teachers commented that students related their experiences to classroom instruction more readily and that they perceived the problems of Panama's developing agriculture more clearly.

---

[27] Felix Aguila, Sra. Hilma de Mayo, and W. A. Householder, A Follow-up Study of 303 Divisa Graduates, an unpublished report that may be found in the files of the National School of Agriculture and of the Ministry of Agriculture, Republic of Panama, 1958.

[28] Householder, op. cit., p. 3.

The director was pleased with the first year's results and following his favorable report to the Minister of Agriculture, the Minister decreed on-the-farm training as a requirement for graduation. Farmers, likewise, became more involved; for the first time in the school's history farmers and teachers became acquainted with each other and with their respective problems. The cooperating farmers gave suggestions for improving the program and four cooperators actually hired their trainees as soon as they graduated from Divisa.

Establishing a High-Grade Dairy Herd

The students who came to the school expected to find livestock and equipment of a quality commensurate with the modern practices of agriculture. Therefore, it was small wonder that the student body developed little pride in the few native cows which the school called its dairy herd; they symbolized the crudeness of Panamanian agriculture. It wasn't that the school did not recognize its problem because there were adequate dairy facilities: a good barn, ample pasture, and plenty of labor. Also, the school had a great need for the milk. There simply were not sufficient funds to purchase quality breeding stock.

INA proposed a project to CARE to contribute $2,750 to purchase ten bred Brown Swiss heifers from a local dairyman who raised high-quality stock. CARE approved the project and the animals were purchased in 1959. They were beautiful animals and the third year students immediately adopted them as "our herd." They washed and groomed the heifers and taught them to lead. This motivated the animal husbandry professor to teach showmanship and to hold showmanship contests among the students. Suddenly many things became important: pasture fences needed repair, leaky water lines had to be fixed, feeding and management programs were discussed in class, and the students agreed that a work detail would have to be on duty during the week-end and vacation periods. To the knowledge of the writer, whose residence was in full view of the dairy barns, the new herd never went without being milked.

Individual Student Project Program

The requirement that students must board at the school virtually eliminated the possibility of home-supervised farming programs. However, in 1959 the staff experimented with in-school individual projects with students using school facilities. The idea of every student having an animal or crop project within the confines of the school, at first, seemed impossible. The staff realized that students would need a source of credit to finance projects and the school's relative isolation posed the question of how to get production supplies into the school and products to outside markets. Finally, there was no assurance that once a student started a project he would sustain interest in it. These problems had to be tested and the director agreed to a pilot demonstration.

The school loaned money to a group of three boys to conduct a broiler project and to another group for a sow and litter project. The farm shop teacher helped the groups to build their equipment and the animal husbandry teacher taught them how to write project plans and he supervised their management. The groups of boys agreed to do all the work, including weekends and holidays. They took all the profits and assumed all risks. Each group was successful; project income not only paid off their loans but each boy made a profit. Interestingly, the entire student body remained suspicious of the school's promise to let the project owners keep the profits. They were not convinced of the school's sincerity until the pilot groups actually pocketed the money. For the first time in the history of NSA the profit motive became an incentive for learning.

The Student Cooperative

As soon as the pilot projects proved a success, other students requested individual projects. But the problem of securing credit for every boy who wanted a project remained unsolved. The school lacked sufficient funds for a rotating loan system and all other sources of credit were either unavailable to youth groups or they entailed too much red tape. The director, teachers, and students alike realized that a multiple-purpose cooperative

would solve many of their problems if they could accumulate sufficient capital. They agreed that the students might collectively save enough money to start a cooperative but it would take too long to accumulate the $2,000 needed.

The National Council of Cooperatives, Panama City, agreed that the students could legally operate a cooperative if the director of the school would serve as its legal counsel, and the Minister of Agriculture approved the idea of a cooperative, but neither could supply funds. Appealing to CARE for the second time, the school proposed a $2,000 loan fund. CARE suggested the project to the Nationwide Insurance Company whose employees and agents sponsored a Central American self-help program. After due consideration, they donated the money through CARE and in June 1960 the Student Cooperative was organized. It was a fitting gesture that the students should name their cooperative, "La Cooperativo Juvenil Glaister Baxter." With the $500 saved by the members, the cooperative started with a working capital of $2,500.

The cooperative elected a five-man board of directors and a supervisory committee for each of three sections. Of these three the saving and loan section reviewed and processed loans and deposited member savings; the production section purchased project supplies including feed, medicines, seed, and fertilizer; the farm machinery section controlled the use of the Ferguson tractor and the four pieces of machinery which CARE/Nationwide donated.

To become eligible for a project loan, members were required to present project plans indicating size, estimated expenses, facilities, management procedures and labor arrangement if the project included a partner. The director of the school reviewed the plans and if he approved, sent them to the loan committee. In the beginning the by-laws limited each member to a $50.00 credit privilege. This was increased, however, as the cooperative increased its capital.

Summary

The historical review of the National School of Agriculture emphasizes two significant points:

1. The late development of agriculture in Panama, starting in the third decade of this century, is chiefly responsible for the lack of technical agricultural experiences.
2. As a result agricultural education is poorly developed and few trained educators exist.

From its inception in 1941, the program of instruction at the school was practical and it emphasized agriculture more than the academic subjects. But this approach had the effect of terminating a boy's education simply because he could not qualify for any type of higher education other than technical training of short duration. The terminal nature of the school influenced officials to reorganize the program and the shift was a swing to the academic side. As a result the school became accredited as an institution for college preparation.

The shift away from practical training, however, produced a higher percentage of unemployable graduates. A survey conducted in 1958 showed many of these young men doing menial work. Private agricultural employers found them unqualified workers because they did not know the practical skills and they denied graduates managerial positions because they lacked maturity. Most had government jobs.

Since 1957, NSA has attempted to solve the dilemma with a middle of the road approach; it has maintained its academic standards but it introduced work experience programs which provided the student both practical and individual agricultural experience. Four major programs are:

1. Summer on-the-farm placement for work experience
2. In-school individual project program
3. Work experience in a high-grade dairy herd
4. Organization of the student cooperative.

How effective have these programs been? Are recent graduates more employable? What influence have they had on the boys who participated

in them? This study attempts to answer these and other questions.

Chapter IV describes the design of the study and the procedure followed in conducting the study. A period of three months was spent in Panama collecting the data. The rest of the study was accomplished on the campus of Michigan State University.

CHAPTER IV

PROCEDURE OF INVESTIGATION

Introduction

Most aspects of the National School of Agriculture have never been adequately described in either Spanish or English literature; therefore, the decision was made to cover more than a single aspect of the school in this dissertation. As stated in Chapter I, the purposes of the study were (1) to evaluate work experience programs at NSA, (2) to determine extent of job satisfaction and some factors relating to job satisfaction, and (3) to determine how employers react to the school.

In order to clearly differentiate, the three purposes were designated as hypotheses. These are as follows:

Hypothesis Number One relates to the effectiveness of work experience programs.

Hypothesis Number Two relates to job satisfaction.

Hypothesis Number Three relates to employer perception.

The purposes of this chapter, therefore, are to:

1. Introduce the two basic instruments used in the collection of data.
2. Describe how each hypothesis was treated. Under the heading of each hypothesis the respective instrument or scale is fully described including its origin and validity.
3. Describe the data collection procedure including: populations, testing equivalency of instruments in two languages, reliability, printing, mailing out questionnaires, follow-up and percent of returns.

The Basic Instruments

Data collection was dependent upon two questionnaires which were

developed for the Divisa study. The investigator traveled to Panama in the summer of 1964 to personally conduct this phase of the study.

The Graduate Questionnaire

The printed, eight-page questionnaire for graduates is included in Appendix A. This instrument was designed to collect the data needed to test Hypotheses Numbers One and Two. It consisted of three major sections:

1. Personnel data and employment history - all parts of the questionnaire except Parts VII and VIII. These data were not extensively used to test the hypotheses.
2. An in-school work experience rating scale - Part VII - designed to test Hypothesis Number One.
3. A scale to determine job satisfaction or dissatisfaction - Part VIII - designed to test Hypothesis Number Two.

The Employer Questionnaire

This instrument, including thirty-two agreement-disagreement statements, was prepared for the employers of Divisa graduates (Appendix B). The questionnaire was designed to collect data relevant to Hypothesis Number Three.

Procedures for Testing Hypotheses

Hypothesis Number One

Hypothesis number one, a null hypothesis, deals with work experience programs recently introduced into the school's program of instruction. It states:

> Recent Divisa graduates (since 1960) regard their in-school individual work experiences, those introduced into the curriculum after 1958, no more beneficial than their traditional in-school vocational experiences nor their non-vocational experiences.

For convenience, these three types of experiences are designated as:

Type I - New work experiences introduced by the school since 1958.

Type II - Traditional vocational experiences.

Type III - Academic experiences.

Part VII of the questionnaire included a rating scale of thirty educational experiences shared by graduates since 1960. These experiences were divided into three groups of ten each and designated Types I, II, and III, respectively. The complete definition of each type and the experiences included in each are as follows:

Type I - Includes those work experience programs, or parts thereof, which have been introduced into the Divisa School's program of instruction since 1958.

1. Being a member of the student cooperative.
2. Planning my individual student projects.
3. Helping the cooperative to make decisions.
4. Eight-week on-the-farm work experience.
5. Managing my own project.
6. Borrowing money from the cooperative and paying it back.
7. Saving my own money through the cooperative.
8. Purchasing and marketing cooperatively.
9. Working with high grade dairy cattle.
10. Attending the extension methods classes.

Type II - Includes the ten most important work experiences which have traditionally been a part of the school's agricultural training program.

1. Processing food in cans in the school cannery.
2. Working in the school vegetable gardens.
3. Participating in the local livestock shows.
4. Helping to construct school facilities, fences, feeders, and other equipment.
5. Working on class projects to make money for class expenses.
6. Producing field crops and field laboratory work.
7. Keeping the school grounds neat and clean.
8. Demonstrations and soil judging contests.
9. Working with the people of the local village of Canaza in community development projects.
10. Learning to drive a tractor and operate farm machinery.

Type III - These ten in-school experiences represent the non-vocational, academic, and extracurricular activities.

1. Participating in campus living.
2. Attending science class lectures.
3. Participating in the student federation.
4. Attending the lectures in mathematics.
5. Playing in the school's marching band and drill team.
6. Participating in the sports program.
7. Attending the social science program.

8. Attending the language classes.
9. Attending the farm shop lectures.
10. School dances and social programs.

The director of NSA, who served in this capacity both before and after 1958, verified that no Type I experience existed before the 1958-59 school year; that all Type II experiences were in practice before 1958-59 as well as after; and that Type III experiences represented all major academic areas and extracurricular activities.

The respondents rated each of the thirty experiences on a 0, 1, 2, 3, 4 equal scale, see Part VII of the original questionnaire. If, for some reason, he did not share in an experience he checked the zero column; he checked column one if an experience had been of little value and the four column if he considered it extremely valuable. The two and three values on the scale provided intermediate ratings.

Each respondent compiled four scores, one each (ranging up to forty) for each of the three types of experiences and a total score for the thirty items. In the event a respondent marked an experience as zero, the investigator assigned it the average value of the other nine in that particular group and added it to the ratings of those nine, thereby making the scores of the three types of experiences comparable.

Testing Hypothesis One

Testing the difference between means, utilizing the "t" test, is an appropriate statistical test for this hypothesis. Actually the hypothesis resolves into three sub-hypotheses:

H_{01}; $\bar{X}$ type I minus $\bar{X}$ type II = zero

H_{02}; $\bar{X}$ type I minus $\bar{X}$ type III = zero

H_{03}; $\bar{X}$ type II minus $\bar{X}$ type III = zero

The minus may be interpreted as "difference between" and the zero as no significant difference. The 5 percent level of significance was used throughout the study.

The ONE-WAY ANALYSIS program prepared for the CDC 3600 yielded mean scores and standard deviation. With these parameters the following

formulas were used to compute "t":

$$S = \frac{(N_1 - 1)\, S_1^2 + (N_2 - 1)\, S_2^2}{N_1 + N_2 - 2}$$

then:

$$\text{"t"} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{S^2 \frac{N_1 + N_2}{N_1 N_2}}}$$

The significance of "t" was determined by the use of the table for "t" distribution.

The hypothesis was totally rejected if "t" was significant at the 5 percent level for each of the above sub-hypotheses.

Hypothesis Number Two

Are Divisa graduates satisfied with the work they are doing? This has long been an intriguing question to Panamanians. This hypothesis states:

> The rate of dissatisfaction among Divisa graduates is no different from (1) workers in the U.S.A., nor (2) workers in some other countries.

The instrument (see Part VIII of the questionnaire in the Appendix) used to arrive at job satisfaction scores was adapted from a questionnaire used by Robert Hoppock in his study of job satisfaction at New Hope, Pennsylvania.[1] Parts or all of this instrument has been used extensively by other researchers. The four-question inquiry used in this study was also used by Juan Robles in his study of job satisfaction of teachers of agriculture in Puerto Rico.[2] He checked the validity of the Hoppock questionnaire by correlating it with the valid Moore scale. Robles stated that the Moore instrument revealed a significant association between values cherished in life by the teachers and the extent to which they experienced them in

---

[1] Hoppock, op. cit., pp. 267-269. Hoppock reported that the items discriminated between satisfied and dissatisfied workers, the test had a reliability of .87.

[2] Robles, loc. cit.

their jobs. Teacher scores computed for this relation on the Moore scale had a correlation of 0.904 with job satisfaction scores obtained by the Hoppock instrument.

The four questions and their responses are reproduced here for the interest of the reader.

THE HOPPOCK JOB SATISFACTION QUESTIONNAIRE

A. Choose the one of the following statements which best tells how well you like your job. Place a check mark in front of that statement.

_____ 1. I hate it.
_____ 2. I dislike it.
_____ 3. I don't like it.
_____ 4. I am indifferent to it.
_____ 5. I like it.
_____ 6. I am enthusiastic about it.
_____ 7. I love it.

B. Check one of the following to show how much of the time you feel satisfied with your job.

_____ 1. Never.
_____ 2. Seldom.
_____ 3. Occasionally.
_____ 4. About half of the time.
_____ 5. A good deal of the time.
_____ 6. Most of the time.
_____ 7. All the time.

