AN EXPLORATORY STUDY OF THE NEEDS FOR A PUBLIC COMMUNITY COLLEGE IN AN AREA OF TEN PUERTO RICAN MUNICIPALITIES

Thesis for the Degree of Ed. D.

MICHIGAN STATE UNIVERSITY

Richard F. Keeler, Jr.

1963

This is to certify that the

thesis entitled

AN EXPLORATORY STUDY OF THE NEEDS FOR A PUBLIC COMMUNITY COLLEGE IN AN AREA OF TEN PUERTO RICAN MUNICIPALITIES

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AN EXPLORATORY STUDY OF THE NEEDS FOR A PUBLIC COMMUNITY COLLEGE IN AN AREA OF TEN PUERTO RICAN MUNICIPALITIES

By

Richard F. Keeler, Jr.

AN ABSTRACT

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

DOCTOR OF EDUCATION

College of Education

1963

PURPOSE OF THE STUDY

As the result of an expanding economy, the desire of Puerto Ricans to acquire further education or training has increased significantly since 1947. In this light, two assumptions have been adopted: (1) That there is a demand for additional post-secondary educational opportunities, and (2) that the Commonwealth of Puerto Rico will seek to meet the challenge.

Specific purposes of this study are: (1) To identify various criteria for the establishment of public community colleges in the continental United States, (2) to determine and analyze the type and scope of post-secondary needs that might exist in an area of ten Puerto Rican municipalities (by applying these same criteria), and (3) to suggest recommendations based on findings.

PROCEDURE

A survey was made of the probable demand in the ten-municipality area[1] for post secondary educational facilities by researching population figures; elementary, secondary and college enrollments; and supply of and need for educated, trained manpower. Pertinent historical and factual data were also collected to show the origin and development of public and private institutions, together with their functions.

Two questionnaires were employed to record the aspirations of 11th grade students and their parents toward further preparation. A third questionnaire was used to consult businessmen and industrialists on employment trends and requirements. Personal interviews with educational and governmental officials were also held.

CONCLUSIONS

The evidence presented in this study shows that the city of Humacao, within daily commuting distance of ten municipalities and with the greatest number of facilities, would be the proper location for a public community college.

From 1930 to 1960, there were marked increases in population, in public and private school enrollments, the Humacao Extension Center was established, and there has been an ever-larger number of high school graduates.

Close correlation was noted between the occupational and educational plans of parents for their children and those of their children or students for themselves.

Students expressed a decided interest in acquiring more education and/or training beyond the high school level. Parents not only expressed a desire that their children continue their studies but they also had an interest in furthering their own schooling.

RECOMMENDATIONS

Although this study presents evidence for a post-secondary institution, further research is required in the following areas before a public community college can be recommended: (1) Attitudes of educational and governmental leaders, (2) present and future financial responsibilities of community and Commonwealth, (3) supply of and demand for teaching and administrative personnel, (4) college and university curriculums, including those of community colleges, (5) home addresses (origins) of students enrolled in existing institutions, (6) continued research into the needs

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of business and industry, (7) a study of tuition and other costs related to enrollment, (8) availability of buildings and other facilities, (9) administrative structure in which the new institution would operate, and (10) relationship between parents' income and the college-going pattern of youth.

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[1]This comprises the municipalities of Ceiba, Fajardo, Gurabo, Humacao, Juncos, Las Piedras, Maunabo, Naguabo, San Lorenzo, and Yabucoa.

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ACKNOWLEDGMENTS

For their aid in overseeing this project from its birth as a research proposal to its acceptance as a dissertation, my thanks are extended to Dr. Max S. Smith, Chairman of my Guidance Committee, and to the remaining members, Dr. John L. Hazard and Dr. David G. Moore, of the Departments of Marketing and Personnel, College of Business, and to Dr. David Gottlieb, College of Education.

In particular, I am cognizant of the cooperation provided by Puerto Rican friends, the 11th grade students and their parents, in addition to that of authorities of the Department of Education, the University of Puerto Rico, and other governmental agencies.

Special mention goes to Dean Hector Alvarez Silva, Miss Ana E. Irizarry, and Mr. Miguel A. Valencia, College of Business Administration, University of Puerto Rico, for their help in the translating, printing, and tabulating of questionnaires, to Dr. Demetrio Cartagena, former Assistant Secretary of General Affairs, Department of Education, for his generous offering of public school facilities, and, finally, to Mr. Aguedo Mojica, President, Committee of Instruction, Commonwealth House of Representatives, for his profound interest in the implications of my survey toward future advances in the development of higher education on the Island.

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CHAPTER I

INTRODUCTION

Relevant Information

Dominated by the Spaniards for over 400 years, Puerto Rico (Figure 1) was ceded to the United States in 1898 upon the termination of the Spanish-American War.

In fifty-odd years Puerto Rico's population has grown two and one-half times, recent industrialization has introduced new sources of income and new technologies, shifting educational requirements and stimulating new demands.

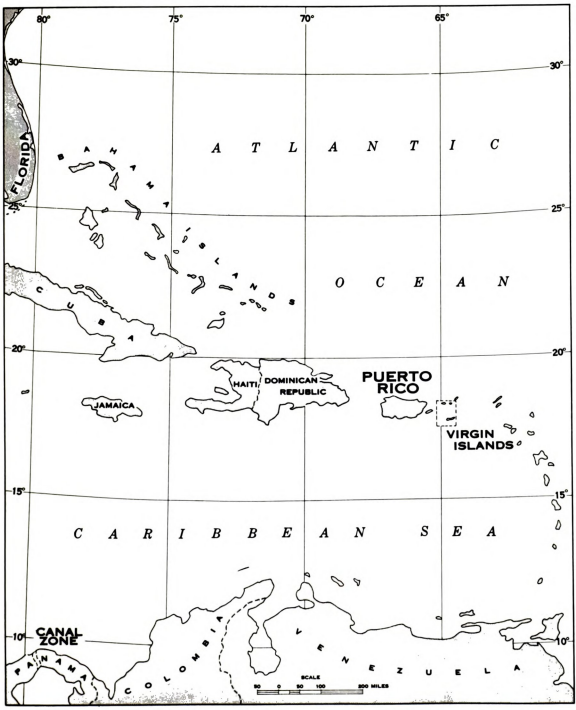
Because of efforts of the Economic Development Administration a government agency created for the purpose, 800 branch plants of U.S. industries located in the Commonwealth from 1947 to 1962. Through "Operation Bootstrap" factory work has now become a high status occupation to 64,000 workers. Expectations geared toward obtaining a higher standard of living are more intense than ever.

This unprecedented interest in further instruction, causing capacity-size enrollments in institutions of higher education, has led four of the six existing colleges and universities to develop extension-type programs throughout the Island.

Because a greater desire now exists among college-age youth and adults to extend their formal education, one of every three

FIGURE 1

PUERTO RICO AND THE CARIBBEAN AREA



Source: U.S. Department of Health, Education, and Welfare (Office of Education). Resident, Extension, and Other Enrollments in Institutions of Higher Education, 1957-58, 1955, 1954, 1953. Washington: U.S. Government Printing Office, p. 53-2.

persons attends some form of school. In fact, from one-fourth to one-third of the Commonwealth budget is destined for education.

Need for this Study

During the month of September, 1961, unusual attention was awarded in the Island's news media to the marches on La Fortaleza, the Governor's Palace, by citizens of several of the municipalities included in this survey.[1]

The tense situation brought to light several developments thought to be restricting the economic progress of the area. First, the principal sources of income were concentrated in two sugar-producing enterprises, both of which had begun to employ mechanized equipment. Second, because these same firms enjoyed a monopoly on most of the land, the construction of new buildings near cities and towns was held to a minimum. Third, the Central Ejemplo (a sugar factory) had been closed with a loss to the city of Humacao, alone, of $60,000 in taxes uncollected since 1957; thousands of workers had been left jobless. Fourth, various government offices had been transferred from the region during the course of time, resulting in a loss of employment for still others. Fifth, the type of government-financed buildings set up by the Economic Development Administration for lease or sale to new industries was found inappropriate for the operations of the smaller businessman.

In public hearings set up by a special commission of the House of Representatives, participants urged the initiation of

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[1]Larger cities and towns, including corresponding rural areas, are called municipios or municipalities.

various projects for revitalizing the economy of the ten-municipality area. Among these were the construction of industrial plants to meet individual requirements, with a concern for reduction in size. It was recommended that if the beginning of the new Humacao-Caguas Expressway be accelerated, work could be found for some of those displaced in the cane fields. Aid to farmers of limited resources was also suggested. Urban renewal activities were planned and the development of recreational sites along the seashore envisioned. The reopening of governmental departments was declared a necessity.

Although the municipalities covered in this study are only lightly industrialized, there is reason to assume that the introduction of occupational education and training on a post-high-school level would not only build up a semi-skilled labor supply but, simultaneously, would entice new industry and business and an emigration of people into the region. In fact, one of the proposals made by interested citizens for improving the position of the municipality of Humacao, particularly, stressed the need for expanding its high school programs and opportunities for vocational training and education.

Statement of the Problem

Two general assumptions were adopted. One, that there is an increasing demand for educational opportunities beyond the 12th grade in Puerto Rico, and, two, that the Commonwealth will strive to meet this situation.

Specifically, it was the purpose of this survey (1) to determine the type and scope of post-secondary needs in an area

of ten municipalities, (2) to analyze possible needs so as to determine the extent to which are applicable the philosophies and procedures for the establishment of public community colleges on the mainland, and (3) to suggest recommendations in the light of findings.

Methodology

Besides a review of the criteria relevant to the organization of a public community college, this study contains sections based on such aspects as population trends (including births, deaths, and in and out-migration); manpower demands; elementary, secondary, and college and university enrollments and projections; and the aspirations of 11th grade students and their parents toward further education and training.

Three questionnaires were utilized. Two were applied to 11th grade students and their parents with respect to determining future educational needs and wants.[1] Students and parents were queried on plans for post-secondary education, the necessity for additional training, certainty of attendance at a public community college if available, vocational choices, and types of programs desired, to name only a few items.

The third questionnaire (Appendix C) was an interview sent to seventy business and industrial leaders in the area, inquiring about such factors as employment trends, training requirements, labor supply, and the economic future of their specialty.

The first two questionnaires mentioned are Spanish-language

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[1]See Appendices A and B.

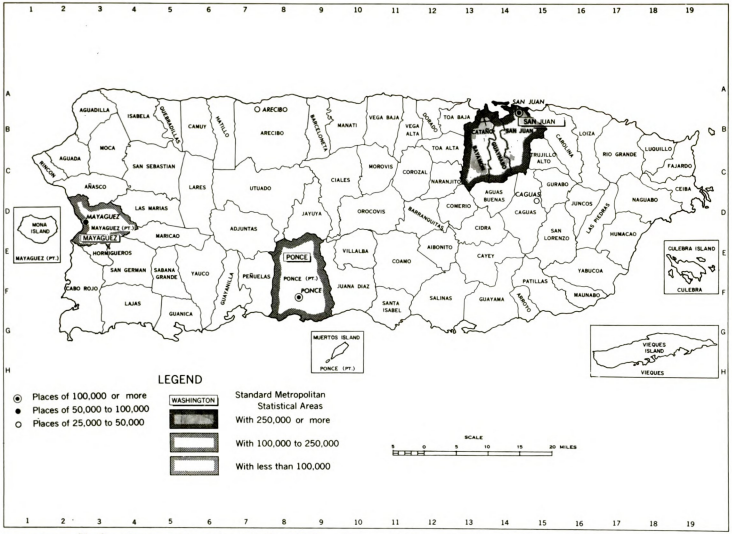
versions of those used by the Steering Committee in its final report, The Three County College Study (Hillsdale, Jackson and Lenawee), published in July, 1961, and coordinated by the Office of Community College Cooperation, Michigan State University, East Lansing, Michigan.

Scope and Limitations

Puerto Rico is divided into 76 municipalities, a number of these, in turn, comprising a political district. The Humacao District, in the eastern sector of the Island, consists of the following 14 municipalities, as seen in Figure 2: Ceiba, Fajardo, Curabo, Humacao, Juncos, Las Piedras, Loiza, Luquillo, Naguabo, Rio Grande, San Lorenzo, Yabucoa, and the islands of Culebra and Vieques. Politically, culturally, economically, and almost geographically, the center of the Humacao District is the city of Humacao.

Three of these municipalities, Loiza, Luquillo, and Rio Grande, have been excluded from the Humacao District, for the purposes of this survey, because of their geographical separation by the Cordillera Central, a mountain range which traverses the Island and over which passage is both difficult and time consuming. The islands of Culebra and Vieques were omitted because of lack of time for extending research to their shores. The municipality of Maunabo was added, however, because of its proximity to the city of Humacao and also since a new highway will eliminate its present access route over El Cerro de Pandura, a mountain with a narrow roadway and treacherous landslides.

FIGURE 2
PUERTO RICO
MUNICIPIOS, PLACES OF 25,000 INHABITANTS OR MORE, AND STANDARD METROPOLITAN STATISTICAL AREAS



Source: U.S. Department of Health, Education, and Welfare (Office of Education). Resident, Extension, and Other Enrollments in Institutions of Higher Education, 1957-58, 1955, 1954, 1953. Washington: U.S. Government Printing Office, p. 53-3.

CHAPTER II

CRITERIA FOR ESTABLISHING PUBLIC COMMUNITY COLLEGES

Review of the Literature

To identify, analyze, and then suggest pertinent criteria for establishing a community college, a study was made of the writings of various authorities in the field. Hugh G. Price, for example, in "Planning for Public Junior College Development through State and National Surveys," Junior College Journal, September, 1949, summarized 12 state and national studies with recommendations in terms of control, type, and plan of organization; curriculum offerings; minimum enrollment; cost of operation per student enrolled; tuition charges; plans for state aid; reimbursement for nonresident students; provisions for boarding and transportation; and relationship to existing colleges (60:16-22).

In turn, Leonard V. Koos in "Essentials in Statewide Community-College Planning," The School Review, the same month and year, listed ten generalizations arising from his work with legislative councils in Illinois, Maryland, and Pennsylvania. Among these are a statewide inquiry, a minimum of 200 students, a curriculum stressing general education, vocational training, and first and second-year college level courses. The method and amount of state support, the necessity for research, the importance of local control, and a recommendation the new community college district be coterminous with elementary and high school districts

are other considerations (45:341).

Another set of criteria by James W. Reynolds in "When to Build a Community College," School Executive, December, 1949, proposed there be available necessary staff members, facilities, and a sufficient potential of students, and that the community be able to finance the cost of the new institution (63:51).

Requirements adopted at the 1947 convention of the American Association of Junior Colleges are recalled by Jesse P. Bogue in his text The Community College, 1950, as: A minimum secondary enrollment of 1,000; an assurance of an enrollment of at least 200 prospective students; a taxable assessed valuation sufficient to provide needed capital outlay and an adequate assessed valuation per average daily attendance to carry a minimum program; a financial support level from local, State, or both, sources sufficient to yield a minimum of $200 per student per year; and a petition from voting citizens requesting establishment of the college (6:97-98).

Found in Russell Foster Fink's doctoral dissertation, "Some Criteria for the Establishment of Community Colleges, with Special Reference to Michigan," completed in 1952, are the following regulations: A high school enrollment of 500 in grades 9-12, with a recommended minimum of 800 in grades 9-12 more desirable; approval of a representative, independent, non-political state educational agency; a consideration of existing educational institutions from the point of view of the possibility of these meeting the community's needs; approval of a local community, ascertained by petition, referendum, or intensive survey; and,

an estimate of the minimum tax valuation (36).

In contrast, Bogue and Norman Burns in "Legal and Extralegal Influences for Improving Colleges," Fifty-fifth Yearbook of the National Society for the Study of Education, The Public Junior College, cited these three criteria in 1956: "Community interest, potential student enrollment, and adequate financial resources" (8:235).

Likewise, Jack Rodgers concludes in a survey of 17 junior colleges, "Establishing a Junior College," Phi Delta Kappan, February, 1957:

> One of the important bases upon which the establishment of a junior college should rest is that of local interest and approval. The success or failure of the proposed institution may well be determined by the attitude of the qualified electorate which may be called upon to support the institution with its taxes for current expenses and for building facilities needed. Recommendations also include a minimum full-time student equivalent of approximately 400....(64:187-190).

In a study similar to Price's of 1949, S. V. Martorana in "Consideration of 2-Year Colleges in Recent Statewide Studies," Higher Education, October and November, 1957, not only upheld the same issues, but found that more state studies were being made with consideration for two-year colleges (48).

Raymond J. Young, in "Survey of Junior Colleges Possibilities: A State Responsibility," Junior College Journal, January, 1959, re-emphasized three criteria already suggested when he asked the questions below:

> 1. Are potential enrollment prospects such that an enrollment of sufficient size is indicated to permit the development of an educational program of adequate depth and breadth and for its economical operation?

> 2. Is it likely the community or area can adequately finance and house a community junior college for the maximum potential enrollment anticipated within the legal framework established by which 13th and 14th year programs are financed?
>
> 3. Are the unmet adult and youth educational and service needs of the community or area such as to indicate the need for a community junior college?
>
> 4. Is there sufficient community interest in the development of a community junior college to indicate willingness to support such a college both financially and by encouraging youth to attend? (81:249).

After examining and summarizing state regulatory and statutory provisions, 28 state studies, and opinions of 141 administrators of colleges, D. G. Morrison and Martorana expressed the same opinion in their 1960 study, Criteria for the Establishment of 2-Year Colleges.

> The feasible and useful criteria for establishment of local or district public 2-year colleges may be summarized under three major considerations. These are (1) Potential enrollment in the 2-year college; (2) indications of a reliable and adequate level of financial support; and (3) evidence of local interest and desire for a college. Other factors can be reviewed in a study of the extent to which they support or detract from the three main factors named (57:64).

Finally, Le Roy V. Good recommended identical guideposts to state directors of junior colleges and coordinators of state systems at a two day conference in Chicago on October 18 and 19, 1961, when he spoke on "State Criteria for the Establishment of 2-Year Colleges."

> The literature in the field would indicate that these three minimum requirements--community interest and need, potential student enrollment, and adequate financial resources--however minutely detailed, are still the basic criteria. We must know that the community is interested enough, based on a felt need to pay for the college, that there will be a sufficient student enrollment to have an efficient college, and that there are financial resources available to pay for the college (37:4).

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From this study, three criteria for determining the need for establishing a community college have been chosen. These are: Potential enrollment in the new institution, community interest and need, and adequate financial support. A fourth, accessibility of the college to students, will also be considered.

Enrollment as a Criterion

The fact that large numbers of able high school graduates are not in college is likely to receive notice as one of the first evidences of need. Then, after it appears a new community college is required and the state has provided necessary legal procedures, some estimate should be made of prospective enrollments.

Various ways are used for determining probable attendance. Good, for instance, reminded personnel of two-year colleges that

> .... literature has used various statistics to arrive at a basic potential of raw material, i.e., students. These include twelfth-grade enrollment, secondary school enrollment, enrollment in grades 1 through 12, and gross population of an area .... (37:5).

H. D. Reese, in turn, developed a practical method through correlation techniques, after studying enrollments for public junior colleges, high schools, and grades 1-12, and size of community (81:250-251).

In "The Community College in Michigan," Staff Study No. 1, The Survey of Higher Education in Michigan, June, 1957, Martorana not only based his projection of needed new colleges on an 800 figure of high school enrollment (grades 9-12) but also on a population in a county where there were 1,000 youth aged 18 and 19. His third effort to arrive at an objective measure of population concentration used the number of persons 19-22 in a county

(2,000) (50:101-105). Martorana's reasons for his three methods are these:

> The wisdom of using all three of these measures came out in the analysis of various counties and localities in Michigan when it was discovered that using only one of the three measures, regardless of which one may be chosen, would leave out some areas which clearly qualify under one, or in some cases two, of the other criteria (50:105).

After considering the statutory criteria of 32 states relating to founding two-year colleges, Morrison and Martorana summarized their findings about high school enrollment as a criterion:

> Six States (California, Colorado, Idaho, Oregon, Texas, and Wyoming) consider school population in the district as a criterion for the establishment of 2-year colleges. These school population figures vary considerably, both in number and application.
>
> Of those States using this criterion, the lowest school population appears in Texas, which requires an enrollment of 400 in the upper four high school years of an independent junior college district (only 300 in a growing community). An enrollment of 400 in the upper four grades with a scholastic enrollment of 7,000 is required in a union junior college district with an alternative of 400 plus 5,000 scholastic enrollment in a growing community.
>
> At the other extreme is California which specifies that the total enrollment in grades 9-12 in unified districts must be 3,500 pupils. Colorado also has a required secondary school enrollment of 3,500, but this figure applies to all public schools in the junior college district. The figure used in Colorado is determined by the latest school census. Wyoming requires not less than 700 pupils regularly enrolled in grades 9-12 in community college districts; Idaho requires a minimum aggregate high school enrollment of 800 for formation of junior college districts. The requirement in Oregon is that there must be at least 1,000 resident pupils in grades 9-12 (57:17).

About a specific figure for minimum starting enrollment, various sources concur in approximately 200. For instance, in

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About a specific figure for minimum starting enrollment, various sources concur in approximately 200. For instance, in

its 1947 convention the American Association of Junior Colleges not only listed a minimum secondary school enrollment of 1,000 but also a potential college enrollment of at least 200 (6:97-98).

Reynolds (63:51) and Koos (45:344) also coincided on 200, the latter using this same figure in a number of state studies.

Martorana concurred, too, by stating in his Michigan study:

> The figure most often agreed upon, on the basis of experience in the community college field and with regard to the possibility of developing a defensible scope of curriculum and economy of operation, is an equivalent of 200 full-time students in the regular day program (50:96).

The Michigan Legislative Study Committee on Higher Education corroborated this same figure in 1957 (54).

Tyrus Hillway joins the group when he states in The American Two-Year College, 1958: "... a junior college with an insufficient number of students cannot offer a satisfactory program" (40:213).

However, James A. Starrak and Raymond M. Hughes in The New Junior College, 1950, have adopted a more flexible view:

> The minimum enrollment, consistent with a desirable level of economical operation, ... has been set at from 175 to 200 full-time students. Of course, the institutions could be operated, and are in fact being operated, with much smaller enrollments than 200, but the cost per student increases rapidly with decreases in enrollment. (67:53).

In contrast, Paul N. Johnson, in a doctoral dissertation "A Proposal for a System of Public Junior Colleges for the State of Kansas," University of Colorado, 1956, reported replies received from 75 selected individuals who had been asked to name a minimum enrollment figure. This ranged from 130 to 250 students

(44:207).

Damon D. Reach, in "Statewide Planning Needed in Community College Development," Junior College Journal, November, 1961, also has stated:

> Community colleges should exist only where the enrollment will be sufficient to guarantee efficient and economical operation and an adequate curriculum offering to meet the educational needs of the area to be served. A working minimum of two to three hundred students is suggested (61:152).

Good, in turn, also suggested that an institution offering four or five university parallel transfer programs and a reasonable list of technical-vocational programs should have a minimum enrollment of 300 students, and optimumly, 400 students. "Experience in many States," he added, "shows that approximately 300 to 400 high school graduates annually will eventually produce an enrollment in the junior college of approximately 400 students" (37:5).

Finally, Morrison and Martorana found that few states recommended less than 200 students as a minimum college enrollment, 200-400 being the most frequent range.

> The regulatory criteria mentioned most frequently in State regulations is the potential collegiate enrollment. Thirteen States (California, Colorado, Florida, Georgia, Illinois, Maryland, Minnesota, Mississippi, New York, North Carolina, Oklahoma, Texas, and Washington) consider enrollment (present and/or potential) as a necessary criterion for establishing 2-year colleges.
>
> Among these States the enrollment figures range from a low in Oklahoma of 25 regularly enrolled students for the 1-year program (40 for the 2-year program) to a high in New York of a minimum of 500 full-time potential students in any given year living within a 25-mile commuting distance. Both California and Colorado require an enrollment "sufficient to justify establishment." However, California suggests 400, whereas Colorado feels 300 would

> suffice. Florida requires not less than 400 full-time students for Priorities One and Two districts and not less than 200 for Priority Three. In the regulation pertaining to local public 2-year colleges in Georgia, a minimum of 200 full-time equivalent daytime students is required at the beginning of the first year, 300 at the beginning of the second year, and 350 at the beginning of the third year. Illinois sets forth a minimum enrollment of 200 in the first full year of operation, whereas Maryland has not established a specific figure but suggests that the enrollment be estimated using school enrollment and total population figures as a basis. Minnesota requires a minimum first-year enrollment of 50 and at least 150 students in the fourth year. Mississippi regulations state that 200 regular full-time students for a minimum program and at least 400 for a diversified program would furnish evidence of a sufficient enrollment for an effective junior college program. In North Carolina 300 is stipulated as the immediate enrollment figure with a potential long-term projection of 600. Texas requires evidence of a potential minimum enrollment of 200 equivalent full-time students by the beginning of the second year of operation. Washington considers 100 to be a minimum enrollment figure (57:19).

On the other hand 48 of the 70 administrators replying to their opinion survey and giving a specific figure cited 100-300 full-time students as a starting enrollment, while 29 favored the 400-600 range as a minimum potential full-time enrollment. Twenty-six named the 200-400 range, with a total of 55 choosing between 200 and 600 (57:31-34).

In a review of criteria discussed in the 28 state studies enrollment was the mostfrequently named criterion, minimum figures ranging from 175 in Maryland to 400 in California, Florida, and Minnesota. The arithmetic mean was 300, the median falling between 300 and 320 (57:53).

Koos assumed a more recent attitude toward the criterion of enrollment when he said:

> It need not be assumed that location of community colleges of fewer than the working minimum would never be approved, as consideration of population in one area

might justify occasional exceptions of smaller enrollment in a state, even at greater cost per student, but they should be definitely regarded as infrequent...(45:344-345).

In The Community Junior College, 1950, James W. Thornton, Jr. elaborates on Koo's thinking by writing:

> Early writers on the junior college... have suggested that a minimum prospective enrollment of 100, 200, or 300 students should be in sight... Such specific limitations seem unrealistic. Because so many variable conditions affect the desirability of founding a college, no concrete stipulations can apply to all areas. The need for a limited academic program in a remote area might justify recommending the establishment of a junior college for a prospective 100 or 150 students. In a more metropolitan area, with nearby junior colleges available, it would probably be unwise to plan an additional site unless at least 1000 day students, a comprehensive curriculum, and an extensive adult program were in sight (71:104).

It is deduced, therefore, from this discussion that first-year enrollment in a new community college should consist of at least 200 full-time students.

Accessibility as a Criterion

In reporting opinions of professionals about the location of a new college, Morrison and Martorana stated in their 1960 joint study:

> One of the advantages claimed for 2-year colleges is that of proximity and accessibility of the institution to the students' homes, thus making it easier for more to attend. Responses to the questions raised in this inquiry sometimes related accessibility to distance and sometimes to travel time. Among the administrators, directors of State agencies, or others engaged in public 2-year college education, accessibility was most often considered in terms of mileage distance. However, only 40 out of the 101 respondents gave a specific mileage,the others indicated that local factors of topography, road conditions, and climate were basic considerations to determine the feasible travel distance. Of these, 22 of the administrators, 5 of the directors, and 2 of the others indicated that the one-way commuting distance for the majority of the students should be under 30 miles. Thirty to 50 miles was believed acceptable by six administrators, two directors, and two

> others. Only one administrator suggested a traveling distance of more than 50 miles one way.
>
> Among the 15 respondents preferring to consider accessibility in terms of commuting time, 3 of the administrators suggested a maximum of 1 hour each way, and one director recommended a maximum of 30-45 minutes. Two other administrators merely stated that the college should be easily accessible. Three administrators, 2 directors, and 4 others expressed accessibility in terms of "reasonable commuting distance" (57:34-34).

In summary, thus, two measures were suggested for determining accessibility: Thirty miles of traveling distance or one hour of time spent in travel each way.

Most State laws, continue Morrison and Martorana, allow local political subdivisions, counties, or school districts to establish colleges, supported by statewide studies advocating the principle of accessibility (57:62-63).

However, as Young has indicated in his article, care should be exercised in selecting the exact location. He says: "Steps should be taken to prevent the development of community junior colleges in locations where unnecessary and uneconomical overlapping commuting areas would result among them..." (81:246).