C. Check the one of the following which best tells how you feel about changing your job.

_____ 1. I would quit the job at once if I could get anything else to do.
_____ 2. I would take almost any other job in which I could earn as much as I am earning now.
_____ 3. I would like to change both my job and my occupation.
_____ 4. I would like to exchange my present job for another job in the same line of work.
_____ 5. I am not eager to change my present job, but I would do so if I could get a better job.
_____ 6. I cannot think of any job for which I would exchange mine.
_____ 7. I would not exchange my job for any other.

D. Check one of the following to show how you think you compare with other people.

_____ 1. No one dislikes his job more than I dislike mine.
_____ 2. I dislike my job much more than most people dislike theirs.

_____ 3. I dislike my job more than most people dislike theirs.
_____ 4. I like my job about as well as most people like theirs.
_____ 5. I like my job better than most people like theirs.
_____ 6. I like my job much better than most people like theirs.
_____ 7. No one likes his job better than I like mine.

Testing Hypothesis Number Two

It is assumed that individual job satisfaction among graduates lies on a dissatisfaction-satisfaction continuum, which in this study is expressed as a series of scores lying on a scale ranging from four to twenty-eight. That is, when the values of the four questions were added for each respondent and became his job satisfaction score, the score would lie between four and twenty-eight. The median score was sixteen; all scores sixteen or below were rated dissatisfied while scores of seventeen or above were rated satisfied. The number of dissatisfied workers was then expressed as a percent of the total responding, or the percent dissatisfied.

Since a population of Divisa graduates was compared with a universe of workers in America and in other countries, it was impossible to compute measures of satisfaction on the latter, other than the percent dissatisfied. The absence of parameters made statistical testing impossible. The manner in which this hypothesis was tested is discussed in Chapter VI.

Hypothesis Number Three

Hypothesis number three looks at the school from the point of view of the employer who hires Divisa graduates. It states:

> Employers of Divisa graduates react favorably to the National School of Agriculture.
>
> Propositions:
>
> 1. They believe that Divisa graduates are a source of qualified agricultural workers.
> 2. They believe that the curriculum should be expanded to include a greater amount of adult education.
> 3. They believe that the school contributes to agricultural development in the Republic.
>
> The employer questionnaire, used in testing this hypothesis, asked

the respondent to agree or disagree with thirty-two statements which concerned the Divisa school and the graduates. As an alternative the respondent could check a neutral position in the event he could neither agree nor disagree. It sought few personal data; only the respondent's position, the type of work he did, and if his work were in the private or public sector.

The statements were formulated within the framework of three different categories: (1) the school's instructional program, (2) adult farmer education, and (3) relationship of the school to agricultural development in Panama.

The thirty-two statements were arranged in sixteen pairs; a pair reflected a single belief. The first statement of each pair produced a favorable perception of the school while the second was unfavorable to the school or the school's program. A favorable perception was defined as one in which the respondent believed (1) that the school was achieving its vocational objectives, or (2) that the school should move in a more vocational direction.

Because the objective was to determine if a particular population favorably perceived a particular institution, no valid test or instrument was available. The thirty-two items were conceived logically and intuitively and their validity was determined by a consensus of opinions of four past and present school administrators. These experts agreed that the first item of each pair was generally pro-vocational and that the second item of each pair was anti-vocational education. It was predicted that of every pair the employers would agree more with the first statement than the second. This prediction occurred in fourteen of the sixteen pairs. Even though subjective, the intuitive validity of the questionnaire is adequate for this type of study.

Testing the Hypothesis

The first sixteen statements, or eight pairs, related to the first proposition of the hypothesis. The next eight related to proposition two and the last eight to the last proposition. A value of one was given to each

agreement and three to each disagreement. If a respondent could neither agree or disagree he marked the statement neutral and it was scored two. Therefore, the mean score for each item ranged between 1.00 and 3.00. Scores between 1.00 and 2.00 indicate agreement, between 2.00 and 3.00 disagreement, and scores near 2.00 reflect a neutral attitude.

Three mean scores were computed for each statement:

1. Total of all respondents, N = 41.
2. Employers who are government officials, N = 21.
3. Private enterprise employers, N = 20.

A proposition was accepted if the mean score of the first statement of each pair, relating to that proposition, fell between 1.00 and 2.00. Such a score indicated a favorable perception toward the school. The mean score of the second statement of each pair was not as reliable. This latter group of statements tended to be anti-vocational and pro-general education. The investigator predicted that employers would generally disagree with them. However, since employers aspired to academic as well as vocational excellence, conceivably some respondents agreed with one or more of these statements even though they reflected an anti-vocational attitude.

Chi square, a statistic commonly used to determine the independence between two variables, was used extensively to test the significance of relationship between the two dependent and various independent variables. The Institute's computer program, entitled Analysis of Contingency Tables or Act II, prepared for the CDC 3600 computer, provided the chi square calculations. Thirty-four chi square calculations were made in twenty-two seconds by the CDC 3600.

Procedures for Data Collection

Populations

The study included two different populations: (1) the graduates, and (2) the employers of graduates.

Graduate Population

This population included the 121 students who graduated from NSA since and including the class of 1960. The investigator chose 1960 as the cutoff date because the graduates of any earlier year would not have had the opportunity to share in many of the new work experience programs. No sampling was necessary inasmuch as the entire population was included in the study.

Table 1. Composition of the Graduate Group by Year of Graduation

Year of Graduation	Number Graduated
1960	17
1961	32
1962	20
1963	24
1964	28
Total	121

Employer Population

Fifty-one people representing the employers, or chiefs in the event of government positions, of the graduates in the above population are included in this group. It is important to stress that these two populations are not in a one-to-one employer-employee relationship. The number of employers is appreciably smaller because several graduates work for the same employer or governmental agency. Also, in some cases, two or more respondents may represent the same employer; for example, the director and a regional supervisor may represent a single agency which hires many Divisa graduates, or a farm owner and his manager (two respondents) may employ a single graduate.

Testing the Equivalency in Two Languages

The situation required administering the questionnaire in the Spanish language. This meant determining the equivalency of the instruments in

both languages. First experts in agricultural education were asked to determine if the questions in English asked for the desired information. Next the English version was translated into Spanish by a Latin American student, majoring in agricultural education. A second Spanish-speaking person then translated the Spanish text back into English and the two English versions were checked for similarity of meaning. Where differences occurred the Spanish text was corrected.

Testing for Reliability

The staff of the National School of Agriculture reviewed the questionnaire for authenticity, word usage, and in places they added questions to gather specific information of interest to them.

Next, the questionnaires were administered to five Divisa graduates as a pretest. No significant changes were required as a result of this test.

Printing and Distribution

Finally, the questions and scales were arranged on layout sheets in preparation for printing. Each section and scale of the graduate questionnaire was arranged on a half or quarter page and enclosed with a lined block. This technique gave the parts of the questionnaire their own identity. Printing helped to reduce the many typed-page version of the questionnaire into eight neat, compact pages. The printed version appears in the Appendix.

Because the graduates are quite mobile and the school has no system of graduate follow-up, locating the correct addresses of the respondents was a difficult task. In many cases it was necessary to search out known acquaintances of some of the graduates in order to discover their whereabouts.

The questionnaires were sent out under the official name of the school. This arrangement permitted the use of government postal franking service. Payment for postage was required only for international mail to respondents in foreign universities. A return envelope which the respondent used also contained the official seal and did not need postage.

Follow-Up

The follow-up of respondents was vitally important. On the first mailing many respondents in government service were on temporary duty elsewhere than at their official address, and some individuals were using a name somewhat different from that used while in school. Secondly, the respondents were not familiar with the procedure of gathering data through the questionnaire technique; some viewed the instrument with suspicion, others were indifferent and some believed that it was an invasion of their privacy. Finally, as with all humans, they needed to be prodded into giving the information and mailing it to the school.

The government-owned telegraph service was used both in verifying addresses and reminding the respondent to return his questionnaire. The director of the school cooperated with the study by sending follow-up telegrams under the name of the school.

Percent Returns

One hundred of the 121 graduates, or 83 percent, returned their questionnaires. Thirty-six of fifty-one employers, or 71 percent, responded to the questionnaire.

Table 2. Number of Graduates Who Responded, by Year of Graduation

Year	Number Graduated	Number Responded	Percent Responded
1960	17	12	71
1961	32	29	90
1962	20	15	75
1963	24	20	83
1964	28	24	86
Total	121	100	83

Of the twenty-one graduates who did not respond, thirteen were known to be enrolled at the University of Panama or a foreign university. The remaining eight graduates were known to be working full or part time in Panama.

Summary

This chapter explained that the study was organized around three analytical hypotheses. It described the instruments that were used to collect data relevant to testing each hypothesis and the basis for rejecting or accepting each.

Chapter V will show how each of the hypotheses were tested and the extent to which each was accepted. However, before doing this, a short description of the average Divisa graduate will be presented.

CHAPTER V

PRESENTATION AND STATISTICAL ANALYSIS OF DATA

Introduction

The graduate questionnaire yielded considerable data concerning several of the characteristics that describe the Divisa graduate.[1] The data are confined to three periods of time: (1) student years, (2) adjustment following graduation, and (3) present work position.

These data have been summarized in a separate report prepared especially for use in the Republic of Panama. However, so that the reader may have a better mental image of the Panamanian youth in this study, a summary of this report is presented here.

A Description of the Divisa Graduate

The average Divisa student was slightly over nineteen and one-half years old when he graduated from the National School of Agriculture. He was approximately sixteen when he enrolled at NSA. He came from one of the nine provinces but there is a 40 percent probability that he came from one of the two most populous ones, Panama and Chiriqui, and a 50 percent probability that he will settle in one of these provinces after graduation. He comes from a middle-class family and most often from the smaller towns of the Republic.

The younger boys have a slight edge over the older boys in that they are more likely to receive higher grade point averages. Most graduates who go on to college are from this age group; consequently, they receive most of the available scholarships. While the younger student aspires to

[1] Parts 1-6 of the graduate questionnaire, Appendix A, were designed to yield these kinds of data.

go to college, the older ones aspire to work in private enterprise and the majority go into this type of work.

Five out of every six students enrolled at NSA are on a full-time scholarship which covers their major expenses, but they pay an average of $11.00 a month for personal expenses. Non-scholarship students pay an additional $25.00 monthly tuition.

If a student drops out of school the two most likely reasons will be lack of desire to continue or failing grades.

After graduation, nine of ten graduates engage in agriculture either as a worker or as a university student, and one of every two graduates has a government job. The probability that a graduate is engaged in some form of farming operation either on a part-time or full-time basis is quite low. Even though one of every five receives some income per year from a farming operation it adds little to his annual income. The chances that the average student will become an independent farmer, fully sustaining himself by these operations, are extremely remote.

The average graduate is very much concerned about employment after leaving Divisa. He enters a society in which only a small percentage of the people have as much education as he. His culture expects him to make good use of his education and one measure of this expectation is the kind of work he does. The factors of prestige, family pride and the felt-need to legitimize the cost of his education are some of the factors associated with his tendency to accept the first, or one of the first jobs offered him after graduation from Divisa. He then uses this job as a stepping stone to the kind of job most suitable to him; he shows upward mobile tendencies.

The average student requires two months from the time of graduation to secure and start out on his first job. He holds that job for seven months after which he embarks on his second job which he holds for an average of eighteen to twenty months.

The average graduate, including those graduating in the next few years, has and will probably continue to experience a trend in increased beginning

salaries. The average monthly salary of $113 which the 1964 graduating class received is the highest of any class on record. This upward trend in salaries is more conspicuous in government employment than in private enterprise. However, the average graduate has better income opportunities, at least over a period of time, in private enterprise because these salaries increase at a more rapid rate than for government jobs. After three to four years, non-government job salaries equal and often exceed those paid by government, but private enterprise demands that the employee prove himself as a competent worker before awarding him salary increases.

The probability that the average graduate will return to his home province is two out of three chances. Most likely, he prefers his home province because living at home is more economical for him. But he will not hesitate to migrate to some other province in the pursuit of work. There is little evidence that the Divisa graduate is attracted by the lure of the metropolitan area.

In three out of five cases the average graduate will have a non-management type job; one in which he makes no independent decisions. Age is not a related factor but if he falls in the lower grade point brackets his job will more likely fall in the non-management classification. If his job is classified as management his average salary will be $25 a month higher than that paid for non-management jobs.

The average boy has one chance in seven of going on to college. If he ranks in the top three places of his class and has a grade point average of approximately 4.0 (5.0 is maximum) he is most likely to receive a college scholarship. Students who attend foreign universities or the University of Panama full-time follow agricultural curricula almost without exception. Those who attend the University of Panama on a part-time basis study other curricula than agriculture.

The following section will present the data relevant to the value of work experience programs practices at the National School of Agriculture. Job satisfaction and factors relating to satisfaction will be explored and, finally, the opinions and reaction of those who employ Divisa graduates will be related.

Testing the Hypotheses

As stated in Chapter IV, the primary purpose of this chapter is to relate the data to the three hypotheses, and to accept or reject each depending on the analysis of data. The procedure describing the basis for rejecting or accepting each hypothesis was described in Chapter IV.

For the convenience of the reader the hypotheses are repeated:

Hypothesis Number One - Recent Divisa graduates (since 1960) regard their in-school individual work experiences, those introduced into the curriculum after 1958, no more beneficial than their traditional in-school vocational experiences nor their regular academic experiences.

Hypothesis Number Two - The rate of dissatisfaction among Divisa graduates is no different from (1) workers in the United States, nor (2) workers in other countries.

Hypothesis Number Three - Employers of Divisa graduates react favorably to the National School of Agriculture.

Propositions:

1. They believe that Divisa graduates are a source of qualified agricultural workers.
2. They believe that the curriculum should be expanded to include a greater amount of adult education.
3. They believe the school contributes to agricultural development in the Republic.

Analysis of Work Experience Programs

This section analyzes the graduates' ratings of their in-school work experiences. Work experience programs introduced by the school since 1958 were the primary concern. These programs were described on pages 38 to 41 in Chapter III.

Test for Significance

The null hypothesis to be tested states that recent graduates regard their in-school individual work experiences (Type I), which were introduced by the school after 1958, no more beneficial than the traditional in-school

vocational experiences (Type II) nor their regular academic experiences (Type III). A list of these thirty experiences appeared on pages 46 and 47 of Chapter IV.

Testing involves the difference of means and determining significant difference between the means of the three types of experiences. The "t" test is an appropriate statistic for this purpose. The relevant data are reported in Table 3.