James L. Wattenbarger expressed a similar preoccupation in "Planning Facilities for Junior Colleges," Junior College Journal, May, 1960, when he states: "A second important criterion is the actual location and shape of the site. It should be accessible to highway traffic because the junior college is a commuting college" (79:540).

That the location of a college is a determinant to enrollment is spelled out by Leland L. Medsker in The Junior College: Progress and Prospect, 1960:

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Referring to Ohio, the situation showed that

> although approximately one-half of all seniors in Ohio high schools had the desire to pursue their education for at least two years beyond high schools, distance from higher institutions and economic circumstances made it impossible for many to do so (53:261).

Among the conclusions of the Michigan Legislative Study Committee on Higher Education is a similar discovery:

> Proximity of institutions of post-high-school education, and the type of college locally available, influence the number of high school graduates who carry on these studies. The percentages of college-age population attending college in Michigan increase steadily from 16.9 per cent for counties with no collegiate opportunities within their borders, to 23.4 per cent for counties having a community college but no other publicly supported higher institution, to 27.5 per cent for those having only a private college, to 39.6 per cent for counties having a State college of university (54).

In Minnesota a commission appointed to study needs and facilities of higher education reported:

> One-fourth of our young people who live within 10 miles of a college are attending ... the first year after they graduate from high school. But among the youth who live more than 25 miles from a college the ratio is one in seven (55:7).

Hillway adds these words in which he suggests a similar commuting distance:

> It may be seen, then, that convenience plays a large part in determining whether students will enter college. If educational opportunities are to be extended and equalized, there should be a college within commuting distance (ordinarily within 20 or 25 miles) of every student (40:10-11).

A community college, thus, should be established so as to be within daily commuting distance of the greatest number of prospective students in the area to be served.

Interest and Need as a Criterion

In the review of literature local interest was mentioned repeatedly as a necessary measure. Further evidence in favor of

this principle is produced by Morrison and Martorana who discovered that with few exceptions respondents indicated that community attitude was an essential criterion in determining the possibility of initiating a new college. Whereas 52 of 101 administrators stated the attitude of the community toward higher education should be "favorable," 11 indicated the community must "want or demand a college," nine believed the attitude should be "demonstrated by votes in favor of higher education," and only four believed the "attitude can not be developed." Other statements advanced by ten additional persons supported the criterion, while 15 gave no specific answer. Noteworthy is the fact that consideration of local attitude was the only suggested criterion which no respondent said was "not applicable or not important" (57:38).

In regard to unmet student needs the same authors observed:

> Out of 101 public college administrators, 62 respondents, or 61 per cent, thought that the extent to which student needs are not being met elsewhere was definitely one of the criteria to be considered when starting a new public junior college. Five of these administrators indicated that a local study or survey of the level and scope of these needs should be conducted.
>
> Several ideas regarding this factor were mentioned repeatedly. One was that the need for terminal and vocational-technical type programs was often very high and that the extent of this need by the students in the community should be determined. Another idea often advanced was that it was very important to consider the economic status of the student and his family. This closely parallels the concept expressed by Alvin Eurich, that "College attendance was more dependent upon family income than upon scholarship."[1] (57:36).

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[1]Alvin C. Eurich. "New York State Plans Community Colleges." School Executive, Vol. 69, No. 4, December, 1949, p. 56.

Henry L. Ashmore, who submitted a list of 25 basic regulations to delegates at a convention of the Southern Association of Junior Colleges, Memphis, Tennessee, found that 122 to 17 voted in favor of the statement "The strongest foundation of a public junior college is the community's appreciation of its need for such an institution." In reply to the item "Local citizens should be directly involved in the planning and development of the college," 134 out of 135 answered in the affirmative (5:190).

Speaking before the State directors and coordinators of State systems at Chicago in their convention held on October 18 and 19, 1961, Walter M. Taylor in "State and Local Surveys of Need "re-emphasized the importance of the human element:

> (2) Depth of local understanding and support, that is, the greater the involvement and commitment of the entire region in the planning and development of the college, the greater its priority" (69:16).

Various reasons behind expressions of interest and need by particular localities have been summarized by Thornton this way:

> This demand will be enhanced by the realization that no colleges are available for the youth of the community in reasonable or economic proximity, or that the colleges that do exist are either overcrowded or too costly for many of the able young people who should go to college. An additional element of need is not often apparent to the lay public as they begin to think of a higher education: that is, the newly developing need for diversity of educational opportunity beyond the high school for kinds of courses not offered in liberal arts colleges and not appropriate for them (71:126-127).

Similarly, Good has commented:

> The success and ever-increasing acceptance of successful and well-planned community junior colleges, the increasing difficulty of obtaining admission to 4-year institutions, the increasing awareness of the general public that many students have unmet educational needs

> not functionally acceptable to the 4-year institutions, socio-economic pressures, and the growing pattern of more than 12 years of public education are all contributing to an increasing willingness of the general public to examine its local needs and interests, to balance needs against natural aversion to taxes: (37:7-8).

That local initiative and leadership is necessary in the organization of a new community college is granted. In this respect Taylor praised the Massachusetts State Board of Regional Community Colleges which demands a local survey be prepared by a voluntary group:

> Nothing but good can come from involving local citizens in surveying their own needs. This good can be measured in terms of resultant regional support for a college on other than emotional grounds, and the very fact of this involvement provides a reservoir of continuing understanding, support and personnel... (69:15).

Thornton adds these words:

> ...some perceptive and responsible observer becomes concerned about opportunities for higher education and begins to interpret the need to others at the same time that he searches for an appropriate method of satisfying the need (71:103).

Respondents in the study of criteria by Morrison and Martorana replied that evidence of interest should come from articulate, organized groups in the area such as the local chamber of commerce, league of women voters, or community leaders such as the mayor or judge (57:38).

In addition to a vote of citizens in a community, requesting the establishment of a new college, a local study of need is usually required. Such a survey, in the words of the Michigan Legislative Study Committee "...should include a comprehensive survey of population, high school enrollments and graduates, tax base, and other important factors" (54).

Morrison and Martorana, in their study, included other factors such as: Present and expected industrial development and plans and expectations of high school seniors (57:63).

Thornton elaborates on the design of the survey when he says:

> One part... will be directed at high-school students. From them it is possible to ascertain how many plan to go to college and specifically to the new college, what kinds of courses they think they need, what vocations they have chosen, and what activities they would want to engage in while at college (71:109).

Further insight into attitudes of the community toward setting up a new institution have been provided by Young:

> Evidence accumulated through various studies seems to indicate that desire for, interest in, and willingness to, support a given level of education is related to a basic core of attitudes. A public opinion poll properly conducted will reveal... a particular pre-disposition.... However, the community attitudinal or pre-disposition which motivates collective action stems from a matrix of community dominant cultural values. Much study is needed to discover how.. values are typically manifested, to devise methods by which they can be uncovered, and to identify those which are associated with low or high degrees of community educational motivation (81:253).

In the following words Young gives a more comprehensive description of the aspects which might be covered by a study, naming the various persons in the community who might be queried:

> The problem of assessing the nature, type, and amount of educational need is a most difficult task. Several approaches can be made. Studies have revealed the validity of expressed educational intentions and occupational aspirations of large groups of high school seniors.[1] Known relationships exist between the tendency of youth to continue formal education and such factors as attitudes of parents, success in high school, accessibility of opportunity, parental education and economic

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[1]Berdie, R. F. After High School - What? Minneapolis: The University of Minnesota Press, 1954, p. 96.

level, plans of friends, and whether or not other brothers and sisters have attended school beyond high school. Assuming that present high school juniors and seniors are characteristic of those who emanate from the area to be served, one can obtain much useful information from them. Analysis of expressed educational intention, immediate plans after graduation, and occupational aspiration give clues to the types of further training of interest to youth. Analysis of plans or intentions according to residential distances from the considered location of a community junior college reveals information which is helpful in estimating probabilities that students might commute to obtain the training implied. Length of time which students have resided in the area indicated whether the potential pupil population to be served is a stable or fluid one.

Another important source of information is the high school graduates of an area. Analysis of responses of men and women graduates for previous years indicates the types of training beyond high school which they have sought, clues to types of further training desired, and kinds and locations of employment which have been obtained. A cross analysis of residential distance of graduates from a proposed location and expressed desire for certain types of further educational opportunity is useful in identifying educational backlog within commuting attendance distance. Information can be obtained which may be indicative of need for certain types of cultural-general, vocational or home and family life education. Responses of graduates concerning whether their plans after graduation might have been altered provided certain types of additional opportunity had been accessible and available are useful in estimating the holding power effect of an appropriate program.

Probably the most significant information on one type of educational need can be obtained from local area employers in business and industry. Properly organized contact with them will reveal in systematic fashion what specific jobs exist, the replacement and turnover rates of employees for each, whether present labor supply is scarce, adequate, or in surplus, and the level of training desired and preferred for each type of job. It is thus possible to identify jobs for which employees are scarce, where annual replacement needs create a demand and for which training above high school is preferred.

An inventory and study of community social, recreational, service, health, and cultural agencies, institutions, or organizations in conjunction with on-the-job-training, apprenticeship, and other organized training programs conducted by industry are necessary to assess the extent to which various services and educational needs

> are met through existing facilities. A careful assessment of the extent to which a nearby four-year private or public college may be serving the community and the nature of needs served is essential in such areas. Status of educational level attained by the adults and patterns of previous school attendance beyond high school are also clues to educational need. Discrepancies between expressed desire to continue school beyond high school among high ability youth and low proportions who do attend may indicate a profitable area of investigation. (81:251-252).

Reach argues the state board of education should determine the feasibility of establishing a community college, with approval or disapproval based on results of a prior survey "of the need, ability, facilities available, and prospective attendance" (61:152).

The state plan ordinarily begins with a statewide survey to determine what educational services are desirable and what are already being performed.

In this respect Hillway lists the various aspects to be covered:

> Such a committee will make a thorough investigation of the population trends within the state; the transportation facilities in different areas; agricultural, commercial, and industrial activities; general organization of public secondary education, present opportunity for training beyond high school; the number of students interested in continuing their education beyond the twelfth grade, the types of training desired by post-high-school students; and the ability of the state to finance higher education (40:244).

Good adds that the criterion of interest and felt need is difficult to structure as it involves consideration of socio-economic patterns, unmet needs of high school graduates, needs of industry for trained personnel, leadership of opinion makers, aspirations of high school juniors and seniors, plans of parents for sons and daughters, etc. (37:7). He also warns that too

frequently the measure of community interest and awareness fails, not because of interest and need, but because the public was not acquainted with facts and because of the prematurity of the measuring process before the electorate had become aware of the facts (37:7).

State planning is being recognized more and more as a necessity. When Ashmore asked delegates at the convention of the Southern Association of Junior Colleges whether they believed the state should have the responsibility for developing the necessary criteria for the establishment of junior colleges, 111 voted "Yes" as compared with only 29 who said "no" (5:190). In this same respect Young remarks:

> If the objective ultimately is to make diverse types of appropriate educational opportunity available and accessible to the greatest number of youth and adults in a state and at the same time issue high quality programs and economy and efficiency of operation, the proper development of additional institutions must be on a planned coordinated basis (81:246).

Morrison and Martorana found that 1957 studies made in Florida, Illinois, and Michigan and the 1948 New York study considered also evidence of need for community junior colleges. Whereas Illinois based its consideration on an analysis of socio-economic characteristics of the local area, New York stated colleges first to be established should be located in communities where need was greatest. The master plan approved by the Governor of New York and its board of regents in 1950 contained a blueprint of community colleges and identified certain areas as in need of such institutions.

> Once a community is identified or once a group of people in a community on their own initiative becomes interested in a community college, it is generally the aspiration of the community to seek the advice of the State University and the state education department. University officials maintain that their responsibilities are to advise, approve, and coordinate, and not to initiate the establishment procedure (53:251). Both Florida and Michigan, in turn, have developed a priority system (57:54).

In Florida, for instance, the 1955 Legislature not only provided funds for existing colleges but also authorized the appointment of a council to make recommendations to a state board of education relating to a long-range plan of development. Upon the determination of elements of adequate legislation for placing the program on a sound financial basis and encouraging the orderly establishment of new facilities, a thorough community study was made in each county to determine need for, interest in, and probable prospective problems. Following an extensive review of surveys, the council recommended priorities (30).

Although eleven states, according to findings of Morrison and Martorana, list the factor of community interest as a criterion (California, Colorado, Georgia, Illinois, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New York, and Texas), the way it is measured and the wording of regulations vary greatly. Three states, California, Georgia, and Minnesota, for example, require a vote as an indication of interest. The remaining eight state rulings are more general. Whereas in Colorado interest must be shown in a survey, in Illinois no assistance from the state office can be given until "clear

evidence" is shown (57:20).

In the latter, any district establishing a college must first seek approval of the state superintendent of public instruction who then makes a survey of the district to be served and, in accordance with criteria, determines needs and the ability of the district to maintain an institution of adequate standards (53:222).

Community desire in Maryland and Texas "must be determined"; in Massachusetts "continuance of community interest" is necessary. In Michigan a "strong desire" on the part of the citizens of the proposed community college district is needed for a major part of the proposed program. People of the district, in Mississippi, "should be willing to support the college by attendance, by levying sufficient taxes and by maintenance of sound professional administration." Finally, in New York, local business and industry "should be able to provide appropriate and continued employment opportunities to graduates as evidence of community interest unless the college is to offer liberal arts and science programs only." (57:20).

In summing up this section, it may be said then that there should be interest in, a desire for, and general acceptation of the establishment of the proposed community college.

Financial Resources as a Criterion

Formerly, the public junior college functioned usually under permissive legislation, local districts being encouraged to meet their own needs, while state aid was given almost solely

to elementary and high schools and four-year institutions.

Today, sources of support for the community college comprise student fees; state and federal appropriations; county, city, and district property taxes; private gifts and grants; endowment earnings; and the sale of goods and services.

In several states community and government funds are allocated in accordance with complicated formulas based on average daily attendance, current tax rate or effort, indebtedness of the district, number of instructional units, an established minimum foundation program, sources of revenue, and the desire to increase the tax load.

At the local level various difficulties confront the financing of a community college. Not only did the President of the National Congress of Parents and Teachers, in Nations Schools, March, 1957, envision the need for more community colleges, but she also warned against establishment in districts unable to maintain them (11:7). Medsker elaborates on this plight of many states, counties, and communities when he remarks:

> The task of adequately financing the two-year college is not to be minimized. It is closely related to the problem of financing all public post-high school education - indeed, all public education - in a time when cost of education and numbers to be educated are increasing. In many states an antiquated tax structure, a resistance to new and additional taxes, and an excessive drain on state revenues have already resulted in insufficient funds to meet adequately the mounting costs of the next biennium ... (53:306-307).

As a remedy, Hillway recommends no community extend education unless the assessed valuation of property reaches $10 millions, assuming the state aids in part. If no support is

forthcoming, then $25 million would be required. Evidently, Hillway bases his opinion on the fact that 13 states (Arizona, California, Colorado, Idaho, Minnesota, Mississippi, Montana, Nebraska, Oklahoma, Oregon, South Carolina, Texas, and Wyoming) require assessed valuation of taxable property meet a certain minimum figure: from $3 million in Montana to $20 million in Colorado and Wyoming (40:213).

"A satisfactory plan," confides Bogue, "provides for state aid, equalization funds for poorer communities, and local tax revenues" (6:26). Starrak and Hughes also argue for increased state support "... since local districts are forced to rely upon property taxes, which are already, in most instances, probably high enough" (67:27). Bogue, in turn, believes the community college will expand only after the following are achieved:

> State-wide planning with cooperation between the state and local communities; aggressive educational leadership; full recognition of the responsibility of the state to offer as nearly equal opportunities as possible to all citizens ... (6:27).

Young describes in detail various ways to determine a community's ability to finance a new college.

Two major aspects, he says, pertaining to the financial resources of a community must be studied. First, there must be evidence that when a community has provided the maximum amount of money authorized or permitted by law, the revenue combined with state aid provisions will be sufficient to permit the operation of a program for the anticipated maximum enrollment. Second, some estimate must be made of the financial

ability of a community to finance proper housing facilities.

The first problem may involve studying the trends in local assessed valuation charges over the past ten or 15 years to get some notion of future prospects for increase or decrease. Knowledge of community industrial developments and factors affecting assessed valuations is important. If there is not a legal maximum tax levy specified, evidence must show that the financial resources are such that they will be adequate within a reasonable range of tax increase which will not burden the community excessively.

The second aspect involves determining bonding leeway, amount of revenue which can be accumulated for building purposes over a given period of time, or satisfactory financial resources to provide buildings as needed (81:252-253).

Coupled to the inadequacy of state sources at present is the growing acceptance of the idea the community college should be part of our public educational system. Hillway has explained the dilemma this way:

> The majority of American citizens appear to favor the idea that every student going beyond the twelfth grade ought to contribute substantially to the cost of his further education, but a growing minority has been urging the extension of our nation-wide system of free (or nearly free) public education into the thirteenth and fourteenth grades ... (40:213).

Koos supports the idea of tuition-free education when he writes:

> The general assumption in advocacy of the spread of community colleges is that this level of education will become universalized in much the same degree in elementary and high schools ... A tuition charge of even moderate proportions has been found a serious obstacle to democratization (45:349).

Hillway opinions that tuition should be held to a minimum by stating:

> The financial barrier to educational opportunity will not be broken down until the services of the community are offered free or at a price within the record of every student (40:248).

Thornton, in turn, adds these words:

> Although present practice in tuition charges varies widely from state to state and even within states, both the philosophy and the functions of the community college require that the cost to the student be kept as low as possible. State laws should therefore permit and encourage local junior college districts to offer tuition - free instruction to district residents. Non-junior college districts may well be required to pay the costs of instruction in lieu of tuition for those of their residents who attend a neighboring junior college. In this way the opportunities for higher education in America will become more nearly equal (71:100).

However, Medsker has issued a word of warning in The Junior College: A Powerful Motivation Force for Educational Advancement, a publication of the American Association of Junior Colleges, 1961. Among six potential deterrents and inherent dangers that may hinder a community college from rendering maximum service, he included the following:

> The belief that students should pay a fair share of the cost of education. Traditionally junior college education is either tuition-free or of slight cost to the student. In a few states where the student bears a proportion of the total cost, this fractional part could become excessive as total costs increase. Moreover, there is agitation that states with tuition-free junior colleges establish tuition, and there is a trend to increase the amount of tuition in states where it is now legal. We cannot talk about the role of the junior college as a motivating force and not inquire about the extent to which tuition can be raised without militating against the motivation we are discussing (52:11).

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Presently, there appears to be a definite trend toward more state participation, especially in the financing of current

expenditures. Thirteen states (Arizona, California, Colorado, Florida, Idaho, Illinois, Iowa, Michigan, Mississippi, Missouri, New York, Texas and Washington) now offer substantial state aid for operation and maintenance (40:212).

Among states authorizing aid, the nature and proportion differ widely. Several extend financial provisions for support of common schools to locally controlled colleges, while others receive support from separate legislation and appropriations. In this sense, Thornton remarks as follows:

> Although no author has been willing to recommend that any single system of state aid be applied to all states, there is apparent agreement on the two principles that (1) generous state aid is essential for the development of a strong system of locally controlled public junior colleges, and (2) support for junior colleges should be distributed in a manner similar to that established for other units of the public school system including provision for equalization aid to poorer districts if that aid is provided at other levels of common schools (71:99).

These two contentions - that the state is obligated to provide aid to community colleges and that it attempt to equalize educational opportunities at that level - have been emphasized by various authorities.

Medsker, for instance, fears for the future of the colleges when he remarks:

> It would be unfortunate if in the years ahead junior colleges were to be caught in the middle, as local and state revenues are allocated to educational institutions. To the extent they absorb a share of the load of post-high school enrollments, it is as necessary to support them as it is to provide operating and capital funds for other types of higher institutions (53:306-307).

Emphasizing the obligation of the state, Medsker continues:

> A state that uses two-year colleges must also assume responsibility for financing them adequately ... Support of state junior colleges is in a sense simple ... because the state is totally responsible for them and only one board determines policy.
>
> Since the local junior college is the predominant pattern ... special consideration needs to be given to the state's responsibility for insuring an adequate financial base ... (53:305).

Starrak and Hughes, in arguing for tuition-free community college enrollment add:

> This implies generous support from the state or federal governments or from both, since real property, which is practically the only form of wealth local districts can tax, is already carrying heavy tax burdens. This is especially true in those states in which the major portion of the financial support for the public school system comes from the local property taxes. In such states, the full cost of the community institutes might well be financed from state funds, supplemented by such monies as may be derivable from federal sources for the purposes (67:56).

In turn, Earl J. McGrath also considered the possibility of resorting to federal aid when he wrote in "Does the Community College Have a Future?" The Educational Forum, November, 1962:

> Many communities have already recognized the inadequacy of local property taxes to sustain the public school program ... In most places proper support cannot be provided for a community college out of local taxes without damage to the lower schools, or without a feeble college effort, or both. Even the states themselves in some instances will not be able to supply the supplemental funds necessary to erect physical facilities and to provide the staffs and auxiliary services needed to serve the imminent junior college population. Some such federal legislation as that long since introduced in the Congress by Senator Case of New Jersey and others will be indispensable if some American youth who desire education beyond the high school are not to be denied (51:8).

The fact that several patterns of financial support and of minimizing costs have been developed is highlighted in the

study of Morrison and Martorana, State Formulas for the Support of Public 2-Year Colleges, 1962. Seventeen states, for instance, had a specific formula in 1960 for current operational support, while 26 provided legislative appropriations. Eighteen states had laws dealing with capital support for at least one type of 2-year college; 15 others provided funds for capital outlay but had no laws governing the matter (58).

In actual practice, state support for capital outlay was provided in 26 states for at least one type of 2-year college. Slightly over one-third of all publicly supported 2-year colleges received such support (58).

In 33 states local support was provided, including 82 per cent of all publicly supported 2-year colleges. Ninety-two per cent of local junior colleges received some funds for capital outlay (58).

Regarding principles for financing community college instruction Koos declares a plan of aid should include both a "flat" amount and aid for equalization. He continues:

> Financial provisions should also include (a) reimbursement of districts for the cost of attendance of non-resident students and (b) subsistence allowances for students beyond commuting distance who must live away from home while attending (45:349).

In "Financial Support for 2-Year Colleges," State Directors of Junior Colleges and Coordinators of State Systems of 2-Year Colleges, 1962, B. W. Musgraves gave administrators the following list of guidelines:

> 1. There should be a well-planned and executed state-wide program of property value equalization.

2. The district should cover sufficient area to give a broad taxing base so that the tax load can be more widely distributed.

3. There should be a tax rate commensurate with other tax loads ... such as city, county, State, schools, water districts, and hospitals (59:37).

To avoid haphazard financing and to equalize education Musgraves suggests these steps be observed:

1. Determine whether or not the State will distribute aid to all colleges alike, or whether or not it will distribute aid according to economic need.

2. Determine which, or how many, of the three phases of expenditure it wants to render aid.

3. Determine what part of this program should it assist if only current expenses are considered.

4. Determine the relationship between the cost in the 4-year colleges and universities and give the junior colleges their fair share. (59:38).

Finally, Bogue in The Development of Community Colleges spells out three responsibilities pertaining to state planning. One of these concerns legislation to authorize the establishment and maintenance of colleges.

3. Legislation should be enacted to (a) authorize the establishment of community colleges, (b) authorize the creation of community college districts whose population and wealth are large enough to justify the establishment of a community college, (c) set limits on tax rates which may be levied for capital and current finances, (d) determine the amount of support from the state and the formula under which payments will be made for current and capital expenditures, (e) set the limits of tuition and fees which may be charged, if any at all, (f) designate the authority and the manner to issue bonds, (g) set forth the legal methods by which community college districts may be created, and (h) authorizes or require school districts without community colleges to pay charges for their students to attend in districts which have colleges (7:9-10).

CHAPTER III

FINDINGS IN THE LIGHT OF THE CRITERIA ADOPTED

Triunal Interaction of Births, Deaths, Migration

When U. S. troops occupied the Island in 1899, its population was estimated at 953,243, or, 278.5 persons per square mile (68:4). By 1930, however, density had increased 62 per cent to 451 persons per square mile, a total of 1.5 million people (68.4). From 1935 to 1950 this number had increased by over 500,000. Population gain is compared in Table 1 with the average for the entire United States over the same period of time.

TABLE 1

POPULATION INCREASE

Year	Population (Thousands)	Puerto Rico Annual % Increase	United States Annual % Increase
1899	953		
1910	1118	1.45	1.95
1920	1300	1.56	1.44
1930	1544	1.69	1.47
1940	1869	1.94	0.70
1950	2211	1.69	1.36

Source: Kingsley Davis, "Puerto Rico: A Crowded Island," The Annals, The American Academy of Political and Social Sciences (Philadelphia: 1953), p. 116.

In 1958, with a population of 2.3 million, the Commonwealth was then averaging 672 persons per square mile as compared with only 51 for the continental United States (68:4). For 1959-60, the increase in civilian population was expected to reach 60,000, the difference between the expected number of births (76,000) and deaths (16,000) (21:55).

Table 2 shows the per cent of increase or decrease in population change during the 1930-1960 period in the ten municipalities. For the 1950-1960 span increases of 3.9 per cent and 4.9 per cent were recorded for Yabucoa and Las Piedras, with losses of 18 per cent in Naguabo and 17 per cent in Fajardo.[1]

A number of reasons for the 1950-1960 drop may be suggested. First, with mechanization taking over in the sugar cane industry, there is a possibility that workers migrated to other municipalities or to the continental United States. In addition, the presence of several military installations at Ceiba, midway between Fajardo and Naguabo, may have pronounced their influence through the continual in and out-migration of military and civilian personnel, including construction workers and their families. Note the marked increases for Ceiba, Fajardo, Humacao, Naguabo during World War II, then the respective decreases for the same municipalities during 1950-1960. Population size, though, depends on a comparison of birth, death, and migration rates.

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[1]The average rate of growth for 1950-1960 was taken as 6.5 per cent.

TABLE 2

POPULATION CHANGES IN THE 10 MUNICIPALITIES UNDER STUDY
1960, 1950, 1940, 1930

Municipality	1960 Population	1950 Population	Per cent of Increase	1950 Population	1940 Population	Per cent of Increase	1940 Population	1930 Population	Per cent of Increase
1. Ceiba	9,075	9,199	-1.3	9,199	7,021	31.0	7,021	7,275	-3.5
2. Fajardo	18,321	22,116	-17.2	22,116	20,405	8.4	20,405	16,321	25.0
3. Gurabo	16,603	16,395	1.3	16,395	15,870	3.3	15,870	15,095	5.1
4. Humacao	33,381	34,853	-4.2	34,853	29,833	16.8	29,833	25,466	17.1
5. Juncos	21,496	21,654	-0.7	21,654	19,464	11.3	19,464	17,469	11.4
6. Las Piedras	17,047	16,208	5.2	16,208	15,389	5.3	15,389	12,907	19.2
7. Maunabo	10,785	11,758	-8.3	11,758	10,792	9.0	10,792	9,084	18.8
8. Naguabo	17,195	21,019	-18.2	21,019	19,180	9.6	19,180	18,212	5.3
9. San Lorenzo	27,950	29,248	-4.4	29,248	26,627	9.8	26,627	23,479	13.4
10. Yabucoa	29,782	28,810	3.4	28,810	27,438	5.0	27,438	21,914	25.2

Source: U.S. Census of Population. 1950. Puerto Rico. Number of Inhabitants, U.S. Department of Commerce, Bureau of the Census, 1950, p. 53-8.
U.S. Census of Population. 1960. Puerto Rico. Number of Inhabitants, U.S. Department of Commerce, Bureau of the Census, 1960, p. 53-12.

From 1930 to 1940 the birth rate in Puerto Rico dropped from 40.55 per thousand to 38.5, but by 1947 it had risen to 43, decreasing again to 39 in 1950. In 1957 new babies were being born at a rate of 32.6 per thousand. Davis and Blake, in "Birth Control and Public Policy," comment on the downward trend as follows:

> Numerous field studies made by sociologists and demographers in crowded agrarian countries like India, Puerto Rico, and Jamaica clearly point to the growth of a desire for smaller families and an interest in learning how to implement this desire (32:119).