Table 3. Mean Score and Standard Deviation of Ratings of In-School Experiences Made by Divisa Graduates

Type of Experience	Number of Observations	Mean Score	Standard Deviation	Variance $(s.\ d.)^2$
Type I	94	31.9	5.55	30.52
Type II	94	29.2	4.50	20.22
Type III	94	27.5	5.00	25.00

The null hypothesis may now be stated as three sub-hypotheses, namely:

Ho_1: $\bar{X}$ Type I minus $\bar{X}$ Type II = 0

Ho_2: $\bar{X}$ Type I minus $\bar{X}$ Type III = 0

Ho_3: $\bar{X}$ Type II minus $\bar{X}$ Type III = 0

The minus may be interpreted as a "difference between" and the zero as no significant difference. The 5 percent level was chosen as the point of significance.

The statistic "t" with N-1 degrees of freedom for each of the sub-hypotheses and level of significance is:

Ho_1: "t" = 6.29 or >.001 percent level.

Ho_2: "t" = 3.84 or >.01 percent level.

Ho_3: "t" = 2.50 or >.01 percent level.

All sub-hypotheses as stated were rejected; therefore, rejecting the main hypothesis. The data showed that Divisa graduates rated the experiences obtained from new work experience programs significantly more

important to their work life than either of their traditional vocational (Type II) or academic experiences (Type III).

When the graduates were divided into groups according to the nature of their work, data showed that the mean rating scores of the Types I, II and III were highest for university students and those employed in private enterprise. And in every case (see Table 4) the mean score of Type I was higher than Types II or III. These data indicate that various in-groups of graduates placed a different value judgment on the experience and skills obtained from the new work experience programs.

Table 4. Mean Scores of Experience Rating Scores by Nature of Graduates' Work (N = 94)

Nature of Work	Number Reporting	Type I	Type II	Type III
University Students	15	33	29.8	28.9
Private Enterprise:				
Working on farms	11	32.5	31	29.7
Independently employed	7	32.1	30	27.8
Government Workers:				
Service	29	32.1	29.8	27.7
Technical	16	30.0	26.9	26.0
Others:				
Non-agriculture, unemployed, and no response	16	33.5	30.0	26.7

From the data it was possible to compare average ratings of in-school experiences of various groupings of graduates. Only the more important comparisons are shown. As a general rule, regardless of how the graduates were grouped, no group rated either Type II or III experiences higher than Type I experiences. This statement bears out the consistency of the proven hypothesis.

Government and Private Enterprise Workers

Forty-eight government and thirty-six non-government workers are

involved in this comparison. Table 5 shows their mean scores by type of experience.

Table 5. Experience Rating Scores* of Government and Non-Government Workers (N = 84)

		Type I		Type II		Type III	
Type of Work	Respondents	Mean Score	s.d.	Mean Score	s.d.	Mean Score	s.d.
Government	48	2.46	.75	1.89	.85	1.50	.72
Non-government	36	2.58	.66	2.27	.80	1.82	.85

*The data in this and subsequent tables have been coded into upper, middle, and lower thirds or 3, 2, and 1, respectively. This was done to simplify data processing.

These sub-hypotheses were tested:

Ho_1: Government group; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

Ho_2: Non-government group; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

The "t" test rejected both Ho_1 and Ho_2:

Ho_1: "t" = 3.48 or >.001 level

Ho_2: "t" = 1.81 or >.05 level

No "t" was computed to determine relationship between Type I and Type III scores. However, visual observation of the data ascertained that the significances would be much higher than those between Type I and Type II.

While each group rated Type I experiences significantly higher than Type II, non-government workers did not rate Type I experiences significantly higher than did government workers. In fact, "t" = .761 demonstrates an insignificant difference.

On-The-Farm Experience Rating Groups

Graduates also grouped themselves according to how they rated their eight week on-the-farm work experience. Table 6 gives the means and standard deviations for these three in-groups of graduates.

Table 6. Experience Rating Scores by On-The-Farm Rating Groups (N = 96)

Rating Group	Code	Respondents	Type I Mean Score	Type I s.d.	Type II Mean Score	Type II s.d.	Type III Mean Score	Type III s.d.
Very useful	1	34	2.53	.76	2.03	.86	1.72	.85
Useful	2	41	2.64	.54	2.08	.81	1.51	.64
Little use	3	21	2.20	.77	1.95	.89	1.71	.86

The sub-hypotheses to be tested involving the three rating groups are:

Ho_1: High rating group; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

Ho_2: Middle rating group; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

Ho_3: Low rating group; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

The "t" statistic rejects Ho_1 and Ho_2 but accepts Ho_3.

Ho_1: "t" = 2.49 or >.01 level.

Ho_2: "t" = 3.68 or >.001 level.

Ho_3: "t" = 1.13 no significant difference.

It is interesting to note that the group rating "Useful" had a higher mean score for Type I and the lower mean score for Type III, than did those who rated their summer farm experience as "Very useful." The data show that 58 percent of the non-government workers and only 31 percent of the government workers rated the on-the-farm training program as very useful. This may indicate that work experiences provided at NSA are not as helpful in government work as in on-the-farm work.

Consistency of Rating Experiences

At this point in the analysis it was obvious that further comparison of mean rating scores would do little more than reinforce the rejection of the main hypothesis. Therefore, other statistics were used to determine if graduates were consistent in rating the principal work experience programs. If a respondent rated one program high, did he likewise rate the others high?

For this analysis graduates were twice divided into groups by two different categories:

Category 1 - Number of projects they had in school

Group A - Those with three or more projects

Group B - Those with two or less projects

Category 2 - Rating of the value of managing their own projects

Group C - Those who rated management experience high

Group D - Those who rated management experience low

In this analysis the assumption was that graduates who had three or more projects (Group A) and who rated high the value of managing their projects (Group C) received more work experience in the practical skills of farming than the group with two projects or less (Group B) and those who placed a low value on project management (Group D). If this be true, then one may hypothesize that Groups A and C would also:

a) Rate being a cooperative member high

b) Rate their on-the-farm experience high

c) Rate experience in the school dairy high

d) Rate all Type I experiences high,

and that Groups B and D would rate these same four experiences low.

Table 7 provides the relevant data for this analysis.

Table 7. Mean Experience Rating Scores and Standard Deviation (in Parentheses) of Selected Work Experience Programs by Various Groups of Graduates

Line Number	Work Experience Program	Scores and Standard Deviation			
		Grouped by Number of Projects		Grouped by Management Rating	
		3 or more	2 or less	High Value	Low Value
		Group A N = 45	Group B N = 46	Group C N = 51	Group D N = 44
1	Being a Coop. member	3.29[a] (.757)	2.43 (1.41)	3.25 (8.45)	2.32 (1.41)
2	On-the-farm training	3.42[a] (.621)	2.98 (1.25)	3.47 (.757)	2.80 (1.23)
3	Dairy herd experience	2.84[a] (1.19)	3.10 (1.20)	3.02 (1.16)	2.95 (1.21)
4	Total score of ten Type I experiences	32.22[b] (4.07)	26.24 (8.80)	32.33 (4.71)	25.06 (8.14)

[a]Highest possible rating = 4.00 [b]Highest possible rating = 40.00

Referring to the hypothetical statement preceding Table 7, the null hypothesis would state a no significant relationship between (1) the mean scores of each experience of Group A and Group B, nor (2) between Group C and Group D. The hypothesis was rejected in every case except on line three, dairy herd experiences; Group B exceeded A and their relationship was not significant.

The following "t" tests proved that the graduates who had three or more projects, Group A, also scored the following programs significantly higher than graduates with two projects or less, Group B. The exception was dairy herd experience which showed no significant relationship.

1. Being a cooperative member; "t" = 3.62 >.01
2. On-the-farm training; "t" = 2.20 >.05
3. Total of ten Type I experiences; "t" = 4.17 >.001

Likewise, the graduates who placed a high value on managing their own projects, Group C, rated the same work programs significantly higher than those who placed less value on this management experience, Group D. Again dairy herd experience proved to be an exception.

1. Being a cooperative member; "t" = 3.95 >.01
2. On-the-farm training; "t" = 3.25 >.01
3. Total of ten Type I experiences; "t" = 5.38 >.01

A final test of consistency within ratings included computing correlations for all combinations of the four work programs for each of the four groups. For example, consistency was granted if the group of graduates who had three or more projects rated the four programs in a way to produce a significant correlation of all combinations. In each of the following four tables (7 to 11), a correlation of .173, when N = 90, was significant to the .05 level and .242 was significant at the .01 level.

The key for the work programs that were correlated is as follows:

1. Being a member of the Student Cooperative,
2. On-the-farm training,
3. Dairy herd work experience,
4. Total of ten Type I scores.

Table 8. Correlations: Group Which Had Three or More Projects

	1	2	3	4
1	1.000	.217[a]	- .151	.560
2		1.000	.091	.357
3			1.000	.369
4				1.000

[a]Those underlined are significantly correlated.

Table 9. Correlations: Group Which Had Two Projects or Less

	1	2	3	4
1	1.000	.495[a]	- .081	.800
2		1.000	.061	.660
3			1.000	.216
4				1.000

[a]Those underlined are significantly correlated.

Table 10. Correlations: Group Which Rated Management Experiences High

	1	2	3	4
1	1.000	- .066	- .210[a]	.475
2		1.000	.240	.291
3			1.000	.310
4				1.000

[a]Those underlined are significantly correlated.

Table 11. Correlations: Group Which Rated Management Experiences Low

	1	2	3	4
1	1.000	.547[a]	- .127	.852
2		1.000	- .052	.642
3			1.000	.103
4				1.000

[a]Those underlined are significantly correlated.

With few exceptions, individual graduates were consistent in their ratings of the various work experience programs. If they rated one high, they rated the others high and if they gave one program an average rating they gave all the others average ratings. Dairy herd work experience was the major exception. A plausible explanation was that dairy herd work was less individualistic than others of the work program; students had less to gain personally and the profit motive was not operative.

Summary, Analysis of Experience Rating Scores

An analysis of data rejected the null hypothesis that graduates regarded their in-school individual work experiences (Type I, II, and III) without differences.

Regardless of how the data were arranged (by groups of graduates) mean experience rating scores for new work experience (Type I) were invariably higher than mean scores for either traditional vocational experiences (Type II) or academic and extracurricular experiences (Type III) by the Divisa graduates.

Equally important was the consistency that was found in the graduate's rating of the various individual work programs. If a graduate rated one program high he rated other programs high; if he rated one as average or low he rated others the same. The major exception to this was dairy herd work experience.

Job Satisfaction

Introduction

In this section Hypothesis Number Two will be tested. Chapter IV, pages 48 to 50 explained the treatment and method of accepting this hypothesis. In addition, this section will answer two other questions: (1) what percent of the Divisa graduates are satisfied with their jobs and what percent are dissatisfied, and (2) what are some of the factors associated with job satisfaction.

Table 12. Distribution of Job Satisfaction Scores

	Score	Year of Graduation 1960	1961	1962	1963	1964	Total
Dissatisfied	4-12	1	1	1	0	1	14
	13-16	1	2	1	4	2	
Satisfied	17-20	3	9	6	5	8	64
	21-24	4	8	3	6	6	
	25-28	0	3	0	3	0	
Total		9	23	11	18	17	78

According to Table 12, fourteen graduates scored sixteen or below which was the median score on the dissatisfaction-satisfaction continuum. Therefore, the actual percentages of dissatisfied and satisfied graduates who work were:

Percent of dissatisfied graduates 18

Percent of satisfied graduates. 82

Total. 100

Robert Hoppock states that the percentage of dissatisfied workers in the United States fluctuates between 12 and 13 percent and that studies in foreign countries indicate dissatisfaction may average as high as 29 percent.[2]

[2]Robert Hoppock, "Job Satisfaction Researches of 1960," Personnel and Guidance Journal, Vol. XL, No. 4 (December 1961), p. 361.

The Divisa graduates were compared with universes of American and foreign workers. Standard deviations, means or other parameters measuring job satisfaction in these universes are not available. Therefore no statistical test for significance was possible. However, the first part of the hypothesis stated that the rate of dissatisfaction among Divisa graduates would not differ from workers in the U.S.A. On the basis of wording alone, the hypothesis must be rejected, since job dissatisfaction in the United States has constantly fluctuated between 12 and 13 percent during the last fifteen years, the difference of 5 to 6 percent constitutes a significant difference. By the same reasoning, the difference between the Divisa graduates and foreign workers in some other countries is likewise sufficient to constitute an important difference. This difference rejects the second part of the hypothesis.

Comparison of Job Satisfaction and Experience Rating Scores

Since job satisfaction and in-school experience rating scores were the two major variables in the study, the relationship between them was an important consideration. Did graduates of varying degrees of satisfaction rate work experience programs differently? To discover an answer to this question, graduates were divided according to their job satisfaction scores into high, middle and low thirds and the mean rating scores of Type I, II, and III experiences were noted. Table 13 provides the relevant data.

Table 13. Experience Rating Scores by Levels of Job Satisfaction* (N=73)

Job Satisfaction	Type of Experience I $\bar{X}$	I s.d.	II $\bar{X}$	II s.d.	III $\bar{X}$	III s.d.
Lower Third	2.56	.71	2.04	.84	1.56	.82
Middle Third	2.38	.75	2.04	.92	1.65	.75
High Third	2.50	.74	2.04	.83	1.68	.84

*All data were coded.

These sub-hypotheses were testable:

Ho_1: Lower third; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

"t" = 4.10 or >.001 level

Ho_2: Middle third; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

"t" = 2.42 or >.01 level

Ho_3: High third; $\bar{X}$ Type I - $\bar{X}$ Type II = 0

"t" = 3.07 or >.01 level

Visual observation indicated that a greater difference existed between Type I and Type III.

The data did not indicate a single significant correlation or "t" statistic between job satisfaction and rating scores of any one of the three types of experiences. Nowhere in the study was there an indication that in-school experiences were related to job satisfaction. Graduates who rated their in-school experiences high were as likely to have low job satisfaction scores as high scores. Pearson Product Moment Correlations between job satisfaction scores and Type I, II, and III in-school experience scores were .0987, .0025, and .0525, respectively. A zero score would have indicated no discernible relationship.

During the course of the study several factors were analyzed to determine to what extent they related to job satisfaction. Eighteen factors were tested for significance by using the "F" test for analysis of variance. Analysis of variance is an appropriate method to use when seeking statistical evidence for accepting or rejecting a hypothesis in which several groups of data are compared.

Those factors found to be significant at the 1 percent level or greater were:

1. The conditions of work as perceived by the graduate.
2. The graduate's present salary.
3. Management type jobs.
4. Jobs with rural environments.

Those factors found to be significant at the 5 percent level were:

5. Agricultural work, independent of government.

6. High earned grade point average.

Those factors found to be significant at the 10 percent level were:

7. Independent status of father.

Table 14 is a composite of these seven factors and it summarizes the essential components used in arriving at an "F" test for each of the factors. The "F" statistic is one which would have occurred less than once in 100 times (or once in twenty times if at the 5 percent level) if only chance explained the difference in the means compared.

Table 14. The Analysis of Variance of Group Means of Factors Relating to Job Satisfaction

Source of Variation	Sum of Squares	d.f.	Mean Squares	"F"	Probability
Between Groups					
Condition of work	14.650	1	41.650	21.826	.001
Present salary	7.655	3	2.551	4.465	.01
Mgmt. type job	5.461	1	5.461	9.195	.01
Rural environment	4.519	1	4.519	7.520	.01
Non-gov't work	8.502	5	1.700	2.882	.05
Grade point average	4.453	2	2.226	3.588	.05
Status of father	3.758	2	1.879	2.984	.10
Within Groups					
Condition of work	32.224	70	.460		
Present salary	38.287	67	.571		
Mgmt. type job	44.539	75	.593		
Rural environment	44.467	74	.600		
Non-gov't work	42.484	72	.590		
Grade point average	46.554	75	.620		
Status of father	47.228	75	.629		
Total					
Condition of work	46.875	71			
Present salary	45.943	70			
Mgmt. type job	50.000	76			
Rural environment	48.986	75			
Non-gov't work	50.987	77			
Grade point average	51.007	77			
Status of father	50.987	77			

Those factors which did not relate to worker satisfaction were:

1. Age
2. Province in which the graduate worked
3. Region of country in which graduate worked (three regions)
4. Year of graduation
5. First salary after graduation
6. Number of jobs graduate has held
7. Time required to get his first job
8. Grade average for field work
9. Inside versus outside work
10. Government versus non-government work
11. Future plans.

The significantly related factors were those of which the graduate was consciously aware in his day-to-day life. The grade point average earned while in school was the exception. These factors influenced attitudes toward work. Many of the unrelated factors fell in the category of past experience which did not reflect on the graduate's present state of satisfaction, for example, year of graduation, first salary and time required to obtain first job.

Work conditions were the first area of concern. The graduate's perception of his work conditions was highly indicative of his state of work satisfaction. Those who rated their conditions of work as being good to excellent also had high satisfaction scores. The term "conditions" broadly connotes physical and emotional conditions, inasmuch as the graduate was allowed his own interpretation of "conditions of work." Graduates may have equated salaries with conditions of work, because the data showed that low salaried graduates were invariably less satisfied than their higher salaried counterparts.

A second area relating to job satisfaction was the nature of work. Work which involved decision making, work conducted in a rural environment and work classified as "on-farm" each increased work satisfaction. The significance

indicated higher satisfaction among on-the-farm workers and less satisfaction for the non-agriculturally employed and those unemployed. Table 15 provides the relevant data concerning this situation.

Table 15. Job Satisfaction Scores of Groups of Graduates by the Nature of their Work (N = 77)

Work Status	Number Reporting	Job Satisfaction Score
Independent or self-employed	6	22.15
Employed by private enterprise	14	21.07
Employed by government:		
Service workers	29	19.34
Technical workers	16	19.05
Others: (Including those employed in non-agriculture)	12	15.00

There was a high relationship between satisfaction and part- or full-time self-employment, which included working on the family farm. Graduates of the classes of 1961 and 1963 had the highest average job satisfaction scores, 20.67 and 19.41, respectively. These same classes also reported the heaviest involvement in independent farming operations. (See Table 8, Chapter V.)

Summary of Analysis of Data Involving Job Satisfaction

An analysis of data rejected the hypothesis that the rate of dissatisfaction among Divisa graduates was no different from:

1. Workers in the U.S.A.
2. Workers in other countries.

The data proved that graduates were significantly more dissatisfied than U.S.A. workers, but significantly less dissatisfied than workers in some other countries.

Factors which related to job satisfaction fell into two major categories:

1. Factors which related to the conditions of work
2. Factors which related to the nature of the work graduates do.

Attitude of Employers Toward The Divisa School

Introduction

How have employers of Divisa graduates perceived the National School of Agriculture? Have different types of employers perceived the school differently? Do the attitudes of employers indicate needed changes in the program of the school? The study attempted to answer these and other questions concerning the feelings of the employer group. Chapter IV, pages 51 and 52, explained the procedure for testing this hypothesis.

The hypothesis to be tested stated that employers favorably perceived the school. Especially they believed that:

Proposition One: The school was a source of qualified agricultural workers.

Proposition Two: The curriculum should be expanded to include a greater amount of adult education.

Proposition Three: The school contributes to agricultural development in the Republic.

Forty-one employers responded to the employer questionnaire by indicating their agreement or disagreement to a series of thirty-two statements concerning the school and its graduates. These statements, arranged in sixteen pairs, are found in Appendix B along with mean scores and differences where these were significant.

Since the two statements of each pair were not opposites of each other, no significant correlation of their scores was expected. However, a mean agreement, less than 2.00, for the first statements of the pairs and a mean disagreement, more than 2.00, for the second statements was expected (see page 51, Chapter IV). Actually, this occurred in ten of the sixteen pairs. A second prediction stated that while the mean score of the second statement of any one pair might be less than 2.00 it would at least be higher than the score of its companion statement which comprise a pair. This occurred in fourteen of the sixteen pairs.

Proposition One

The proposition as stated was accepted. The respondents favorably perceived the school as a source of qualified workers, inasmuch as the mean score of the eight statements relating to this proposition and best measuring perception (the first of each pair) was 1.44. This was well below 2.00 or the neutral score.

The mean score of the other eight statements, the second of each pair, 1.88, fell on the agreement side of the agreement-disagreement continuum. While the respondents thought that the school was doing a good job, they indicated that it should be doing some things not now being done. In the following items there was nearly complete agreement:

1. Teachers of agriculture should have both academic training (university graduate) and experience in the skills they teach.
2. The school should offer programs in areas other than production; instruction in processing of foods and by-products and agricultural businesses should be offered.

Respondents agreed that the school was not meeting, entirely, the vocational needs of the students and that while students may qualify as workers there was unanimous agreement that graduates do not immediately qualify for managerial positions. The following quote from a note written by one of the respondents aptly described the situation:

> ...I am probably the lone voice crying in the wilderness, for a vocational school, instead of another high school. What we need is [sic] lots of young men with the know-how of farming and not just with a lot of theories that they seldom practice.

The respondent was not alone in this thinking, several others reflected the same sentiment.

Chi square was used to determine if government officials differed significantly from private enterprise employers in their appraisal of these sixteen statements. Tests found no differences of opinion in thirteen of them. Table 16 provides the relevant data for three statements in which the difference was significant.

Table 16. Conflicting Attitudes Between Government Officials and Private Employers

No.	Statement	Gov't Off'ls $\bar{X}$	Private Employers $\bar{X}$	Chi Square X^2	d.f.	Level
1	Divisa graduates are well prepared for work.	1.67	1.75	10.012	2	>.01
2	Divisa students should be allowed to specialize.	2.05	1.40	10.6	2	>.01
3	I prefer to employ a graduate who has a well-rounded academic education, and I will teach him the skills he needs to know.	2.76	2.30	5.631	2	>.10

Statements 1 and 3 of Table 16 constitute a pair. In statement one mean scores are a poor indicator, if taken alone, because over half of the private employers chose to remain neutral. Therefore, the neutral cells of chi square contributed the most (two-thirds) to the 10.012 statistic. Private employers were not sure if graduates were as well prepared for work as they might be.

The two employer groups differed in their opinion of the companion statement of this pair (statement number three) but not as significantly. None of the government officials agreed with the statement, while three private employers agreed and eight others were undecided about accepting a well-educated boy and training him in the needed skills. These findings showed that the National School of Agriculture is expected to produce graduates who are adequately and vocationally trained in agriculture.

Private employers supported this role perception by strongly agreeing that students not only need skill experience but they should be allowed to specialize and become proficient in some area of agriculture. This came

as no surprise, inasmuch as they themselves operate specialized farming operations.

Proposition Two

This proposition, likewise, was accepted. The respondents, as a whole, perceived the need for adult education in agriculture and agreed that the school should have some responsibility for it. The mean score of the first statements of each of the four pairs of statements that measured employers' attitudes in this area was 1.57 and 2.30 for the second statements. These scores followed the prediction that the respondents would agree with the first statements of each pair and disagree with the second one.

More important than the above finding was the difference of opinion between government officials and private employers. Significant differences were found in four of the eight statements. Data relevant to these four statements are reproduced in Table 17.

Table 17. Conflicting Attitudes in Relation to Adult Farmer Education

No.	Statement	Gov't Off'ls $\bar{X}$	Private Employers $\bar{X}$	Chi Square X^2	d.f.	Level
1	The school has no business trying to educate the campesino.	2.10	2.85	9.796	2	.01
2	The school should teach rural people how to organize self-help organizations	2.19	1.45	8.017	2	.025
3	NSA should provide more material services for farmers of the Central provinces.	2.52	1.80	7.552	2	.025
4	The school should conduct adult farmer classes in the villages as well as at NSA.	2.14	1.65	6.730	2	.05

Private employers, most of whom were farmers themselves, saw adult farmer education as a function of the National School of Agriculture. Government officials did not disagree with the concept of the school educating adult farmers, they simply believed that such education should be confined to the physical environment of the institution. On the basis of their belief one may assume they thought that the school should continue and expand its present adult farmer training program inasmuch as this is the only adult program of NSA. Private employers, however, clearly expressed their desire to have the school expand in this role and to extend its educational facilities into the rural area itself.

Proposition Three

Proposition three which states that employers believe that the school contributes to agricultural development was accepted. The last four pairs of statements reflected this group of attitudes. The mean score of the first statements of each pair was 1.44, indicating a positive attitude.

There was considerable agreement between the two groups of employers. Both believed that Panama needed more young men with the Divisa level of training. Government officials were somewhat more cognizant of the need than private employers. Data were insufficient to determine reasons why they differed.

The groups of employers differed significantly in their attitude toward the involvement of the school in assisting local community schools to develop programs of agricultural instruction. See last pair of statements in Appendix B. Private employers believed that the school should assist local schools in the areas of program development. Government officials, as a group, remained neutral on the issue.

Summary

Based on mean scores, the hypothesis and its three propositions were accepted. Employers did have a favorable perception of the school. On the other hand, they clearly expressed their expectation that the school would continue to improve, especially in vocational directions.

There was essentially little difference between the two groups of employers. The major exception was one of role perception. Government officials believed that the school's program should be confined to the physical environment of NSA and education and training should be extended to those who come to the institution in search of new skills and knowledge. Private employers agreed that these programs should not only be continued, in fact expanded, but the school should extend its educational programs and services to the rural communities themselves. The latter also believed that NSA has a responsibility in assisting local schools to develop programs of agricultural instruction.

CHAPTER VI

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Introduction

The wealth of information emanating from this study was characteristic of follow-up studies. At times it was a difficult task to stay with data relevant only to the purposes stated in Chapter I. The objective of this chapter is to relate significant and relevant findings to the purposes of the study in the form of conclusions and implications.

The chapter is presented in three parts:

1. Summary of findings,
2. Conclusions and implications for agriculture education,
3. Recommendations for additional research studies.

Summary of Findings

1. The most important finding of the entire study was the favorable assessment which the Divisa graduates made of the in-school individual work experience programs provided through the school's regular program of instruction. Unequivocally, they rated these work experiences more valuable than any other type of in-school experience, including the school's traditional vocational and academic programs and extracurricular experiences. Regardless of how the 100 respondents were grouped this statement held true.
2. Job dissatisfaction among Divisa graduates did not exceed 18 percent. This was 5 percent more than the average amount of job dissatisfaction found among workers in the United States, but considerably lower than the 29 percent job dissatisfaction reported in some studies conducted in other countries. Graduates who were self-employed or employed by private enterprise had higher job satisfaction scores than other groups. Those with median

job satisfaction scores were for the most part government workers and non-agricultural workers and the few temporarily unemployed were the least satisfied.

3. Employers of the Divisa graduates favorably perceived the National School of Agriculture and its graduates. They agreed that the school was a source of qualified workers and that the school was an asset to agricultural development. They clearly expressed their expectation that the school will continue to improve the vocational phases of its instructional program.

They agreed with the concept of adult farmer education and the necessity for it, but they differed on how adult education should be implemented. Government officials believed that adult education should be a responsibility of the school but conducted as an in-school program. Private enterprise employers agreed that the school not only had the responsibility for adult education but also that it should carry programs of adult farmer education directly to the people in their own communities.

4. The rate of dropout among NSA students ranged between 20 and 30 percent. School records cited failing grades and voluntary action as primary reasons for dropping out of school.

5. More graduates work for the Ministry of Agriculture (49 percent) than with private enterprise (37 percent). These percentages are little changed from those found in the 1958 study in which 52 percent were in government jobs and 47 percent worked in private enterprises.[1] The present study indicates that the decrease in percentages of graduates working in government and private enterprise was due to an increased percentage of graduates enrolled in colleges. In his Taiwan study Meaders found a comparable distribution between government employees (42 percent) and private enterprise (58 percent).[2]

6. There has been no substantial increase in the percentage of self-employment or independent farmers among Divisa graduates in recent years. Relevant data in the 1958 study and the present study were essentially the same. The former showed 7 percent of the graduates engaged in independent or non-salaried work while only 9 percent of the graduates since 1960 reported themselves as being independent.

---

[1] Meaders, loc. cit. [2] Ibid.

7. One-half of the respondents secured their first jobs before the day of their graduation. The other one-half required two months to find their first jobs. The average tenure on the first job was seven months but graduates held their second job at least twice as long.

8. Rate of unemployment was not unduly alarming, approximately 50 percent of the graduates were unemployed for less than 10 percent of their work time. The bulk of unemployment occurred between graduation and the first job.

9. Graduates enjoyed higher beginning salaries in government work than in private enterprise employment. However, salaries rose more rapidly in the latter and after a period of three years they were comparable to government salaries. The study shows that salaries have increased steadily since 1960. A comparison reveals that the average salary of the 1960-1964 graduates increased 12-1/2 percent over the average for 1955-1958 graduates found in the 1958 study. Each group had been out of school a comparable period of time at the time the data were collected.