The excess of births over deaths is demonstrated for the 20-year period, 1932-1952, as follows: for 1932-1936 it was 19.1 per cent; for 1937-1941, 20.1 per cent; for 1942-1946, 26.1 per cent; and, for 1947-1951, 28.7 per cent (34:119).

From 1960 to 1975 it is estimated births will continue to decline from an average of 75,000 for 1960-1965 to 72,000 in 1965-1970 and to 70,000 for the period 1970-1975 (38:1).

> Since the total island population is projected to increase from 2,350,000 in 1960 to 2,548,000 in 1975 the number of births indicated presupposes a decline in the birth rate (38:1).

Like the birth rate which fell during 1930 to 1940, the death rate also declined--to 18.4. Deaths decreased in number, still further, from 22,000 in 1950 to a new low of 16,000 in 1959, or, from a rate of 10.5 per thousand population to 6.8.

A second reason for the decline in births, in addition to a desire for smaller families, may be the emphasis on stepped-up programs of health, education and welfare. William H. Stead, in The Economic Development of Puerto Rico, explains it this way:

> Both the low death rate and the still high birth rate are attributable to the youthfulness of the population.... the slight drop in birth rates during the recent period of rapid economic improvement is in line with world experience, which shows that declining birth rates are likely to accompany improving economic standards (68:5).

The current rate of population increase (not reflecting migration) is 2.6 per cent as compared with 1.8 per cent in the continental United States (68:5). Figure 3 portrays the birth and death rates from 1938, with projections to 1975.

Emigration to mainland United States augmented with World War II and its subsequent prosperous times, with increased job opportunities, and with the advent of low-cost air travel. Since then, the stream of migrants has been the most variable factor influencing changes in the Island's population.

The Economic Report to the Governor for 1959 declares:

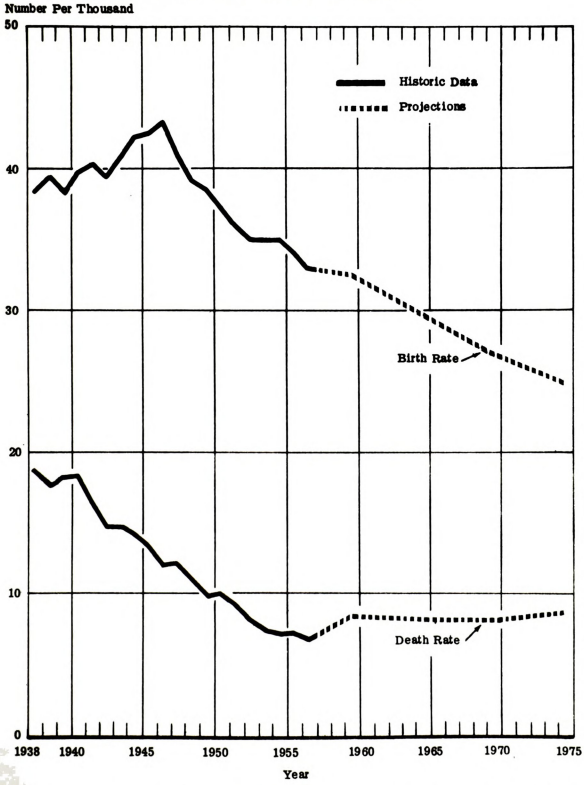
> It is important to bear in mind that net migration is the resultant of two migrant streams: one composed of Puerto Ricans, residents of the island, that migrate permanently to the United States; the other composed of United States residents, many of whom were born in Puerto Rico but who migrated earlier and are now returning (21:55).

Between 1947 and 1960 net migration varied from 35,000 to 75,000, the annual average for the past ten years being 45,000 (38:1). In 1959, as unemployment on the continent decreased, net migration ran to a level of 37,000 as compared with 26,000 in fiscal year 1958 (21:33). As a result of this sudden increase, the Island's population growth was limited to 24,000 or less than one per cent.

> The average of 50,000 persons a year who move from Puerto Rico to the states amounts to about 2.5 per cent of the Island's population--just about equal to the population increase. A return movement of individuals with

FIGURE 3

BIRTH AND DEATH RATES, 1938-1975



Source: Commonwealth of Puerto Rico. Puerto Rico's Manpower Needs and Supply. Committee on Human Resources. San Juan, November, 1957, p. 48.

> special skills required in the Puerto Rican economy is beginning and will probably gain as economic opportunity expands. However, the net outflow should remain large for the next 15 or 20 years (68:5).

In the pamphlet Economic Changes in Puerto Rico 1935-56, the Planning Board of the Commonwealth states:

> Our rate of natural increase is still very high but migration can be depended on to keep the population at about its present size, as it has done since 1950. Recessions in the United States may temporarily lower or interrupt migration, but such interruptions would undoubtedly be followed by higher subsequent rates of migration. The dependability of migration, as a factor in keeping population size stable, rests essentially on the very large number of Puerto Rican families already residing in the United States (19:1).

The projection for 1960 to 1975 assumes a declining average annual migration: 45,000 (1960-1965), 42,500 (1965-1970), and 40,000 (1970-1975) (38:1).

One aspect of migration affecting the demand for extending education beyond high school is the fact that, with the population size reaching stability, the average age of population is increasing rapidly, the median age expected to rise from 19 to 28 in the decade 1957-1967. As seen in Table 3, the population of persons under 20 will drop sharply, that between 20 and 45 will remain relatively constant, while the number of persons over 45 will increase from 17 per cent to 31 per cent of the total (19:1-2). Life expectancy is now set at 68 years, an increase of 22 years since 1940.

TABLE 3

POPULATION BY AGE, 1955-1975

(In Thousands)

Age	1955	1960	1965	1970	1975
Total	2,248	2,272	2,266	2,230	2,159
0-14 years	954	898	828	736	658
15-19 years	235	241	234	229	190
20-24 years	168	177	183	176	171
25-34 years	262	230	224	241	240
35-44 years	249	264	262	229	225
45-54 years	167	218	253	267	265
55-64 years	113	139	160	207	239
65 and over	100	105	122	145	170
(Age 15 and over)	1,294	1,374	1,438	1,494	1,500

Source: Commonwealth of Puerto Rico, Puerto Rico's Manpower Needs and Supply, Committee on Human Resources, San Juan: November, 1957, p. 51.

A second aspect of migration which will increase the need for institutions of a community-college type stems from the difference in education of the two groups exchanging residence.

> The actual migration of Puerto Ricans who were island residents is quite representative of Puerto Rico as a whole, both with respect to municipalities of origin and with respect to level of education and occupational characteristics. For example, 50 per cent of the out-migrants in the male labor force, both in 1957 and in 1958, fell into the category of agricultural workers ... in contrast, the stream of in-migrants, composed for the most part of Puerto Ricans that are returning after

> having lived in the United States, has an average of education and occupational skills distinctly superior to the Puerto Rican average . . . . (21:55-56).

These same persons may wish to further their education upon their return to the Island.

Supply of and Demand for Educated, Trained Manpower

While agricultural employment has dropped sharply since 1935, trade, industry, government and public utilities, transportation, and communications have made proportional increases. Evidence of need for strengthened post-secondary school education came from the Planning Board in its report, Economic Changes in Puerto Rico 1935-56, when it stated that, although the Island could count on an ample supply of young but untrained workers, its supply of managerial and technical personnel was limited. Further proof that greater diversification of post-high school programs of education and training is in order can be deduced from a review of the institutions of higher learning in existence. Limited opportunities to get advanced instruction in technical and semi-professional occupations account for the departure from high school of potential trained manpower.

It appeared that as the Island's economy was shifting upward there was more of a demand for individuals possessing advanced training and skills. The 1957 Economic Report to the Governor reiterates that, as productivity increases within a specific industrial sector, there is a corresponding rise in the demand for a more highly skilled type of labor input and an

offsetting decrease in requirements for unskilled labor (20:59).

In manufacturing, employment has remained constant, changing radically, though, in composition. Thus, while there have been rapid gains in use for professionals, managers, clerks, and craftsmen, there has been a corresponding decrease in the hiring of common and agricultural laborers and domestic servants. (See Table 4.)

In the movement from an agricultural economy to a manufacturing setting, income from the latter rose from 11.6 per cent in 1940 to 20 per cent in 1956. In fact, the year 1956 may be considered a turning point in the development of Puerto Rico's economy since income generated in the manufacturing sector surpassed that of agriculture for the first time (19:4).

Continues the report for 1935-56:

> In general we are moving from partial employment for most of the labor force to regular, full-time steady employment for many and, in recent years, towards full-time unemployment for some . . . . The concentration of unemployment will affect, particularly, those elements of the population least able to take advantage of new job opportunities because they ... have little or no education . . . . (19:9-10).

The Puerto Rican labor force, although increasing at a rate of 20,000 workers annually, consists of a backlog of 100,000 unemployed, and 200,000 underemployed--almost half the total labor force of 700,000. Declares Stead:

> Despite the relief offered by emigration, the provisions of jobs for the present unemployed (13 per cent of the labor force) and for young workers just entering the labor market, along with achievement of a satisfactory way of life for all the people, are staggering tasks (68:5).

Reasons for unemployment are: marginal jobs in farming,

TABLE 4

SELECTED INDICES OF SOCIAL AND ECONOMIC PROGRESS:
FISCAL YEARS 1939-40, 1946-47 to 1959-60

Item		1940	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Labor Force, Total (in thousands)	(2)	602	652	653	647	686	713	679	646	631	637	643	636	637	637	625
Employment	(2)	536	572	578	578	596	604	571	550	540	539	558	552	555	546	543
Agriculture, forestry and fishing		230	*	*	214	216	203	192	172	174	164	161	152	151	137	125
Manufacturing except home-needlework		56	*	*	50	55	56	57	63	67	66	74	79	79	78	82
Trade		54	*	*	85	90	93	94	84	83	89	93	94	97	95	97
Government		19	*	*	44	45	50	51	50	50	50	55	57	62	65	63
Other		177	*	*	185	190	202	177	181	166	169	175	170	166	171	176
Unemployment	(2)	66	80	75	69	88	110	108	96	92	97	85	84	82	90	82
Per cent of labor force	(2)	11	12	11	11	13	15	16	15	15	15	13	13	13	14	13

Source: Commonwealth of Puerto Rico. Office of the Governor. Puerto Rico: Selected Indices of Social and Economic Progress: Fiscal Years 1939-40, 1946-47 to 1959-60. Puerto Rico Planning Board, Santurce.

home needlework, and similar occupations, disappearing as fast as Operation Bootstrap can develop productive employment in factories and commerce.

Although the assumption was made that manpower was Puerto Rico's most plentiful resource, this point of view is changing.

> It looks now like skilled manpower may turn out to be her scarcest resource, and this in spite of the fact Puerto Rico is devoting much more of her economic resources to education than any other country in the world (29:9).

Further evidence that plenty of available labor is no longer an asset is gathered from this quotation from The New York Times:

> Industries dependent primarily on low-cost labor and tax exemption, the early cornerstones of the economic self-help program, are becoming steadily less important. Those requiring substantial capital or benefiting greatly from high labor productivity are increasing in number (46:1F, 10F).

The shortage of technical, scientific, and managerial talent continues. Stead elaborates further when he states:

> Initially the new stateside industries sent down the necessary technical and managerial staff to get the plants under way, expecting to locate or train some Puerto Rican personnel to replace them and to care for expansion needs. Unfortunately, Puerto Rico's flow of this type of managerial material ... was quickly absorbed. . . . Through a crash program of vocational training and . . . on-the-job training, people who had no industrial experience have been transformed into a highly productive work force (68:82).

Additional moves to correct this deficiency have been the development toward more practical ends of the College of Business Administration and of the Schools of Public Administration, Labor Relations, and Social Work at the University of Puerto

Rico, traditionally oriented toward the provision of a sound liberal education and training in medicine, law, agriculture, and engineering. Also, the programs at the College of Agriculture and Mechanic Arts have been accelerated. A third thrust in this direction is the granting of scholarships by the Commonwealth's Economic Development Administration to candidates qualifying for advanced managerial studies on the mainland.

The vocational education program sponsored by the Department of Education is not only extensive but effective. Twelve public high schools, including those in Caguas, Fajardo, and Humacao, provide training for about 7,738 students annually, with 26 different trades offered (68:62). Separate vocational high schools operate also in Arecibo, Caguas, Mayaguez, Ponce, and Rio Piedras. Between 1957 and 1958 there was a growth of 8,493 students of vocational education in day, adult, and veteran groups combined. All in all, a total of 118,749 students were reported in the six programs sponsored: agricultural education and industrial education, and industrial arts (15:1). Most courses are organized to meet the needs of industry. The Vocational Education Division of the Department of Education also offers specialized training in three other fields: distributive education in 11 high schools, office occupations in 15, and agricultural education in practically all of them.

Everett Reimer, Executive Secretary of the Committee on Human Resources for the Commonwealth, makes these comments on projected employment trends:

> . . . comparing the expected employment pattern in 1975 with actual employment in 1950, there will be twice as many professionals, twice as many administrators, twice as many craftsmen, four times as many clerks--and less than half as many farm laborers (62:4).

Estimates of the manpower study group are as follows: (a) from 218,000 to 137,000 in agriculture, or a decrease of .40; (b) from 99,000 to 250,000 in manufacturing, or almost a threefold increase; (c) from 22,000 to 41,000 in construction, or about 2.0 times; (d) from 31,000 to 51,000 in transportation, communications, and utilities, or about 1.5 times; (e) from 93,000 to 133,000 in wholesale and retail trade, or 1.4 times; (f) from 82,000 to 110,000 in services, or about 1.25 times; (g) from 50,000 to 76,000 in government, or about 1.5 times (29:105). Because the greatest increases in distribution of employment by occupational groups, from 1940 to 1975, are expected in the fields of operatives, craftsmen, clerical and sales workers, managers, and other professionals, this means more and more people trained beyond the 12th grade will be required.

Translating occupational estimates into forecasts by educational level signifies:

> . . . there will be four times as many college graduates, six times as many high school graduates, five times as many intermediate school graduates, five times as many elementary school graduates, and only one-fourth the number of persons with less than five years of education (62:4).

Thus, even though all-school enrollments more than doubled between 1940 and 1955, even though the number of teachers and classrooms more than doubled, even though expenditures for education went up 700 per cent, the rate of expansion in schools during

the first half of the 1950's clearly fell behind the rate of economic development.

Three reasons for the failure of the educational system to keep up with economic growth are an adult population with very low average education for an industrial economy, a slow retention rate, and a large-scale exportation of persons with more than average education.

The wave of the future is toward an accelerating demand for trained personnel in areas of employment requiring advanced levels of educational specialization. The Economic Report to the Governor for 1957 states:

> By 1975, 6 per cent of all jobs will require a college graduate, 31 per cent will require senior high school graduates, 20 per cent will require junior high school graduates, 31 per cent will require elementary school graduates, and only 12 per cent of all jobs will be available for persons with less than six years of education. This means that unless the educational program can be stepped up, there will still be a shortage by 1975 of 12,000 college graduates, 75,000 junior and senior high school graduates, and 75,000 elementary school graduates, or a total shortage of 160,000 people with the proper levels of education (20:60).

Economic development implies, then, that rapidly increasing numbers of prospective students must be admitted into the school system, that rapidly expanding numbers must be kept longer in school, and that instruction at all levels must be made more general.

Representing inter-agency cooperation within the Government, the Committee on Human Resources recommends that:

> Present educational policies, stressing retention through elementary school and adult education, should be continued and even vigorously implemented. Not only the unemployed but also the larger number of persons temporarily out of the labor force and the larger number

> of workers now employed at low levels of productivity will be able to achieve their income aspirations . . . only by increasing their education. . . . (18:42-43).

Regarding the role to be played by the University of Puerto Rico, the Committee suggested that this institution make estimates of expansion required in facilities above the high school level, determine what proportion of these should be under its jurisdiction, and provide extension programs so as to produce 16,000 graduates between 1957 and 1975 (18:90).

To determine the needs of business and industry in the ten municipalities, a technical education survey was conducted. Six of the municipalities are represented in Figure 4 as having been developed, to some degree, industrially, with unshaded portions representing even larger pools of untapped labor.

From a 1960 listing of manufacturing establishments by the Economic Development Administration, 70 firms were selected as a sample population, 24 completing and returning questionnaires after the first mailing. Upon personal visits to factories an additional 23 replies were secured, making a grand total of 47, or 67% of the sample. A tabulation of answers is recorded in Appendix C.

Although 36 of the 47 respondents, or 77 per cent, stated there were opportunities for graduates of two years of technical or semi-professional training beyond high school and 27 (57 per cent) replied that candidates with this training could supplement college graduates already employed, only a limited number of positions were reported during interviews as available to those with any college preparation whatsoever. Factory operations,

FIGURE 4

DENSITY OF BUSINESS-INDUSTRY DEVELOPMENT IN PUERTO RICO

Source: Commonwealth of Puerto Rico. Economic Development Administration, San Juan.

mostly simple ones, were being performed by high school graduates or employees with less schooling. The following types of training were considered of most value to business and industry: factory management, secretarial and clerical practice, labor-management relations, and bookkeeping and accounting.

Results also indicate that in 38 firms, or 81 per cent, two years of post-high-school preparation would be recognized by job advancement, while 17 (36 per cent) declared higher pay would be forthcoming.

While most respondents answered that existing educational facilities for meeting training needs were either "Fair" or "Poor," still 26 businesses provided no on-the-job training program in comparison with 18 that did. Only three thought a two-year terminal-technical program in a public community college could supplement fully their own programs, with 16 answering it could in some respects only.

Trends in Public and Private School Enrollments

Article 11, section 5, of the Commonwealth Constitution, adopted on July 25, 1952, reads:

> Every person has the right to an education which shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. There shall be a system of free and wholly non-sectarian public education, instruction in the elementary to the extent permitted by the facilities of the state.

Fifty-four years before, when U.S. troops disembarked in Puerto Rico, 79.5 per cent of the people were illiterate and only 22,265 children, or ten per cent of the school-age population,

were attending 539 schools manned by 600 teachers. Yet, in 1958, there were over 700,000 children or adults studying in private or public schools, with a total of 13,250 instructors. One of every three persons was in attendance.

That the period 1940-1956, alone, was one of great educational advance is noted in Table 5.

TABLE 5

INDICES OF EDUCATIONAL PROGRESS

	1940	1956
Enrollment	305,000	695,000
School Age Population In School (6-18 years)	57%	81%
Classrooms	5,201	9,448
Literacy	69%	81.4%
Expenditures (million dollars)	7.3	56

Source: Commonwealth of Puerto Rico, Public School System of Puerto Rico (General Information), San Juan: Department of Education Press, 1957, p. 4.

Table 6 presents total enrollments of public and accredited private day schools from 1939-40 to 1957-58. This ascended from 296,679 to 430,723, an increase of 134,044, or approximately 45 per cent. From 1950-51 to 1957-58, enrollment reached 614,005, an increase of 183,282, or about 43 per cent.

TABLE 6

ENROLLMENT IN PUBLIC AND ACCREDITED PRIVATE SCHOOLS OF PUERTO RICO, BY SCHOOL LEVELS, 1939-40 to 1957-58[a/]

School Year	Elementary (1-6)			Junior High (7-9)		
	Public	Private	Total	Public	Private	Total
1939-40	240,023	6,689	246,712	35,386	2,141	37,527
1940-41	234,971	7,114	242,085	35,558	2,491	38,049
1941-42	245,711	7,356	253,067	36,783	2,375	39,158
1942-43	249,499	7,114	256,613	41,600	2,163	43,763
1943-44	251,597	7,434	259,031	44,692	2,540	47,232
1944-45	263,153	8,837	271,990	50,741	2,631	53,372
1945-46	273,724	9,767	283,491	55,623	2,839	58,462
1946-47	283,570	10,583	294,153	58,879	3,569	62,448
1947-48	292,692	11,915	304,607	57,194	3,580	60,774
1948-49	300,163	12,870	313,033	57,837	3,541	61,378
1949-50	317,158	14,231	331,389	61,855	3,965	65,820
1950-51	340,047	15,356	355,403	68,418	4,129	72,547
1951-52	348,311	17,016	365,327	72,506	4,399	76,905
1952-53	364,031	20,723	384,754	78,092	5,336	83,428
1953-54	387,128	22,683	409,811	81,951	5,938	87,889
1954-55	402,227	23,635	425,862	87,525	7,036	94,561
1955-56	409,301	24,919	434,220	92,760	7,667	100,427
1956-57	407,797	26,777	434,574	100,041	8,326	108,367
1957-58	409,514	29,869	439,383	106,126	9,184	115,310

a/ As of the end of school year.

b/ Taken from Age-Grade Distribution of Enrollment, 12th week of the second semester.

Source: Commonwealth of Puerto Rico, Annual Report of the Secretary of Education, 1957-58. Statistical Report. Part 1, Department of Education, Hato Rey, p. 9.

TABLE 6--Continued

Senior High (10-12)			Total Public and Private (1-12)		
Public	Private	Total	Public	Private	Total
10,689	1,751	12,440	286,098	10,581[b]	296,679
11,062	1,987	13,049	281,591	11,592[b]	293,183
10,769	2,113	12,882	293,263	11,844[b]	305,107
11,707	1,950	13,657	302,806	11,227[b]	314,033
13,306	2,302	15,608	309,595	12,276	321,871
16,976	2,628	19,604	330,870	14,096	344,966
20,612	2,379	22,991	349,959	14,985	364,944
24,482	2,936	27,418	366,931	17,088	384,019
27,463	4,519	31,982	377,349	20,014[b]	397,363
28,229	4,551	32,780	386,229	20,962[b]	407,191
29,115	4,399	33,514	408,128	22,595	430,723
31,222	4,041	35,263	439,687	23,526	463,213
31,820	4,084	35,904	452,637	25,499	478,136
33,501	4,743	38,244	475,624	30,802	506,426
36,072	5,946	42,018	505,151	34,565	539,718
39,474	8,298	47,772	529,226	38,969	568,195
43,134	10,166	53,300	545,195	42,752	587,947
45,845	9,844	55,689	553,683	44,947	598,630
48,803	10,509	59,312	564,443	49,562	614,005

Between 1940 and 1958, as shown in Table 6, there has been an increase of more than 169,000 pupils, or more than 70 per cent, at the elementary level. At the junior high school level, in 1958, the enrollment became twice that of 1940, while senior high enrollment was three and a half times as large.

While the proportion of enrollment in the elementary schools has descended from 82 per cent (in 1943) to 73 per cent (in 1958), junior and senior high school enrollments have increased proportionally, representing in 1958 almost 19 per cent and nine per cent, respectively, of total public school enrollment. This is an indication of the increased holding power of the system.

Even though enrollment was greater, the rate of expansion during the first half of the 1950's fell behind the rate of economic development. There were three reasons. First, the adult population had, on the average, only three years of schooling. Government planners, to produce the manpower required, recommended that the adult education program, which in 1957 had 32,000 in the first three grades and only 6,000 in grades four to six, should continue to enroll larger numbers in the early grades, retaining rapidly increasing numbers in the upper grades. This has not occurred. Actually, while enrollment in the upper grades descended slightly, that in the lower levels declined from 32,000 to 8,000.

The Committee on Human Resources recommends the Department of Education encourage the expansion of enrollments in

adult education, by 1975, to almost 180,000 elementary school graduates, 100,000 junior high school graduates, and 60,000 high school graduates (29:89). In continuation, the Committee suggests:

> The government leaders of Puerto Rico should (1) inform the people... of the need for more manpower with at least six years of education, (2) encourage all of the people... to get as much education as possible, giving preference at higher levels to those with most ability and demonstrated personal motivation, and (3) provide educational facilities and incentives to children and adults to the greatest extent possible (29:95-96).

Second, although almost every child was entering school, over half dropped out before completing elementary grades. The fact that 400,000 children who were in school in 1957, in excess of those in attendance in 1940, are from homes whose heads were almost illiterate, where there are no books, with limited access to the outside world, only made it more difficult to meet increased retention rates.

A third reason for failure of the education system to keep pace was the fact that migrant workers, transferring to the States, had an average schooling of eight years as compared with less than four for the total population (62:5). Only a slower rate of growth and a lower rate of migration have kept Puerto Rican planners from failing to meet manpower goals completely.

In Table 7, covering the span 1956-57 to 1960-61, it is noted the elementary school enrollment was at its maximum in 1957-58, but has been decreasing ever since, total loss being 6,803, or slightly more than 1.6 per cent.

TABLE 7

PUBLIC AND PRIVATE SCHOOL ENROLLMENTS, FIRST SEMESTER

Elementary Level, Grades 1-6	1956-57	1957-58	1958-59	1959-60	1960-61
Public	400,615	404,109	396,971	390,330	386,491
Accredited Private	25,300	26,522	30,516	31,825	32,570
Private Non-accredited	1,962	2,199	2,111	1,784	2,013
Total	427,877	432,830	429,598	423,939	421,074
Junior High School, Grades 7-9					
Public	98,770	104,989	112,186	119,506	123,612
Accredited Private	8,124	8,227	9,653	11,371	12,288
Private Non-accredited	37	54	143	106	197
Total	106,931	113,270	121,982	130,983	136,097
Senior High School, Grades 10-12					
Public	45,508	48,283	53,440	57,326	60,076
Accredited Private	9,257	9,990	9,688	8,883	8,585
Total	54,765	58,273	63,128	66,209	68,661
Grand Total					
Public	544,893	557,381	562,597	567,162	570,179
Private (Accredited and Non-accredited)	44,680	46,992	52,111	53,969	55,653
	589,573	604,373	614,708	621,131	625,832

Source: Commonwealth of Puerto Rico, Informe Sobre la Matrícula y Maestros al Terminar el Primer Mes Escolar, 1960-61, Bulletin No. 1, Division of Statistics, Department of Education, Hato Rey, p. 4.

During the entire period, both the junior and senior high schools were affected by increases of 29,160, or 27.2 per cent, and 13,896, or 25.2 per cent, respectively. Increases in both schools reached their highest in 1958-59.

Although it was recommended in 1957 that the over-all retention rate of the elementary school be increased to 85 by 1960, by 1958 the rate had jumped from 68 to only 73, dropped to 70 in 1959, and again in 1960 to 69. Table 8 gives the actual data on retention rates for 1958-59 and 1959-60, with projections from 1960-61 to 1966-67. A steady increase is registered for almost all grades.

Projections for 1959-60 to 1974-75, as shown in Table 9, assume the backlog will be exhausted, that the number of children entering 1st grade will approach the number born six years earlier.

In his estimates, Beresford L. Hayward of the Department of Education sees the historical trend of declining retention between grades seven to nine reversed, due to:

1. Decreasing average age of students
2. Decreasing pressure of student enrollment after 1967
3. Increasing educational efficiency in elementary schools
4. Increasing urban characteristics of students
5. Increasing effectiveness of secondary schools (38:3).

For the 9th to 10th grades he sees an increasing proportion of students continuing to high schools. For the 10th to 12th grades, however, improvement for the 1960-75 period will be relatively slow (38:4). The peak in projections of senior high enrollments is not seen until 1964-65 (29:56-57, 125).

TABLE 8

HOLDING RATES

PUBLIC AND PRIVATE ACCREDITED SCHOOLS, 1958-59 to 1967-68

GRADES	Actual Data 1958-59: 59-60	1959-60: 60-61	1960-61: 61-62	Percentages 1961-62: 62-63	1962-63: 63-64	1963-64: 64-65	Projections 1964-65: 65-66	1965-66: 66-67	1966-67 67-68
1-2	92.3	92.7	93.0	93.3	93.6	94.0	94.2	94.4	94.6
2-3	97.6	97.7	97.8	97.9	98.0	98.0	98.0	98.0	98.0
3-4	96.9	95.4	95.8	96.2	96.6	97.0	97.0	97.0	97.0
4-5	91.8	92.2	82.5	92.9	93.4	94.0	94.6	95.2	95.8
5-6	86.9	87.3	87.6	87.9	88.2	88.5	89.2	89.9	90.6
6-7	87.9	88.0	88.3	88.7	89.1	89.5	89.7	89.3	89.8
7-8	80.4	80.4	80.6	80.3	80.3	80.3	80.5	80.7	80.9
8-9	83.2	83.1	82.9	82.7	82.5	82.3	82.6	82.9	83.2
9-10	86.4	87.2	87.9	88.6	89.3	90.0	90.4	90.8	91.2
10-11	80.2	80.3	80.3	80.4	80.4	80.5	80.8	81.1	81.4
11-12	79.4	79.5	79.7	79.9	80.2	80.5	80.8	81.1	81.4

Source: Commonwealth of Puerto Rico, Proyectos de Mejoras Permanentes, Decimonoveno Plan de Seis Años, 1963 a 1968, Department of Education, Hato Rey, Table 1a.