10. Fourteen percent of the respondents were enrolled full time in college. However, of the entire group of 1960-1964 graduates, 121 young men, the percentage was considerably higher because thirteen of the twenty-one who did not respond were in colleges and universities. Twenty-seven percent of all graduates were enrolled full time or part time in college. Fifty percent of the respondents attending college were on scholarships.

11. The two favorite aspirations of Divisa graduates were: (1) to work toward a college degree, and (2) to establish or increase their own farming operations. Younger respondents aspired to college while the older ones aspired to become independent farmers.

12. Divisa graduates were not highly mobile; 61 percent found jobs in their home provinces directly following graduation. Nine percent returned to their home provinces after first working in some other province. This finding is comparable to one in Meaders' Taiwan study in which he reported that most of the vocational agriculture graduates remained in their own service area. The province of Chiriqui had the lowest rate of migration while the highest rate was out of the Central Provinces.

Conclusions and Implications for Agricultural Education

The findings failed to reveal gross differences between the Divisa graduates of agriculture and those of other cultures which have been sampled in similar studies. As studies of other schools or systems of agricultural education are made, differences may occur. One conclusion of this study was that similarities among nationality groups of the agriculturally trained at the secondary level were greater in number than the differences among them.

Major Conclusions

A major conclusion of this investigation was that individual work experience programs, including on-the-farm summer training, individual student projects, and the student cooperative, were effective innovations in the program of instruction at the National School of Agriculture, Panama. These kinds of programs generally benefitted graduates, regardless of the type of work in which they were engaged, more than the familiar and traditional agricultural field practices commonly associated with Latin schools of agriculture. Work experience programs which permitted students to explore their individual interests and needs were more effective than those experiences which treated students as a group.

A second major conclusion is related to job satisfaction. Factors associated with job satisfaction of the Divisa graduate fell into two principal categories: (1) those which related to the conditions of work, and (2) those which related to the nature of the work. Agricultural educators in Panama may generalize that students who become self employed or employed in private enterprise will be more satisfied with their work than those employed by government. The degree of job satisfaction depended largely upon the graduate's ability to satisfy his needs. Indications were that empoyers of Divisa graduates do not understand well that job performance depends in part upon factors affecting satisfaction or dissatisfaction. Apparently many of the factors associated with job satisfaction among American workers are applicable to young Panamanians launching work careers.

Finally, even though the employers of Divisa graduates favorably perceived

the National School of Agriculture, officials of this institution should not become complacent with their optimism. Rising expectations of these leaders, as well as other Panamanians, have made educational reforms at the school essential. They would support these kinds of reforms at NSA: (1) those which emphasize farm production and greater amounts of farm skills training, (2) developing programs of instruction in agricultural industrialization and the processing of farm products, and (3) developing intensive short-term training programs which emphasize management and administration of agricultural operations.

Other Conclusions and Implications

Work experience programs are one way of breaking through traditional, neo-colonial and usually aristocratic patterns of education in Latin America. Latin educators generally contend that secondary education is couched in a set of standards and beliefs wholly unrealistic for the masses and especially for rural people. Through work experience programs students with middle or lower class values are permitted to express themselves through a familiar set of social values. Furthermore, because these experiences encompass wide latitudes, students have an opportunity to appraise the suitability of their value system in relation to the complex, rapidly changing, nationalistic social order of which they are a part. If the student senses a need for change he has a realistic, overt base of experience, as well as his emotional base, from which he can formulate opinions for change for the social order he perceives. For example, as students the graduates in this study worked on the larger and more successful farms during the summer vacation; thus they became oriented to the standards and beliefs of this type of farmer. Another program, their individual projects, placed them in the position of the small producer, in which they planned, produced and marketed under situations supported by a different set of standards and beliefs, different from that under which large scale farming is conducted. Without the institutional support of work programs neither of these experiences would have been available to the student.

Altering Teacher Attitudes

Work experience programs have little chance of succeeding unless vocational teachers alter their groupistic attitudes toward students. Teachers must replace their "What is good for one is good for all" approach to teaching with an expertise in the supervision of individual work.

In the immediate future, any vocational schools in Panama which attempt to introduce work experience programs will first need to engage their participating staff members in both in-service and on-the-job training programs which train teachers of agriculture in the techniques of visualizing and planning, organizing and implementing work programs. This kind of training requires trainers or specialists who not only have studied and have a clear understanding of work experience programs but also who have innovative ability to plan and organize experimental programs and to fit them into school curricula. Certainly school directors have the responsibility of creating a favorable environment in which experimental work can be conducted.

However, neither school directors nor specialists can hope to continue training their own staffs indefinitely. Teacher training institutions have a responsibility to broaden the scope of their program and to teach the philosophy and the need for work experience as well as suggest the kinds of programs that may be tried. The limitation here is the fact that many vocational teachers are not required to take teacher training.

Motivating Work Experience Programs

How do in-school work experience programs become an integral part of a nation's system of education? Where does the idea receive its impetus for growth? Primary motivation must, unmistakably, come through national leaders in education who are dedicated to restructuring a nation's education to meet the needs of every individual student regardless of his economic or

social status. Unless dedicated, competent leaders realistically appraise and evaluate young people's problems of establishing themselves in the real world of work, no more than isolated experimental programs (such as the one at Divisa) will result. Second, with the stimulation of national leaders, directors of schools must take the lead in coordinating experimental programs with regular programs of instruction. They must continually and conscientiously evaluate progress and interpret the same to higher echelons.

But experimental work experience programs, pilot projects, demonstrations, or other names by which innovation is known lack "feed-back." Experimental efforts in Latin education continually suffer through the inability of the experimenter to inculcate findings into the body of functional knowledge. Needed is a research team trained to plan evaluation procedures, to train people how to collect, handle and analyze data and to interpret it in terms of original objectives.

The Problem of Becoming Established

The school is serving an important function by preparing practical agriculturalists (1) to work with college-trained technicians as work supervisors, (2) to serve as lesser managers on farms, and (3) to work in agricultural industry. Nearly 70 percent of the graduates were pursuing vocations employing this type of worker. Meaders found that over 60 percent of the Taiwan graduates were in agriculturally related occupations.[3] One of the questions which the study hoped to answer asked if the school were achieving its "greater employability in agriculture" objective. The data indicate a "yes" answer.

Work experience programs have played a major role in achieving this objective. However, the second objective, "training farmers," has not been achieved. Less than 10 percent of the respondents of both studies indicated they were independent or self-employed on farms. Then, why haven't work experience programs been more helpful in achieving this objective? The narrative

[3] Ibid.

portion of the questionnaire left little doubt that making a successful start in farming was closely associated with the availability of credit, capital, equipment, seeds and breeding stock, marketing capabilities and qualified labor. The knowledge of farming is of little use if these other essentials are lacking. If, in the next few years, the school administrators persist in maintaining their present on-going work experience programs and if teachers make greater attempts to relate student's in-school project programs to home situations, the objective of establishment may be reached by a greater number of students. In addition, the school will need to help students secure a source of credit. One method would be to expand the functions of the Student Cooperative to include short-term production loans (up to three years) to graduates attempting to become established on farms.

Selection

Unless a graduate has access to land through his family or friends it is illogical for him to anticipate owning and operating a farming business. However, the procedure for selecting new students does not discriminate on any material or financial basis; a boy from a poor, landless family has as much hope of being selected for Divisa as a boy who comes from a family with a well-established farm. As a result it is only happenstance that graduates with excellent opportunities to become independent farmers are selected as first year students.

If school administrators want their students to become model farmers, they will have to conscientiously select students who have farming potentials. Not all candidates would need to fall into this category of selectness.

Supervision

Secondly, the school must give the potential new farmer individual supervision commencing the first year he is in school. This implies that a teacher would work with the student and his parents to determine (1) the most likely type of farming operations, (2) physical and financial needs in becoming established, (3) ultimate scope and goals of the operation, and (4) how the student can commence to reach his goals through an in-school

project program. Finally, the school would have to provide on-the-farm supervision immediately after graduation and help the young farmer establish a source of credit. Without credit and supervision the in-school help would avail him little.

Specialization

There was a concensus of opinion that Divisa students should be allowed to specialize. The data did not clearly indicate how students might profit from specialization nor were kinds of specialization suggested. However, the findings of the study generally implied that specialization might be accomplished on the basis of what students are likely to do after graduation rather than by the academic fields within agriculture, such as plant or animal science or mechanics.

While one form of specialization may be channeling a student's in-school efforts toward his goals of becoming an independent farmer, other avenues may include (1) government work, either in extension education or in departments of technical and research work, (2) private enterprise with emphasis on farm management and methods of production, and (3) college preparation. These four avenues of work would still require a basic curriculum in agriculture and general education but special training programs and individual programs could be planned in a student's chosen direction.

Placement Service

Specialization as described above has definite implications for a counseling and placement service for students. Students should not be left entirely to the mercy of their aspirations. They need to understand the facts which surround their particular situations and to face the realities likely to befall them. The major objectives of a placement service would be: to discover employment opportunities and to determine the requirements for each, to inform employers concerning potential graduating seniors and to help students to seek interviews with prospective employers.

Adult Education

The concept of adult farmer education was supported by agricultural leaders of Panama. Government officials and private employers disagreed to some extent regarding methodology. These differences should be investigated through research. Private employers would no doubt support a kind of program in which the school conducted adult education in the community itself. The majority of government officials favored confining adult programs to the physical environment of the school. There are merits in either solution. Certainly the school's present farmer training program can be expanded and more farmers served. But inevitably such programs will need to be more closely supported by the rural people themselves with community leaders taking greater responsibility in their community's education. There is some evidence in the data to show that these government officials with broader responsibility for agricultural development agree with private employers. Actually, NSA has a great potential in adult farmer education.

Teacher Qualifications

Agricultural leaders did not clearly perceive the situation of Divisa teachers concerning their qualifications. Their image of the teacher of agriculture was that of a university graduate, trained in agricultural education and capable of performing the various farming practices he teaches. Teachers of these qualifications are rarely found.[4] What the leaders did not take into consideration was that four years of university training do not, as a rule, adequately train the inexperienced to become proficient in farming practices. The latter must come from work experience. Therefore, prospective teachers must have both forms of experience to match the leaders' image. One solution is for Panama, alone or in cooperation with other Central American countries, to establish a teacher training institution which would uniquely provide both professional and practical experience.

---

[4]Refer to page 31, Chapter III.

Higher Education

The increased number of Divisa graduates attending college was one of the most surprising findings of the entire study. Prior to 1958 only 1 to 2 percent were enrolled in college. The present study showed that 27 percent of all 121 graduates in the 1960-1964 classes were enrolled at the time the questionnaire was sent. Preparing students for higher education has never been a stated objective of the school but it is an area of training in which the school appears to be excelling. It is a definite advantage to the Ministry of Agriculture to have this number of Divisa graduates in higher education. For the first time, the Ministry has a cadre of young men studying agriculture who first received basic agriculture and work training at the secondary level before enrolling in colleges of agriculture. The situation was largely created by forward-looking Ministry officials who arranged scholarship programs for the top two or three students for each class since 1960. The first of the Divisa graduates, included in this study, to receive Bachelor's degrees in agriculture will graduate in June 1965.

Recommendations for Additional Research Studies

1. Similar follow-up studies should be made of other schools of agriculture in Central America, especially the National Schools of Agriculture in El Salvador, Guatemala, and Nicaragua which closely resemble the National School in Panama. The conclusions of such studies should be related to the conclusions found in this study.

2. The Adult Farmer Training program at Divisa should be evaluated to determine (1) appropriateness of the various courses offered, (2) rate at which farmers adopt practices taught at the center, and (3) how the program may be improved for greater effectiveness. The latter should consider if it would be appropriate for NSA to extend its adult education programs and techniques into the rural communities proper as opposed to confining them to the physical environment of the school.

3. Job satisfaction was dealt with in a superficial manner in this study. Factors relating to satisfaction need to be studied in depth. A study of this

type might assume factors to be universal, that is, that they do relate, but to what degree? Also, the relationship between job performance and job satisfaction should be studied.

4. Requirements for establishment in farming, especially for young men graduating from Latin schools of agriculture have had very little, if any, research. What is needed is experimentation in which young men are assisted in becoming gainfully employed on their own farms in order to determine what problems are involved, kinds and amounts of working credit and the amount of supervision required.

5. This study concentrated largely on the Divisa graduate. A study should be made of the Divisa student who enrolls at NSA and to determine why he chose this institution. What is the status of his family? What expectations do his parents hold for the education of their son? Do school officials encourage some of their first cycle students to apply at NSA? These are some of the questions this kind of study should try to answer.

BIBLIOGRAPHY

Agricultural Education Magazine

Ahalt, Arthur H. "How Young Farmers Become Established," Vol. 30, No. 10 (April 1959), pp. 220-221.

Ball, Wilbur P. "How Do Vo-Ag Graduates Perform in Farm Mechanics," Vol. 31, No. 7 (January 1959), p. 49.

Beamer, Rufus W. "Agricultural Education in Colombia, South America," Vol. 31, No. 3 (August 1958), p. 35.

Cunningham, Rex. "Ohio Seniors Given Work Experience in Farm Related Occupations," Vol. 35, No. 2 (August 1963), pp. 44-45.

Hemp, Paul E. "What 246 Former Students Think About Vocational Agriculture Training," Vol. 34, No. 5 (November 1961), pp. 114-115.

Juergenson, E. M. "Providing Occupational Experiences for Boys with Limited Experiences," Vol. 35, No. 2 (August 1963), pp. 40-41.

Juergenson, E. M., and Davis, J. T. "Work Experience," Vol. 37, No. 2 (August 1964), pp. 43-44.

Lintner, J. H. "Progress of Agricultural Education in Iraq," Vol. 30, No. 11 (May 1958), pp. 254-256.

Mitchell, Robert. "Our Graduates Operate Dairy Farms," Vol. 35, No. 2 (August 1963), pp. 29-30.

Remple, Averno M., and Bentley, Ralph R. "Factors Affecting the Morale of Vocational Agriculture Teachers," Vol. 35, No. 10 (May 1963).

Thompson, Orville E. "Characteristics of California Vo-Ag Students," Vol. 35, No. 7 (January 1963), pp. 144-145.

Thompson, Orville E. "How Important are Occupational Values of Students of Agriculture," Vol. 35, No. 11 (June 1963), pp. 239-240.

Books

Benton, William. "Education: The Key to Latin America's Future," The Voice of Latin America. New York: Encyclopaedia Britannica, Inc., 1961.

Byram, Harold M., and Wenrich, Ralph C. Vocational Education and the Practical Arts. New York: The Macmillan Co., 1959.

Hoppock, Robert. Job Satisfaction. New York: Harper & Bros., 1935.

Gilmer, Haller. Industrial Psychology. New York: McGraw-Hill Book Co., Inc., 1961.

Panama en Cifras. Panama: Direccion de Estadistica y Censo, Contraloria General de la Republica, 1963.

Thomas, Lawrence. Occupational Structure and Education. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1956.

Zaleznik, A., and Christensen, C. R. The Motivation Productivity and Satisfaction of Workers. Boston: Harvard University Press, 1958.

Periodicals

Blai, B. N. "A Job Satisfaction Predictor," Personnel Journal, Vol. 42 (1963), pp. 233-256.

Burns, H. W. "Social Values and Education in Latin America," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), pp. 198-199.

Chiappetta, Michael. "Philosophy of Education in Latin America," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), p. 216.

Dobles, Margarita. "Identification of Youth Problems in Costa Rica." Unpublished dissertation, Stanford University, 1958. University Micro. 58-3597. Reported in Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), p. 228.

"The Fifty Years Since Construction Commenced," Panama Canal Review, Vol. 4, No. 10 (May 4, 1954), p. 2.

Hoppock, Robert. "Job Satisfaction Researches of 1960," Personnel and Guidance Journal, Vol. XL, No. 4 (December 1961), p. 373.

Del Rio, Fernando. "Agricultural Education in Latin America and Its Promise for the Future," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), pp. 202-207.

Robinson, A. H., and Connors, R. P. "Job Satisfaction Researches of 1961," Personnel and Guidance Journal, Vol. XLI, No. 3 (November 1962).

Robinson, H. A., Connors, R. P., and Robinson, A. H. "Job Satisfaction Researches of 1963," Personnel and Guidance Journal, Vol. XLII, No. 4 (December 1964), p. 360.

Rosen, R. A., and Rosen, H. "A Suggested Modification in Job Satisfaction Surveys," Personnel Psychology, Vol. 8 (1955), pp. 303-314.

Salas, Irma. "Secondary Education in Latin America," Phi Delta Kappan, Vol. XLV, No. 4 (January 1964), pp. 173-178.

Stein, H. B. "Love Your Job," Rotarian, Vol. 96 (1960), pp. 43-44.

Reports and Bulletins

Agan, Roy J. "Success of Agricultural Graduates in Farm-Related Businesses." An unpublished study, Kansas State University, Summaries of Studies in Agricultural Education, Supp. No. 14, Vocational Division, Bulletin No. 291. Washington: Office of Health, Education and Welfare, 1960.

Baxter, Glaister. El Problema Agricola de Panama. A memorandum to the Secretary of Education and Agriculture, with an introduction by Secretary Anibal Rios. Panama: Imprenta Nacional, 1957.

Deyoe, George P. Young Men From Michigan Farms. A study of farm-reared men. Bulletin No. 256. Lansing: State Board of Control for Vocational Education, 1939.

Escobar, Arnoldo. La Educacion Vocacional Agricola En Centro America. A staff document, Instituto de Investigaciones y Mejoramiento Educativo. Guatemala: University of San Carlos, 1964.

Di Franco, Joseph. Analytical Study of the Extension System of Panama. Turrialba, Costa Rica: Organization of American States, IIAC, 1964.

Freeman, Harold, and Hanna, Paul R. The Role of Agricultural Education in the Economic Development of Thailand. Cooperative Research Project No. 1032, Comparative Education Center, School of Education. Stanford, California: Stanford University, 1964.

Haller, A. O. Educational and Occupational Choice of Farm Youth. Paper prepared for the National Conference on Problems of Youth in a Changing Environment. East Lansing: Michigan State University, 1963.

Haugh, Charles C. The Current Situation in Latin American Education. OE-14080, Bulletin 1963, No. 21. Washington: U. S. Office of Health, Education and Welfare, February 1962.

Hereford, Karl T., et al. A Plan of Public Expenditure for Education in Central America. Instituto de Investigaciones y Mejoramiento Educativo staff document. An Inter-University Program between the University of San Carlos, Guatemala, and Michigan State University, East Lansing, 1964.

Meaders, O. Donald. The Education and Occupational Attainments of Taiwan Vocational Agricultural Graduates. Institute of International Studies in Education, College of Education. East Lansing, Michigan State University, July 1965.

Philosophy and Objectives of Vocational Education. Report of Task Force No. 1, Michigan Vocational Education Evaluation Project. College of Education Research Bulletin No. 6. East Lansing: Michigan State University, June 1962.

Solis, Menalco. "Eleven Years of Technical Cooperation in Agriculture and Natural Resources," A SICAP Publication. Located in the library of the Ministry of Agriculture, July 1953.

Solis, Menalco. "Fifty Years of Agriculture," Fiftieth Anniversary of the Republic of Panama. Panama: Imprenta Nacional, 1953.

Wall, Stanley. The Needs of Out-of-School Rural Young Men in Kentucky for Systematic Training in Farming. Bulletin of the College of Education. Lexington: University of Kentucky, February 1955.

Yuzuk, R. P. Assessment of Employee Morale. Research Monograph No. 99, Bureau of Business Research. Columbus: Ohio State University, 1961.

Unpublished Reports and Theses

Aguila, Felix, de Mayo, Sra. Hilma, and Householder, W. A. A Follow-up Study of 303 Divisa Graduates. An unpublished report that may be found in the files of the National School of Agriculture and of the Ministry of Agriculture, Republic of Panama, 1958.

Butler, Jimmy J. "Some Guidance Concerns in Vocational Agriculture." Unpublished Master's thesis, University of Tennessee, 1959.

Byram, Harold M. "Informal Report on Observations of Vocational Education in Central America." An unpublished IIME report, Michigan State University, East Lansing, and University of San Carlos, Guatemala, 1963.

Naranjo, Gerardo E. "Estudio Analitico del Servico de Extension Agricola del Ecuador." Unpublished Master's thesis, School of the Inter-American Institute of Agricultural Sciences of the O.A.S., Turrialba, Costa Rica, 1964.

Householder, W. A. End of Tour Report. An unpublished report located in the files of US/AID. Washington, March 1962.

Judge, Homer V. "Work Experiences of Michigan School Students of Vocational Agriculture and Their Relation to Occupational and Educational Plans." Unpublished Doctoral dissertation, Michigan State University, 1963.

Meaders, O. Donald. Description of Agricultural Jobs Most Frequently Held by Taiwan Vocational Agricultural Graduates. Unpublished manuscript, College of Education. East Lansing: Michigan State University, 1965.

Del Rio, Fernando. "The Profession Needs of Costa Rican Extension Workers." Unpublished Doctoral dissertation, Cornell University, 1958.

Roberts, Roy W. (ed.). Recommendations for Reorganizing the Resident Teaching Programs of the National Institute of Agriculture, Divisa, Panama, November 1951.

Robles, Juan. "The Effects of a Special Program of Teacher Education and Supervision Upon Job Satisfaction of Vocational Agricultural Instructors of Puerto Rico." Unpublished Doctoral dissertation, Pennsylvania State University, 1959.

"Seminario Regional de Extencion Agricola, Para la Zona Norte de America Latina, Considerando y Recomendaciones." A conference report. Mexico City: Secretary of Agriculture and FAO, 1963.

APPENDICES

ESTUDIO DE EGRESADOS DE LA E.N.A.

Este es un Proyecto que se efectúa con la cooperación de la ESCUELA NACIONAL DE AGRICULTURA y del Sr. WILLIAM A. HOUSEHOLDER, candidato de la Universidad del Estado de Michigan, quien es el representante de CARE y de NATIONWIDE. El objetivo de este Proyecto es el de evaluar el Programa de estudio de la E.N.A. desde el año de 1958 hasta el presente. Su cooperación en llenar y devolver este cuestionario es un imperativo para el éxito de este estudio.

I DATOS PERSONALES

NOTA: En primer lugar queremos saber de ciertos datos suyos. Por favor escríbanos con letra de molde.

1 NOMBRE _____ (Apellido Paterno / Apellido Materno / Nombres) 2 DIRECCION _____ (Pueblo o Distrito / Provincia)

3 NACIMIENTO _____ (Provincia) 4 EDAD ACTUAL _____ 5 FUAD Y AÑO EN QUE SE GRADUO EN LA E.N.A. _____ EDAD _____

6 ¿DONDE FINALIZO UD. SU ESCUELA PRIMARIA? CIUDAD _____ PROVINCIA _____ AÑO _____

7 ¿DONDE FINALIZO UD. SU PRIMER CICLO? CIUDAD _____ PROVINCIA _____ AÑO _____

8 ¿ES UD. CASADO _____ SOLTERO _____ DIVORCIADO _____ O ESTA SEPARADO _____ 9 ¿CUANTOS HIJOS TIENE UD.? _____ NINOS _____ NIÑAS _____

10 ¿VIVE SU PADRE? SI _____ NO _____ AÑOS DE MUERTO _____ EN QUE TRABAJÁ SU PADRE _____

11 ¿VIVE SU MADRE? SI _____ NO _____ AÑOS DE MUERTA _____ EN QUE TRABAJÁ SU MADRE _____

12 ¿CUANTOS HERMANOS TIENE? _____ MAS VIEJOS _____ MÁS JOVEN QUE UD. _____ 13 ¿CUANTAS HERMANAS TIENE? _____ MÁS VIEJAS _____ MÁS JOVEN QUE UD. _____

14 ¿CUANTÁS PERSONAS DEPENDEN DE UD. ECONOMICAMENTE? (Incluyo: esposa, hijos, padres y otros) _____

DATOS PERSONALES

15 QUE CANTIDAD DE DINERO ESTIMO UD. FUE NECESARIO GASTAR PARA MANTENERLO EN LA E.N.A.
Dé este estimado en balboas por mes sin incluir su beca.
B/. _____

16 QUIEN DIO ESE DINERO
1 _____ Padre
2 _____ Madre
3 _____ Hermano
4 _____ Tio o Tia
5 _____ Otro Pariente
6 _____ Ud. mismo
7 _____ Otro

17 GOZO UD. DE UNA BECA DURANTE TODO EL TIEMPO QUE ESTUVO EN LA E.N.A. SI _____ NO _____ SI NO, CUANTOS AÑOS LA TUVO _____ AÑOS

18 QUE TIEMPO DESPUES DE SU GRADUAÇION, COMENZO UD. A TRABAJAR? MES _____ AÑO _____

19 CUANTOS TRABÁJOS DIFERENTES HA TENIDO UD. DESDE SU GRADUACION? _____ TRABAJOS

20 CUAL HA SIDO EL TIEMPO MAS LARGO QUE UD. HA ESTADO SIN EMPLEO _____ MESES

II TENENCIA DE TIERRAS

NOTA Si Ud. tiene tierra disponible para la producción animal o vegetal y si Ud. no ha estado en condiciones de sacar provecho de esta oportunidad, por favor conteste las siguientes preguntas. Nuestro objetivo es entender su problémas para poder establecerse en la producción agrícola.

1 QUE CANTIDÁD DE TIERRA DÍSPONIBLE TIENE UD. PARA TRABAJAR _____ HECTAREAS.

2 A QUE DISTAÇIA ESTA ÉSA TIERRA DE DONDE UD. ESTA VIVIENDO? _____ MILLAS

3 A QUIEN PERTENECEN ESAS TIERRAS A LAS CUALES UD. TIENE ACCESO.
1 _____ a usted
2 _____ a un socio
3 _____ a su padre o madre
4 _____ a un hermano
5 _____ a un familar
6 _____ a un amigo
7 _____ al gobierno
8 _____ a un dueño que desea alquilar

4 CUAL ES LA MAGNITUD DE SU INTERES EN DESARROLLAR PRODUCTIVAMÉNTE ESTAS TIERRAS
1 _____ Yo estoy muy interesado
2 _____ Yo estoy interesado
3 _____ Yo estoy un poco interesado
4 _____ Yo no estoy interesado

5 CUAL DE ESTOS MOTIVOS LO RESTRINGEN O IMPIDEN PONER A PRODUCIR ESTAS TIERRAS?
NOTA: Seleccione todas aquellas razones que se apliquen a su caso, marque con una X las que sean de mayor importancia y con O las de menor importancia.
1 _____ No tengo dinero para comprar semillas, abonos
2 _____ No tengo dinero para comprar equipo capital como maquinaria, animales etc.
3 _____ No tengo medios de transporte adecuado
4 _____ Necesito más experiencia y habilidad técnica
5 _____ No tengo confianza en la estabilidad del mercado
6 _____ El sistema de crédito Agrícola no me sirve
7 _____ No tengo garantias que ofrecer para [illegible] agrícola
8 _____ Estas tierras no estan bajo los requisi[illegible] ley exige
9 _____ Alto costo de la preparación inicial de [illegible]
10 _____ No hay buenos caminos de penetración [illegible] estas tierras.

6 ALGUNA VEZ HA HECHO UD. UN SERÍO INTENTO PARA PONER A PRODUCIR ESTAS TIERRAS? [illegible]
Si su respuesta es sí, por favor digannos en pocas palabras porqué desistió de la idea. Use el espacio A de la pag. [illegible]

III DATOS DEL ACTUAL TRABAJO O DEL ULTIMO

Tenga la amabilidad de decirnos algo acerca de su presente trabajo o de su más reciente trabajo. Debe llenar Ud. esta parte si está trabajando actualmente bajo un salario. Si está sin empleo conteste de acuerdo a su último trabajo. Si trabaja independiente llene la parte III.

NOTA: Por favor escriba con letra de molde.