TABLE 9

PUBLIC SCHOOL ENROLLMENT, 1959-60 to 1974-5
(In Thousands)

Grade	1959-60	1960-1	1961-2	1962-3	1963-4	1964-5	1965-6	1966-7
1	76.78	73.46	69.52	66.38	63.34	61.24	59.40	57.00
2	66.02	71.18	68.32	64.86	62.16	59.54	57.69	55.13
3	67.39	64.50	69.61	66.89	63.53	60.92	58.35	56.54
4	66.14	64.29	61.79	66.96	64.62	61.62	59.09	56.60
5	61.63	60.98	59.47	57.40	62.54	60.74	58.29	56.25
6	56.40	53.80	53.42	52.27	50.63	55.35	54.18	52.40
7	52.01	49.63	47.51	47.38	46.57	45.31	49.76	48.38
8	38.70	41.81	39.90	38.15	38.05	37.40	36.47	40.16
9	29.91	32.16	34.66	33.00	31.47	31.32	30.89	30.23
10	25.36	26.08	28.27	30.71	29.47	28.32	28.31	28.05
11	18.47	20.36	20.94	22.73	24.69	23.72	22.88	22.96
12	13.89	14.68	16.23	16.73	18.23	19.88	19.17	18.56
Total								
1-6	394.36	388.21	382.13	374.76	366.82	359.41	346.00	333.92
7-9	120.62	123.60	122.07	118.53	116.09	114.03	117.12	118.77
10-12	57.72	61.12	65.44	70.17	72.39	71.92	70.36	69.57
7-12	178.34	184.72	187.51	188.70	188.48	185.95	187.48	188.34
1-12	572.70	572.93	569.64	563.46	555.30	545.36	533.48	522.36

Source: Beresford L. Hayward, Assumptions for Projection of School Enrollment, 1959-60 to 1974-75, Department of Education, Hato Rey.

TABLE 9--Continued

1967-8	1968-9	1969-70	1970-1	1971-2	1972-3	1973-4	1974-5
55.80	54.50	53.20	51.60	50.80	50.00	49.20	48.30
53.92	52.90	51.78	50.59	49.12	48.41	47.70	46.99
54.03	52.84	51.84	50.80	49.68	48.28	47.64	46.98
54.84	52.41	51.25	50.34	49.38	48.34	47.02	46.45
54.22	52.87	50.84	49.71	48.83	47.90	46.89	45.61
50.96	49.50	48.64	47.13	46.43	45.95	45.41	44.78
47.06	46.58	45.54	44.94	43.74	43.27	43.00	42.69
39.14	38.17	37.87	37.43	37.35	36.74	36.78	36.98
33.41	32.72	32.06	32.11	32.04	32.27	32.04	32.37
27.57	30.60	30.10	29.50	29.54	29.48	29.69	29.48
22.83	22.52	25.09	24.86	24.54	24.75	24.88	25.24
18.69	18.65	18.47	20.72	20.68	20.56	20.89	21.15
323.77	315.02	307.55	300.17	294.24	288.88	283.86	279.11
119.61	117.47	115.47	114.48	113.13	112.28	111.82	112.04
69.09	71.77	73.66	75.08	74.76	74.79	75.46	75.87
188.70	189.24	189.13	189.56	187.89	187.07	187.28	187.91
512.47	504.26	496.68	487.73	482.13	475.95	471.14	487.02

Even with the change in trend of growth, absolute demand for college training will still likely be many times higher than now. This is evident in projections of senior high enrollment of 67,000 in 1974-75, after passage of peak years, as compared with 35,000 students in 1950-51. The situation at the college level will be more pronounced because of factors of motivation and increased holding power from high school to college, almost certain to develop. Table 10 indicates projected increases or decreases in enrollments, by types of schools, from 1959-60 to 1967-68.

States the Committee on Human Resources:

> To meet the projected employment demand, it seems to be necessary for Puerto Rico during the next seventeen years, to give at least 300,000 persons an average of six or more years of education than they would get without an accelerated education program . . . . The additional education will have to be properly distributed among subject matter fields and by level of education. . . . Even then, the sufficiently educated will tend to lack experience while those with sufficient age and general experience will tend to lack education (29:14).

In Table 11 the educational level of the population has been calculated by the Committee for 1950-1975.

TABLE 10

INCREASE OR DECREASE OF ENROLLMENTS
1959-60 to 1967-68[1]

Year	Elem.	Jr.	H.S.	Total
1960-61	- 3,300	4,700	2,800	4,200
1961-62	- 3,400	-1,000	5,600	1,200
1962-63	- 5,600	-3,700	6,400	-2,900
1963-64	- 6,700	-2,000	3,500	-5,200
1964-65	- 6,700	-1,200	200	-7,700
1965-66	- 9,400	3,100	-900	-7,200
1966-67	-12,600	7,000	400	-5,200
1967-68	- 6,400	1,400	700	-4,300

[1]Of first month of second semester.

Source: Commonwealth of Puerto Rico, Proyectos de Mejoras Permanentes. Decimonoveno Plan de Seis Anos, 1963 a 1968, Department of Education, Hato Rey, p. 4.

TABLE 11

EDUCATION LEVEL OF THE POPULATION, 1950-1975

(In Thousands)

Education Level	1950	1955	1960	1965	1970	1975
Population (15 and over)	1,249	1,294	1,374	1,438	1,494	1,500
College	17	21	25	34	42	53
Senior high school	68	101	161	212	278	341
Junior high school	103	105	145	150	198	190
Elementary school	282	290	300	335	330	331
5 years or less	779	777	743	707	646	585

Source: Commonwealth of Puerto Rico, Puerto Rico's Manpower Needs and Supply, Committee on Human Resources, San Juan: November, 1957, p. 59.

Table 12, constructed from figures furnished by the Statistics Division, Department of Education, illustrates the steady growth in enrollment in the ten-municipality area studied. Note the dramatic drop and subsequent rise in totals for 1951-52 and 1952-53. With the exception of 1959-60, enrollment in the 12th grades has been progressively greater since 1952-53.

TABLE 12

COMBINED ENROLLMENTS, BY GRADES, IN THE PUBLIC SCHOOLS OF THE 10 MUNICIPALITIES UNDER STUDY

Grades	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
1st	9346	8136	9011	8696	7931	7728	7356	7013	6880	7475
2nd	8990	7700	7783	8324	8164	7320	7057	6974	6604	6362
3rd	7392	6789	7277	7430	8272	8216	7481	7158	7012	6046
4th	6651	5864	6090	6608	6836	7617	7441	7143	6789	6707
5th	5412	5034	5113	5536	5880	5986	6572	6716	6639	6265
6th	4285	4090	4360	4423	4890	5049	5130	5697	5885	5761
7th	3432	2487	3537	3637	3734	4037	4253	4398	5030	5100
8th	2594	2354	2550	2845	2969	2898	3243	3474	3630	4073
9th	2157	1851	2051	2142	2364	2436	2421	2700	2872	3052
10th	1470	1475	1607	1753	1782	1916	1924	2052	2461	2480
11th	1263	1088	1123	1178	1335	1431	1421	1567	1649	1991
12th	982	956	634	890	966	984	1099	1192	1329	1289
Totals	54466	47824	51136	53462	55123	55618	55398	56084	56780	56601

Source: Commonwealth of Puerto Rico, Annual Reports of the Secretary of Education, 1950-51 to 1959-60, Department of Education, Hato Rey.

Ratio of H.S. Graduates to College Students

Before projecting the size of the 13th grade (first-year college level) in Puerto Rican institutions of higher education, Hayward in Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63 shows the number of new enrollments appearing in full-time, first-year programs from 1954 to 1961 (Table 13). For this period the 13th grade was 36.3 per cent of the previous 12th grade.

In Table 14 the size of the same college class is indicated, including all students registered at the first-year level, the number being larger each year than that for new students. Over the past seven years the total first-year college class has averaged 42.4 per cent of the previous 12th grade enrollment.

In arriving at his estimate "A," Hayward first demonstrates in Table 15 the relationship of the 1st grade in all schools in Puerto Rico through the 12th grade, from 1954 to 1961-62. On the basis of a slowly increasing proportion of the 1st grade students appearing later in the 12th grade, this level is projected to 1971-72. From this 12th grade projection is calculated the 13th grade, based upon the constant ratio of 42.4 per cent. The basic assumption here is that a college capacity for first-year students will have to include those who continue in the first year of college longer than one calendar year.

TABLE 13

12th GRADE AND 13th GRADE (FIRST-YEAR COLLEGE) ENROLLMENTS, INCLUDING ONLY NEW FULL-TIME STUDENTS

1954-61

	12th Grade	13th Grade as % of Previous 12th Grade	13th Grade
1954-55	11497		
1955-56	13618	38.5	4426
1956-57	14138	36.1	5008
1957-58	14818	40.2	5685
1958-59	16736	35.1	5313
1959-60	17000	33.8	5608
1960-61	18000	33.7	5689
1961-62	18630	36.8	6565

Source: Commonwealth of Puerto Rico, Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63, Department of Education, Hato Rey: April, 1962, p. 23.

TABLE 14

12th GRADE AND 13th GRADE (FIRST-YEAR COLLEGE) ENROLLMENTS, INCLUDING ALL FULL-TIME STUDENTS ENROLLED

1954-61

	12th Grade	13th Grade as % of Previous 12th Grade	13th Grade
1954-55	11497		4862
1955-56	13618	45.2	5202
1956-57	14138	42.1	5734
1957-58	14818	46.4	6558
1958-59	16736	42.5	6291
1959-60	17000	38.1	6383
1960-61	18000	39.4	6705
1961-62	18630	43.6	7898

Source: Commonwealth of Puerto Rico, Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63, Department of Education, Hato Rey: April, 1962, p. 24.

TABLE 15

13th GRADE (FIRST-YEAR COLLEGE) ENROLLMENTS, 1954-55 TO 1972-73. (ESTIMATE "A")

	1st Grade, 11 years Previous	12th Grade as % of 1st Grade	12th Grade	13th Grade
1954-55	65157	17.6	11497	4862
1955-56	65669	20.7	13618	5205
1956-57	72248	19.0	14138	5734
1957-58	74043	19.4	14818	6558
1958-59	76701	21.8	16736	6291
1959-60	77668	21.8	17000	6383
1960-61	76930	23.5	18000	6705
1961-62	85324	21.8	18630	7898
1962-63	79180	22.5	17800	7899
1963-64	86686	23.0	19937	7547
1964-65	92700	23.5	21784	8453
1965-66	83899	24.0	20135	9236
1966-67	81178	24.5	19888	8527
1967-68	79845	25.0	19960	8432
1968-69	79966	25.5	20391	8463
1969-70	78132	26.0	20314	8646
1970-71	84600	26.5	22419	8613
1971-72	87000	27.0	23490	9506
1972-73				9959

Source: Commonwealth of Puerto Rico, Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63, Department of Education, Hato Rey: April, 1962, p. 25.

Table 16 shows a projection of enrollments based upon both the 1960 census and retention rates prepared previously. This yields a 12th grade projection, estimate "B," which is a significantly larger proportion of the 1st grade enrollments, with the 13th grade enrollment (based again on 42.4 per cent of the previous 12th grade) reaching a peak of over 12,000 by 1972-73, as compared to 9959 in estimate "A."

In estimate "C" Hayward shows the 12th grade from 1954 to 1961-62 compared to the 6th grade six years earlier (Table 17). These figures indicate that for the past seven years no more than 40 per cent of the 6th graders have appeared six years later in the 12th grade, the average being 38.2 per cent. Since there seems to be no tendency in these years for this ratio to increase, the 12th grade from 1962 to 1971-72 is projected on the basis of 38.2 per cent of the 6th grade six years previously.[1]

Using the lowest projected estimate for the 12th grade, 1961-62 to 1972-73, the 13th grade is projected by Hayward in estimate "D" as an increasing percentage of the previous 12th grade. This brings the 13th grade enrollment to 14,000 (compared to 10,000 to 12,000 in other projections) by 1972.

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[1]The sixth grade figures for the last four years are based on the detailed projection described as the basis in Table 16.

TABLE 16

13th GRADE (FIRST-YEAR COLLEGE) ENROLLMENTS, 1962-63 TO 1972-73 (ESTIMATE "B")

	1st Grade, 11 years Previous	12th Grade (b) as % of 1st Grade	12th Grade (a)	13th Grade
1962-63	79180	25.5	20300	7899
1963-64	86686	25.7	22400	8607
1964-65	92700	26.3	24500	9497
1965-66	83899	28.5	24000	10388
1966-67	81178	29.5	23600	10176
1967-68	79845	30.4	24000	10006
1968-69	79966	30.4	24400	10176
1969-70	78132	31.4	24700	10345
1970-71	84600	31.4	26700	10472
1971-72	87000	33.1	28900	11320
1972-73				

(a) From detailed projection of Public and Private Enrollment, appearing in summary form in The Future of Education in Puerto Rico, Table E, page 17.

(b) This percentage not used to calculate the 12th grade.

Source: Commonwealth of Puerto Rico, Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63, Department of Education, Hato Rey: April, 1962, p. 26.

TABLE 17

13th GRADE (FIRST-YEAR COLLEGE) ENROLLMENTS, 1954-55 TO 1972-73 (ESTIMATE "C")

	6th Grade 6 years Previous	12th Grade as % of the 6th	12th Grade	13th Grade
1954-55	29611	38.8	11497	4862
1955-56	33661	40.4	13618	5205
1956-57	37121	38.0	14138	5734
1957-58	39965	37.0	14818	6558
1958-59	41625	40.2	16736	6291
1959-60	44349	38.3	17000	6383
1960-61	48342	37.4	18000	6705
1961-62	53116	35.0	18630	7898
1962-63	52891	38.2	20203	7899
1963-64	58716	38.2	22429	8566
1964-65	63542	38.2	24272	9509
1965-66	61000	38.2	23302	10291
1966-67	58900	38.2	22499	9880
1967-68	57953	38.2	22138	9539
1968-69	57900	38.2	22111	9386
1969-70	56800	38.2	21697	9375
1970-71	60200	38.2	22996	9399
1971-72	65100	38.2	24868	9750
1972-73				10544

Source: Commonwealth of Puerto Rico, Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63, Department of Education, Hato Rey: April, 1962, p. 27.