1 ES UNA POSIÇION DE TIEMPO COMPLETO_____O DE TIEMPO PARCIAL_____

2 SI ES DE TIEMPO PARCIAL, CUANTAS HORAS TRABAJA POR DIA? _____HORAS

3 TITULO DE LA POSICION O EMPLEO_____

4 UBIÇACION DE SU EMPLEO_____
CIUDAD PROVINÇIA

5 NOMBRE DE SU PATRONO _____

6 EN LAS SIGUIENTES TRES LINEAS, SIRVASE DARNOS UNA RAPIDA DESCRIPCION DE SUS ACTIVIDADES. ES DECIR, QUE HACE UD.?

_____

_____

_____

7 CUÁNTAS PERSONAS TRABAJAN BAJO SU RESPONSABILIDAD?

1_____Ninguna 3_____de 6 a 10 5_____16 o más

2_____de 1 a 5 4_____de 11 a 15

8 EN EL DESEMPEÑO DE SU TRABAJO UD. PASA LA MAYOR PARTE DE SU TIEMPO EN

1_____En la finca 4_____Afuera, pero no en una finca

2_____En una oficina 5_____En una tienda o almacén

3_____En una planta procesadora 6_____Otro

9 FECHA EN QUE COMENZO A TRABAJAR: MES_____AÑO_____

10 FECHA DE LA ULTIMA VEZ QUE TRABAJO MES_____AÑO_____

11 COMO CALIFICA LAS CONDIÇIONES DE SU TRABAJO

1_____Excelentes 2_____Buenas 3_____Regulares 4_____Pobres

12 EN LA ESCALA QUE SIGUE, SIRVASE TRAZAR UN CIRCULO "O" EN LA CIFRA QUE INDIQUE EL SALARIO MENSUAL QUE COMENZO GANANDO EN SU PRESENTE TRABAJO. TRACE UNA "X" SOBRE EL VALOR QUE REPRESENTA SU SALARIO ACTUAL. Cada punto representa 5 balboas.

50 o menos ~+++~+++~+++~+++~+++~+++~ o más

50 75 100 125 150 175 200

13 CONSIDERA UD. QUE HUBIERA SIDO POSIBLE CONSEGUIR LA PRESENTE POSICION SIN SU ADIESTRAMIENTO EN LA E.N.A. SI_____NO_____

14 CUALES SON DOS O TRES DE LOS PROBLEMAS MAS SERIOS QUE UD. CONFRONTA EN EL DESEMPEÑO DE SU PRESENTE TRABAJO. Use el cuadro No. B de la página 6 para escribir la respuesta.

IV DATOS DEL TRABAJO PASADO

1 SU PRIMER TRABAJO DESPUES DE SU GRADUACION EN LA E.N.A.

NOTA; Si su actual trabajo no es el primero después de su graduación, sírvase contestar las siguientes preguntas.

FECHAS DE EMPLEOS				TITULO DEL EMPLEO	
DE		A			
Mes	Año	Mes	Año	SALARIO MENSUAL INICIAL	SALARIO MENSUAL FINAL

UBICACION: CIUDAD _____ PROVINCIA _____

DESCRIBA SU TRABAJO:

_____

_____

¿COMO CALIFICARIA UD. LAS CONDIÇIONES DE ESTE EMPLEO?

1_____Excelentes 3_____Regulares

2_____Buenas 4_____Insatisfactorias

¿POR QUE DEJO UD. ESTE EMPLEO?

_____

_____

¿CUÁNTAS PÉRSONAS TRABAJABAN BAJO SUS ORDENES?

1_____Ninguna 3_____De 6 a 10 5_____16 o más

2_____De 1 a 5 4_____De 11 a 15

PREGUNTA ESPECIAL

¿Cuál es su opinión del entrenamiento para Agricultores que dá el Centro de la E.N.A.?

_____

_____

_____

_____

_____

_____

CONTINUACION DE LA IV PARTE

2 SU SEGUNDO TRABAJO DESPUES DE SU GRADUACION EN LA E.N.A.

NOTA; Si su actual trabajo no es el segundo después de su graduación, sírvase contestar los siguientes preguntas. Si es su presente trabajo, deje este cuadro en blanco.

FECHAS DE EMPLEOS				TITULO DEL EMPLEO	
DE		A			
Mes	Año	Mes	Año	SALARIO MENSUAL INICIAL	SALARIO MENSUAL FINAL

UBICACION: CIUDAD _____ PROVINCIA _____

DESCRIBA SU TRABAJO:

¿COMO CALIFICARIA UD. LAS CONDICIONES DE ESTE EMPLEO?

1 _____Excelentes 3 _____Regulares

2 _____Buenas 4 _____Insatisfactorias

¿POR QUE DEJO UD. ESTE EMPLEO?

¿CUANTAS PERSONAS TRABAJABAN BAJO SUS ORDENES?

1 _____Ninguna 3 _____De 6 a 10 5 _____16 o más

2 _____De 1 a 5 4 _____De 11 a 15

V DATOS PARA QUIEN ASISTE A LA UNIVERSIDAD

INFORMACION ACERCA DE GRADUADOS DE LA E.N.A. QUE ESTAN ASISTIENDO A LA UNIVERSIDAD.

1 NOMBRE DE LA UNIVERSIDAD _____

2 UBICACION DE LA UNIVERSIDAD _____

3 ¿CUANDO SE MATRICULO UD? Mes _____ Año _____

4 ¿CUANDO ESPERA TERMINAR SUS ESTUDIOS? Mes _____ Año _____

5 ¿QUE TITULO OBTENDRA? _____

6 ¿CUAL ES SU MAYOR CAMPO DE ESTUDIO? _____

7 ¿CUAL ES SU CAMPO MENOR DE ESTUDIO? _____

CONTINUACION DE LA IV PARTE

3 SU TERCER TRABAJO DESPUES DE SU GRADUACION EN LA E.N.A.

NOTA; Si su actual trabajo no es el tercero después de su graduación, sírvase contestar preguntas. Si es su presente trabajo, deje este cuadro en blanco.

FECHAS DE EMPLEOS				TITULO DEL EMPLEO	
DE		A			
Mes	Año	Mes	Año	SALARIO MENSUAL INICIAL	SALARIO MENSUAL FINAL

UBICACION: CIUDAD _____ PROVINCIA _____

DESCRIBA SU TRABAJO:

¿COMO CALIFICARIA UD. LAS CONDICIONES DE ESTE EMPLEO?

1 _____Excelentes 3 _____Regulares

2 _____Buenas 4 _____Insatisfactorias

¿POR QUE DEJO UD. ESTE EMPLEO?

¿CUANTAS PERSONAS TRABAJABAN BAJO SUS ORDENES?

1 _____Ninguna 3 _____De 6 a 10 5 _____16 o más

2 _____De 1 a 5 4 _____De 11 a 15

4 ¿EN CUAL DE LOS EMPLEOS DESCRITOS ARRIBA, HA TENIDO UD. UNA MAYOR SENSACION DE SEGURIDAD O ESTABILIDAD?

1 _____En mi actual empleo 3 _____En mi segundo empleo

2 _____En mi primer empleo 4 _____En mi tercer empleo

CONTINUACION DE LA V PARTE

8 ¿COMO ESTA FINANCIANDO SUS ESTUDIOS? Marque aquellas alternativas en que Ud. se encuentra y el % de las mismas.

_____Por cuenta propia Que porcentaje_____

_____Beca Que porcentaje_____

_____Trabajo para pagar mis estudios Que porcentaje_____

9 SI UD. TIENE UNA BECA, POR FAVOR RESPONDA A ESTAS PREGUNTAS

¿Quién le otorgó la Beca? _____

¿Por cuántos años le extenderán la Beca? _____

¿Cuál es el valor anual de su Beca? _____

VI PARA UD. QUE ES INDEPENDIENTE

Si Ud. trabaja parcial o totalmente para Ud., en agricultura u otra actividad, sírvase contestar las siguientes preguntas

1 TRABAJA PARA UD. MISMO: TIEMPO COMPLETO_____ TIEMPO PARCIAL:_____ (Si Ud. trabaja tiempo parcial y además tiene empleo remunerado, que también conteste las preguntas de las III y IV partes

2 ¿CUAL ES LA EXACTA NATURALEZA DE SU ACTIVIDAD COMERCIAL PERSONAL? Describala_____

3 ¿CUAL ES EL GRADO DE PERTENENCIA DE SU ACTUAL EMPRESA COMERCIAL? Propietario_____Arrendatario_____Socio_____Propietario y Arrendatario_____Finca F

4 LOCALIZACION DE SU EMPRESA COMERCIAL: Distrito o pueblo_____ Provincia_____

ACTIVIDAD AGRICOLA

Sírvase responder a esta sección si se dedica a actividades agrícolas

1 ¿CUAL ES LA SUPERFICIE DE SU FINCA?

En cultivos_____has. (incluya tierras en descanso o barbecho)

En postizales_____has. (naturales y artific.)

Otros terrenos_____hos.

Total_____has.

2 DESCRIBA BREVEMENTE COMO LLEGO A POSEER PARCIAL O TOTALMENTE ESTA PROPIEDAD

_____

3 ¿CUALES CULTIVOS PRODUCE UD? Marque con X los mas importantes y con O los menos importantes

Maíz _____ Frijoles _____ Hortalizas_____ Caña _____

Arroz_____ Tomates_____ Frutales _____ Otros_____ ¿cuáles_____

4 INDIQUE CLASES Y NUMERO DE ANIMALES QUE POSEE:

Ganado bovino de Carne_____

Ganado bovino de Leche_____

Caballos_____ Gallinas_____

5 MARQUE UNA DE LAS SIGUIENTES FRASES QUE MEJOR DESCRIBA COMO VENDE UD. SUS PRODUCTOS AGRICOLAS

1_____Los vendo a compradores directamente en la finca.

2_____Los transporto al mercado de la ciudad y allí comienzo a venderlos

3_____Los transporto a un local y allí los vendo.

4_____Estoy asociado con otros agricultores y juntos vendemos nuestros productos.

5_____Otra forma de mercado. ¿Cuál?_____

6 ¿CUALES FUERON LOS 3 PROYECTOS MAS IMPORTANTES QUE UD. REALIZÓ MIENTRAS ESTUVO EN LA E.N.A.?

1 _____

2 _____

3 _____

7 CUALES FUERON LAS 2 PERSONAS QUE MAS LE AYUDARON PARA COMENZAR SUS TRABAJOS AGRICOLAS:

1_____Algún Profesor 4_____Un miembro cercano de la familia (hermanos) 7_____Yo mismo

2_____Mi padre 5_____Un miembro lejano de la familia (tíos) 8_____Otra persona

3_____Mi madre 6_____Un amigo

8 ¿CUAL HA SIDO SU INGRESO ANUAL NETO?

_____BALBOAS

9 ENUMERE DOS O TRES DE SUS PROBLEMAS MAS SERIOS EN SU ACTIVIDAD AGRICOLA

1 _____

2 _____

3 _____

ACTIVIDAD NO AGRICOLA

Si su actividad comercial no es de carácter de producción agrícola directo, responda las siguientes preguntas.

1 Enumere algunas de las facilidades más importantes de que Ud. dispone, como edificios, equipo u otra.

a)_____ d) _____

b) _____ e) _____

c) _____ f)_____

2 Dispone de alguna persona que trabaje para Ud._____

Cuántas personas trabajan para Ud.?_____

3 Cuál es su ingreso anual neto_____

4 Ha recibido algún adiestramiento adicional desde que Ud. egreso de Divisa (E.N.A.) describalo.

_____

5 Cuáles son dos o tres de sus problemas más grandes?

1_____

2_____

3 _____

6 Indique dos o tres cosas que planea hacer para que crezca su empresa.

1 _____

2 _____

3 _____

VII CLASIFICACION DE EXPERIENCIA DE LA E.N.A.

INSTRUCCIONES

Ud. tuvo oportunidad de tener muchas experiencias mientras estuvo como estudiante en la E.N.A. Seguramente que algunas de ellas le han sido de mayor utilidad. Estamos interesados en conocer cúal de los siguientes treinta tipos de experiencias (distribuídas desordenadamente), considera que han sido de mayor utilidad para Ud. Si no recuerda haber vivido cualquiera de esas experiencias, simplemente sírvase encerrar dentro de un círculo al 0. Si Ud vivió cualquiera de las otras, clasifíquelas de acuerdo con la utilidad que le ha representado, marcando con una X las casillas numeradas de acuerdo con los siguientes valores:

El valor 1 Demuestra que Ud. considera la experiencia de poca o ninguna importancia para toda clase de propósitos prácticos. Es como si nunca la hubiera tenido.

El valor 2 Indica que esa experiencia ha sido de alguna ayuda para Ud., pero nunca de manera significativa.

El valor 3 Demuestra que esa experiencia ha sido muy útil para Ud.

El valor 4 Indica que la experiencia vivida fue extremadamente útil. Fue un punto sobresaliente de su carrera estudiantil.

El valor 0 Expresa que Ud. nunca vivió esa experiencia.

EXPERIENCIA	CLASIFICACION 0	1	2	3	4
1 Ser miembro de la Cooperativa Estudiantil					
2 Participar en la vida diaria escolar					
3 Procesamiento de alimentos en conserva (latas)					
4 Atender a las clases de ciencias					
5 Trabajar en las huertas escolares					
6 Poder planear mi proyecto individual de trabajo					
7 Ayudar a la Cooperativa a tomar decisiones					
8 Participación en la Federación de Estudiantes					
9 Ir a las Ferias de Ganado					
10 Atender a las clases de Matemáticas					
11 Trabajar en una finca por 8 semanas entre el segundo y tercer años de estudios en la E.N.A.					
12 Manejar mi propio proyecto o hacerlo en compañía de otro alumno					
13 Tocar un instrumento en la Banda y marchar en los desfiles cívicos durante las fiestas nacionales					
14 Ayudar a construír cercas, pequeños edificios, equipo					
15 Trabajar en proyectos de clase para ayudar a conseguir el dinero para los gastos de graduación					
16 Participar en los programas deportivos					
17 Atender a las clases de estudios sociales					

EXPERIENCIA	CLASIFICACION 0	1	2
18 Pedir un préstamo a la Cooperativa y pagarlo oportunamente			
19 Ahorrar mi propio dinero a través de la Cooperativa			
20 Participar en las clases de español			
21 Producir cultivos de campo (trabajo de campo)			
22 Mantener limpios y arreglados los alrededores de la escuela (jardines)			
23 Compra y venta de productos por intermedio de la Cooperativa			
24 Atender a la clases de maquinaria agrícola			
25 Trabajar con ganado lechero de alto "Pedrigree" (las novillas de CARE)			
26 Bailes escolares y actos culturales			
27 Demostraciones y concursos de suelos			
28 Atender a las clases de métodos de extensión agrícola			
29 Trabajar con los vecinos de Cañazas o de otras comunidades			
30 Aprender a manejar un tractor y a operar maquinaria agrícola			

De esta lista de 30 experiencias sírvase escribir en orden de importancia los números de las 3 experiencias más sobresalientes:

Primera_____ **Segunda**_____ **Tercera**_____

Enumere también en su orden las 3 experiencias que considera como de menor importancia

Primera_____ **Segunda**_____ **Tercera**_____

PREGUNTA ESPECIAL

QUE PLANES TIENE USTED EN MENTE PARA EL FUTURO?

VIII SATISFACCION DE EMPLEO

A Sírvase elegir y marcar una de las siguientes frases alternativas que se ajuste al grado de satisfacción que U.d. siente por su actual empleo u ocupación.

_____ 1 Lo odio
_____ 2 Me desagrada, le tengo antipatía o tirria
_____ 3 Simplemente no me gusta
_____ 4 Me es indiferente
_____ 5 Simplemente me gusta esta posición
_____ 6 Me siento entusiasmado con esta posición
_____ 7 La amo verdaderamente

B Sírvase elegir y marcar una de las siguientes alternativas que nos haga ver la proporción del tiempo en que se siente satisfecho en su posición

_____ 1 Todo el tiempo
_____ 2 Casi todo el tiempo
_____ 3 Una buena parte del tiempo
_____ 4 Más o menos la mitad del tiempo
_____ 5 Solo me gusta ocasionalmete
_____ 6 Muy rara vez me satisface
_____ 7 Nunca me satisface

C Sírvase elegir y marcar una de las siguientes alternativas que nos dé una idea precisa sobre lo que Ud. piense sobre el cambio de su actual posición

_____ 1 Renunciaría inmediatamente a mi actual posición si encontrara la posibilidad de dedicarme a cualquier otra cosa
_____ 2 Aceptaría casi cualquier otro empleo en el que ganara el mismo sueldo que recibo en esta posición
_____ 3 Me gustaría cambiar tanto mi actual empleo como el tipo de actividad a que me dedico
_____ 4 Me gustaría cambiar mi actual empleo por otro pero en la misma línea de actividad
_____ 5 No tengo ansias o anhelo de cambiar mi presente trabajo pero me gustaría hacerlo si consiguiera uno mejor
_____ 6 No se me ocurre pensar que haya algún trabajo por el cual yo cambiaría el actual
_____ 7 No cambiaría mi presente trabajo por ningún otro

POR FAVOR NO ESCRIBA EN ESTE CUADRO

CONTINUACION DE LA VIII PARTE

D Sírvase elegir y marcar una de las siguientes alternativas que cuando se compara usted con otras personas

_____ 1 No hay ninguna persona que guste mas de su trabajo que a mí me guste el mío
_____ 2 A mí me gusta mi trabajo mucho mas de lo le gusta a la mayoría de las personas que gustan de los suyos
_____ 3 A mí me gusta mi trabajo más de lo que le gusta a la mayoría de las personas que gustan de los suyos
_____ 4 A mí me gusta mi trabajo tanto como otras personas gustan de los suyos
_____ 5 Yo siento mas tirria o antipatía por mi trabajo de la que la mayoría de las personas sienten por los suyos
_____ 6 Yo siento mucha mas tirria o antipatía por mi trabajo de lo que la mayoría de las personas sienten por los suyos
_____ 7 No hay nadie que sienta mas tirria o antipatía de los que yo siento por mi actual empleo

CUADRO A Para pregunta 6 parte II Página 1

CUADRO B Para pregunta 14 parte III Página 2

DATOS SOBRE EL PROGRAMA DE PRACTICAS DE VERANO

Digamos algo de lo que siente por esta parte de su programa en la E.N.A. NOTA: Nos referimos al programa entre su 2do y 3ero. año.

1 ¿EN QUE FINCA TRABAJO UD?_____

2 ¿CUAL ES EL NOMBRE DEL DUEÑO DE LA FINCA O EL SUPERVISOR DE SU TRABAJO?_____

3 ¿CUAL ES EL ARREGLO DE TRABAJO Y VIVIENDA? NOTA: Márque con "X" el concepto que se aplica a Ud. o llene en los blanco su situación.

A_____Yo vivía en la finca donde yo trabajaba.

_____Yo no vivía en la finca donde yo trabajaba.

B_____¿Cómo Ud. Cataloga su condición de vida mientras trabajó en la finca?

_____Buena_____Regular_____Pobre

C_____Mi comida y mi cuarto fué proporcionada por el dueño de la finca y él me pagó _____B/. por (día) (semana)

_____A mi me pagaban _____B/e, por (día) (semana) y yo me conseguía mi comida y cuarto.

D Si ninguno de los arreglos del concepto "C" (arriba) se aplica a Ud., describa su arreglo para comida y cuarto.

4 DE LOS CONCEPTOS EMITIDOS ABAJÓ, QUE RECOMIENDA UD. QUE LA E.N.A. HAGA?

A_____Continue este programa.

B_____Decontinue este programa

C_____Continue este programa pero modificandolo en la siguiente manera_____

5 CUAL DE LOS CUATRO CONCEPTOS EMITIDOS ABAJO, EXPRESA MEJOR SUS SENTIMIENTOS CON RELACION A SU PRACTICA DE VERANO? Seleccione solamente un concepto.

A_____Yo aprendí mucho acerca de los problemas reales de una finca que no hubiese aprendido nunca en la escuela.

B_____Yo reforcé muchas cosas que aprendí en la E,N.A. pero que no había tenido la oportunidad de ponerlas en práctica.

C_____La práctica de verano duplicó muchas de mis experiencias en la E.N.A. y por lo tanto no fué tan valiosa,

D_____Realmente yo no aprendí mucho en la práctica y hubiese podido gastar mi tiempo en algo más valioso

6 HA TRABAJADO USTED EN LA MISMA FINCA O PARA EL MISMO DUEÑO DE LA FINCA DONDE UD. HIZO SUS PRACTICAS DE VERANO, DESPUES QUE SE GRADUO?

S _____NO_____ Si ha trabajado, dé la fecha en que comenzó a trabajar

Mes _____Año_____

IX DATOS SOBRE SU TRABAJO Y OPINION DE LA COOPE

DIGANOS ALGO DE SUS EXPERIENCIAS Y DE SUS SENTIMIENTOS CON R COOPERATIVA JUVENIL "GLAISTER BAXTER".

NOTA: Si Ud. es un egresado del año de 1959, no necesita contestar estas preguntas

1 ¿ERA UD. MIEMBRO ACTIVO DE LA COOPERATIVA? Si_____No_____

2 ¿QUE CARGO EN LA DIRECTIVA DE LA COOPERATIVA DESEMPEÑO UD.?

1_____Año _____ 2_____

3 MENCIONE LOS COMITES EN LOS CUALES UD. TRABAJO

_____DURACION _____MESES

_____DURACION _____MESES

_____DURACION _____MESES

_____DURACION _____MESES

_____DURACION _____MESES

4 ¿CUANTAS CLASES DE CREDITOS HIZO UD. A LA COOPERATIVA?

5 CUANTO DINERO GANO UD. COMO MIEMBRO DE LA COOPERATIVA?

6 ¿CUANTOS PROYECTOS REALIZO UD. _____HAGANOS UNA LISTA DE ELLOS?

_____AÑO_____ TAMAÑO_____

_____AÑO_____ TAMAÑO_____

_____AÑO_____ TAMAÑO_____

_____AÑO_____ TAMAÑO_____

_____AÑO_____ TAMAÑO_____

7 CON SUS PALABRAS DIGANOS QUE SIENTE UD. POR LA COOPERATIVA JUVENIL "GLAISTER BAXTER"

¿Le gustaría a Ud. que este tipo de [illegible] sea ofrecido para los ciudadanos [illegible]? ¿Cómo podría una cooperativa [illegible]? ¿Qué debería organizarse esta cooperativa? Por favor exprese sus sentimientos [illegible] en la línea de abajo.

AGRADECIDOS POR SU COOPERACION

APPENDIX B

THIRTY-TWO STATEMENTS INCLUDED ON THE EMPLOYER QUESTIONNAIRE ARRANGED BY STATEMENT PAIRS, MEAN SCORES, AND VALUE OF CHI SQUARE

Statements Referring to Propositions	Mean Score Total	Gov't Off'ls	Private Empl'rs	Chi Square
1. 1. The best kind of teacher of agriculture for ENA is one who has had considerable experience in producing agricultural products and who knows the way of rural people.	1.20	1.19	1.20	1.761
2. All the teachers of NSA should be university graduates or Ingeniero Agronomos (graduate of Latin College of Agriculture).	1.51	1.43	1.60	.819
2. 1. ENA students are well prepared for the world of work.	1.71	1.67	1.75	10.012 >.01 level
2. I prefer to employ a young man who has a well-rounded academic education then I will teach him the skills that he needs to know.	2.54	2.76	2.30	5.631 >.10 level
3. 1. If I could choose between a graduate of ENA and one from an agricultural college, I would choose the ENA graduate to work on my farm.	1.83	1.90	1.75	.543
2. Divisa graduates do not like to work with their hands.	2.51	2.63	2.40	2.310

Appendix B (Continued)

Statements Referring to Propositions	Mean Score Total	Gov't Off'ls	Private Empl'rs	Chi Square
4. 1. The major emphasis of ENA's program should be centered around the ability to produce agricultural products.	1.10	1.10	1.10	2.977
2. The school should place more emphasis on academic training.	2.20	2.05	2.35	1.501
5. 1. The school should prepare (i.e., enroll) more students who have the opportunity to become established on farms.	1.20	1.14	1.25	.420
2. The school should prepare most of its students for the university.	1.95	1.86	2.05	1.795
6. 1. The school should provide more practical work experience programs in its program of studies for its students.	1.15	1.19	1.10	2.004
2. All ENA students are now required to follow the same program of instruction. I think they should be allowed to specialize.	1.72	2.05	1.40	10.600 >.01 level
7. 1. Panama should create schools especially for training in small industries including agricultural industries.	1.29	1.29	1.30	.008
2. The school should increase the number of years of study and consider courses in agricultural industrialization, processing and manufacturing.	1.59	1.67	1.50	2.211

Appendix B (Continued)

Statements Referring to Propositions	Mean Score Total	Gov't Off'ls	Private Empl'rs	Chi Square
8. 1. The school is meeting the needs of most of its students.	1.95	1.86	2.05	1.795
2. Most Divisa graduates need to have additional training before they can assume jobs of a managerial nature.	1.15	1.14	1.15	.003
9. 1. The school should strengthen its adult education program for farmers.	1.24	1.14	1.35	1.780
2. The school has no business trying to educate the campesino.	2.46	2.10	2.85	9.796 >.01 level
10. 1. The school should extend educational services to many more people than it now serves.	1.32	1.48	1.15	2.380
2. The school should confine its efforts to training its regular students.	2.24	2.00	2.50	3.188
11. 1. The school should teach rural people how to organize themselves into social organizations for the purpose of helping themselves.	1.83	1.45	2.21	8.017 >.05 level
2. I do not believe that the school has neither the human or physical resources to extend educational activities into the rural areas.	2.27	2.57	2.15	4.209

Appendix B (Continued)

Statements Referring to Propositions	Mean Score Total	Gov't Off'ls	Private Empl'rs	Chi Square
12. 1. The school should conduct adult farmer classes in the villages as well as at the Adult Center at ENA.	1.90	2.14	1.65	6.730 >.05 level
2. ENA should provide more material services for the farmers of the Central Provinces.	2.17	2.52	1.80	>.552 >.025 level
13. 1. Agricultural development would benefit more if most of the Divisa graduates went to work in the private sector of agriculture.	1.51	1.62	1.40	3.778
2. The Ministry of Agriculture should hire most of the Divisa graduates to work in its various agencies.	1.37	1.29	1.45	.666
14. 1. The school is an asset to agricultural development in Panama.	1.15	1.00	1.30	4.654
2. The kind of worker that the school trains does not contribute much to agricultural development throughout the Republic.	2.56	2.57	2.57	1.253
15. 1. The school should increase its enrollment, inasmuch as there would be a demand for the additional workers prepared.	1.39	1.24	1.55	2.310
2. The number of boys now being trained at ENA annually is sufficient to supply Panama's need for this level of agricultural worker.	2.34	2.43	2.25	6.070 >.05 level

Appendix B (Continued)

Statements Referring to Propositions	Mean Score Total	Gov't Off'ls	Private Empl'rs	Chi Square
16. 1. The school should assist local schools to plan programs of instruction in agriculture.	1.71	2.05	1.35	6.042 >.05 level
2. The school should not feel obligated to help village teachers or other local leaders to plan programs of agricultural education.	2.34	2.05	2.65	6.012 >.05 level

APPENDIX C

FREQUENCY OF RATING VALUES FOR EACH OF THE FOUR ITEMS ON THE JOB SATISFACTION BY YEARS OF GRADUATION (N = 77)

Item I. How well do you like your job?

Year Grad.	Rating Value Low 1	2	3	4	5	6	High 7
1960	0	0	1	1	4	2	1
1961	0	0	1	0	11	4	6
1962	0	0	1	4	3	3	0
1963	0	0	3	2	3	9	1
1964	0	1	1	1	9	4	1
Total	0	1	7	8	30	22	9

Item II. How much of the time do you feel satisfied with your job?

Year Grad.	Rating Value Low 1	2	3	4	5	6	High 7
1960	0	0	1	2	2	0	4
1961	0	1	0	1	6	6	8
1962	0	1	1	1	3	5	0
1963	0	0	1	3	3	5	6
1964	0	1	1	1	7	3	4
Total	0	3	4	8	21	19	22

Item III. How do you feel about changing your job?

Year Grad.	Rating Value Low 1	2	3	4	5	6	High 7
1960	1	0	2	0	6	0	0
1961	1	1	1	5	11	0	3
1962	0	0	3	1	6	1	0
1963	2	0	2	4	6	2	2
1964	2	0	3	2	6	4	0
Total	6	1	11	12	35	7	5

Item IV. How do you think you compare with other people on how you feel about your job?

Year Grad.	Rating Value Low 1	2	3	4	5	6	High 7
1960	0	3	0	6	1	1	0
1961	0	1	0	13	2	5	1
1962	0	0	1	7	0	3	0
1963	0	1	1	9	2	2	3
1964	1	0	1	9	4	1	1
Total	1	3	3	44	9	12	5

AVERAGE MEAN SCORES

Year Grad.	Item Number 1	2	3	4	Total Score
1960	5.11	5.44	4.11	4.33	19.35
1961	5.63	5.81	4.63	4.60	18.99
1962	4.72	4.90	4.45	4.45	20.67
1963	5.05	5.65	4.44	4.27	18.52
1964	5.00	5.29	4.29	4.29	19.41
Average	5.19	5.41	4.42	4.33	19.35