All four estimates described indicate a total first-year college enrollment of not less than 10,000 by 1971. Conceivably, this figure might be reached by 1966. Under very feasible circumstances first-year college enrollment might number 12,000 to 14,000 by 1972. (See Table 18).

Although enrollments at both the 12th and 13th grade levels are increasing, there exists in Puerto Rico an appreciable wastage of youth. An example is the fact that, although 12,143 students graduated from high school during 1958-59 and 10,867 applications for admission were received by the University of Puerto Rico, alone, only 5,083 students could be admitted. Of these a total of 4,563 finally enrolled in courses, the ratio between high school graduates and registrees being 38 per cent to 100. (See Table 19).

Of the 12,143 high school graduates in 1958-59, a total of 5,608 first-time students (or 46 per cent) enrolled in institutions of higher learning in the fall of 1959. Although this figure compares favorably with the pattern of continuation developed on the mainland where the U.S. Office of Education reports an estimate of 43 per cent of all graduates proceeding to college on a full-time basis and an additional eight per cent on a part-time basis (78), the Puerto Rican figure may be conservative since statistics do not include students studying outside the Island.

TABLE 18

13th GRADE (FIRST-YEAR COLLEGE) ENROLLMENTS, 1961-62 TO 1972-73 (BASIS: AS AN INCREASING PROPORTION OF MINIMUM PROJECTED 12th GRADE)

	12th Grade (Table 17)	13th Grade (a) as % of 12th	13th Grade
1961-62	18643	44	7898
1962-63	17800	46	8202
1963-64	19937	48	8188
1964-65	21784	50	9297
1965-66	20135	53	10892
1966-67	19888	55	10671
1967-68	19960	57	10938
1968-69	20391	58	11377
1969-70	20314	58.5	11826
1970-71	22419	58.5	11883
1971-72	23490	60	13115
1972-73			14094

(a) Note that these percentages represent an enrollment of new students equal to: 37% in 1962-63 and 50% in 1972-73 of the previous 12th grade.

Source: Commonwealth of Puerto Rico, Proposal for Beginning the Development of a Regional College System in Puerto Rico in 1962-63, Department of Education, Hato Rey: April, 1962, p. 28.

TABLE 19

NUMBER OF PERSONS WHO TOOK ENTRANCE EXAMINATION, NUMBER OF APPLICATIONS RECEIVED, AND NUMBER OF APPLICANTS ADMITTED, COMPARED WITH FIRST-YEAR ENROLLMENT

Year	No. Examined	No. of Applicants	No. Admitted	% of Applicants Admitted	No. Rejected
1960-61	9,754	10,478	4,700	44.9	5,778
1959-60	9,299	10,021	4,604	46.0	5,417
1958-59	10,200	10,867	5,083	46.8	5,784
1957-58	9,000	9,555	5,777	60.5	3,776
1956-57	6,697	7,382	3,400	46.1	3,982

Year	% of Applicants Rejected	First-Year Enrollment		
		Regular	Irregular	Total
1960-61	55.1	3,452	1,307	4,759
1959-60	54.0	3,643	819	4,462
1958-59	53.2	3,637	926	4,563
1957-58	39.5	4,072	873	4,945
1956-57	53.9	3,414	686	4,100

Source: Office of the Registrar, University of Puerto Rico.

Because of limited facilities, the trend at the University of Puerto Rico is toward admitting those receiving, on the entrance examination, 100 or more points out of a possible total of 200. If the former policy of admitting students receiving 85 or better were reverted to, then the ratio between graduates and first-time college students might be even higher. The fact that almost half the Island's graduates enter college demonstrates their desire to continue studies, although many of these may be part of a backlog or transfers from other institutions.

In Table 20 are given both the total and first-time opening enrollments of resident and extension degree-credit students in Puerto Rican institutions, at two-year intervals, retroactive to 1950. Growth over the ten-year period has been phenomenal, particularly with respect to the University of Puerto Rico.

That there is a basic relationship between proximity of a college and college-going patterns of high school graduates is adequately documented in studies made in the continental United States. The same holds for Puerto Rico.

S. V. Martorana in his report Extending Post-High School Educational Opportunity in Puerto Rico reveals that the closer a college is, the more likely high school graduates are to continue their education, the ratio of new college-student registrations to high school graduates from schools in municipalities that have colleges being noticeably higher than comparable ratios for adjacent municipalities, and these, in turn, being noticeably higher than for municipalities lacking facilities entirely.

TABLE 20

TOTAL AND FIRST-TIME OPENING ENROLLMENT OF RESIDENT AND EXTENSION DEGREE-CREDIT STUDENTS (INCLUDING VETERANS)

Year and Name	Total	First-Time	Veterans
1960			
University of Puerto Rico[1]	18,554	3,423	
College of Sacred Heart	212	71	
Puerto Rico Junior College	1,041	684[2]	
Inter American University	3,211	774[2]	
Catholic University	3,020	1,079	
Total	26,038	6,031	
1958			
University of Puerto Rico[1]	17,599	4,133	
College of Sacred Heart	190	39	
Puerto Rico Junior College	112	97	
Inter American University	1,165	435	
Catholic University	2,286	703	
Total	21,352	5,407	
1956			
University of Puerto Rico[1]	15,176	4,133	
College of Sacred Heart	163	47	
Inter American University	710	239	
Catholic University	2,631	688	
Total	18,680	5,107	
1954			
University of Puerto Rico[1]	13,152	3,072	
College of Sacred Heart	146	31	
Inter American University	612	578	
Catholic University	1,739	738	
Total	15,649	4,419	
1952			
University of Puerto Rico[1]	7,350	2,418	608
College of Sacred Heart	116	34	
Inter American University	372	141	52
Catholic University	1,094	418	129
Total	8,932	3,011	789

TABLE 20--Continued

Year and Name	Total	First-Time	Veterans
1950			
University of Puerto Rico[1]	9,386	2,668	1,611
Inter American University	537	189	125
Total	9,923	2,857	1,736

[1]Includes enrollment for College of Agriculture and Mechanic Arts, Mayagüéz.
[2]Estimated by U.S. Office of Education.

Source: Opening (Fall) Enrollment in Higher Education, 1960, 1958, 1956, 1954, 1952, 1950. Institutional Data, U.S. Department of Health, Education, and Welfare (Office of Education). Washington: U.S. Government Printing Office.

Choosing four municipalities in which a major college is located (see Table 21), Martorana showed the percentages of college registrations to high school graduates to be 41.6 per cent and 73.9 per cent higher, respectively, than for the average for the entire 77 high school districts. On the other hand, 56 municipalities, not having a major college in their boundaries or in an adjoining municipality, showed a lower percentage (38.7) than is true for the 77. Municipalities that are without colleges, but adjoin a municipality with a college or university, hold an intermediate position, with a ratio of 44.6 per cent (49:15).

Further evidence that the drawing power of institutions of higher learning is related to distance of students' residences is shown by Martorana's study of origins of students. Of the 5,608 registered in five institutions (he excludes the College of the Sacred Heart), in the fall of 1959, 2,713, or 48 per cent, were graduated from high schools in municipalities where colleges were located or in adjacent municipalities. Of the 3,545 students entering the University of Puerto Rico and the College of Agriculture and Mechanic Arts, 1,439 came from the municipalities of Mayaguez, Rio Piedras, and others immediately adjoining, a proportion of 41 per cent (49:17).

TABLE 21

PERCENTAGE REGISTRATIONS, FALL 1958, IN 4 MAJOR COLLEGES WAS OF HIGH SCHOOL GRADUATES 1957-58 IN MUNICIPALITIES WITH COLLEGE OPPORTUNITY AND ADJACENT MUNICIPALITIES AS COMPARED TO THOSE WITHOUT COLLEGE OPPORTUNITY

Municipality Group	Graduates	Registrations	Per Cent Registrations of Graduates
A. 4 Municipalities With College Opportunity			
Río Piedras	1,875	780	41.6
Mayagüéz	481	259	53.8
Ponce	1,019	460	45.1
San Germán	161	119	73.9
Total	3,536	1,618	45.8
B. 17 Municipalities Immediately Adjoining Those with College Opportunity	2,456	1,095	44.6
C. 56 Municipalities Without College Opportunity	6,151	2,381	38.7
D. All 77 Municipalities	12,143	5,094	42.0

Source: S. V. Martorana, Extending Post-High School Education in Puerto Rico. Superior Council on Education, University of Puerto Rico, Río Piedras, January, 1959.

Table 22 gives the number of high school graduates for the ten municipalities over a 12-year span. While the total increase has been 466 students since 1950, individual municipalities noting additions are: Gurabo, with 61; Humacao, with 173; and Naguabo, with 46. High schools in Ceiba and Maunabo commenced in 1957 and 1956, respectively. Students residing in the municipality of Las Piedras, generally, attend high school at Humacao or Juncos.

Assuming 45 per cent of high school graduates proceed to college, it is possible that of the 1,368 students graduating from high school in 1961 in the ten-municipality district, 616 of these might enroll in a two-year community college were one to be established within daily commuting distance. A further source of students lies in the enrollment of the three private high schools, one each of which is located at Fajardo, Humacao, and San Lorenzo (See Table 23). A third source, mentioned earlier, would be the teacher-students enrolled in extension courses at the Humacao Center.

Student, Parent Occupational and Educational Expectations Purpose, Distribution, and Percentage of Return of Questionnaires

The purpose of the two questionnaires answered by 11th grade students and their parents was, principally, to measure educational and occupational aspirations of parents for their children, or students, and those of their children for themselves.

TABLE 22

NUMBER OF PUBLIC HIGH SCHOOL GRADUATES IN THE 10 MUNICIPALITIES BY SINGLE YEAR 1950-1961

Year	Ceiba	Fajardo	Gurabo	Humacao	Juncos	Las Piedras	Maunabo	Naguabo	San Lorenzo	Yabucoa	Total
1949-50	0	216	43	265	110	0	0	64	77	127	902
1950-51	0	241	46	230	90	0	0	66	67	146	886
1951-52	0	251	43	208	67	0	0	100	73	116	858
1952-53	0	246	33	205	62	0	0	82	55	91	774
1953-54	0	240	40	210	65	0	0	89	64	135	843
1954-55	0	268	56	233	88	0	0	86	53	143	927
1955-56	0	251	44	256	83	0	24	100	75	110	943
1956-57	35	310	56	269	73	0	2	85	85	125	1,040
1957-58	17	247	85	298	92	0	24	70	89	124	1,046
1958-59	35	201	85	363	85	0	63	132	59	128	1,151
1959-60	35	192	107	315	87	0	74	119	79	134	1,142
1960-61	44	233	104	438	109	0	66	110	108	156	1,368

Source: Commonwealth of Puerto Rico, Annual Reports of the Secretary of Education, 1949-50 to 1960-61, Department of Education, Hato Rey.

TABLE 23

ENROLLMENTS, BY YEARS, IN ACCREDITED PRIVATE SCHOOLS OF FAJARDO, HUMACAO, SAN LORENZO

	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
Fajardo	117	142	262	363	351	400	449	462	486	547
Humacao	137	219	340	349	397	396	439	488	457	427
San Lorenzo	160	192	352	288	266	256	253	420	422	392

Source: Commonwealth of Puerto Rico, Annual Reports of the Secretary of Education, 1950-51 to 1959-60, Department of Education, Hato Rey.

Whether the latter might attend a public community college, the number who might transfer to a four-year institution, and the formal schooling of parents compared with their interest in extending their own preparation were among other aspects investigated.

Distribution of respondents, together with number and percentage of return of questionnaires, is shown in Table 24. Because of increases in enrollments, questionnaires completed by 11th grade students of Ceiba and Gurabo exceeded in number figures submitted earlier by high school officials of those two towns.*

TABLE 24

DISTRIBUTION OF RESPONDENTS AND PERCENTAGE OF RETURN

City or Town	High School	Est'd Enrollments	Questionnaires Returned Student	Parent	Percentage of Return Stud.	Parent
Ceiba	Santiago I. Pantin	63*	77*	43	122%	68%
Fajardo	Santiago V. Calzada	335	185	166	55%	49%
Gurabo	Gurabo High School	154*	166*	96	107%	62%
Humacao	Ana Roque	570	384	357	67%	62%
Juncos	Jose M. Gallardo	210	167	99	79%	47%
Maunabo	Maunabo High School	94	81	70	86%	74%
Naguabo	Rafael Rocca	163	144	93	88%	57%
San Lorenzo	Luis Munoz Rivera	163	156	144	95%	88%
Yabucoa	Teodoro Aquilar Mora	258	193	141	74%	54%
Totals		2010	1553	1209		

*Evidently, estimates made by authorities did not take account of new students.

In comparing answers of students and parents, the total number of replies of each group was considered separately. However, in comparing both students' and parents' answers, together, questionnaires were matched before chi-square (x^2) was derived.

Parents' Occupations Compared with Those Desired for and by Their Children

Among fathers a wide range of occupations was represented, predominating agriculture, the building trades, community and government services, retailing, and positions of industrial foremen. Where mothers worked, community and government services, including nursing and teaching, were the most common types.

Therefore, in checking occupations of parents against their educational and/or occupational aspirations for their children, together with those of their children for themselves, it was found convenient to group occupations into five subheads in the preparation of Tables 25, 26, and 27. As noted, the schooling parents wanted for their children is about the same as that students themselves desired. Fifty per cent of parents desired a profession or semi-professional occupation for children whereas 44 per cent of their children have the same aspiration, with 20 per cent of both parents and children desiring a professional career.

Occupations students said they intended to enter on completion of formal training and education, in order of selection

and percentage, are these: Secretarial (11.2), nursing (7.5), accounting (4.7), ministry or education (4.5), beautician or barber (4.3), armed services (4), business administration (4), and engineering (4).

Above any other level of schooling a greater number of the fathers reported in Table 27 preferred a college education for their children, with the exception of the unemployed or retired who gave high school as the ultimate level desired. On the other hand, about 25 per cent of all fathers wanted at least two years of college for their children, while almost 50 per cent would like their children to graduate from a four-year institution.

TABLE 25

Comparison of Parents' Occupations with those Desired for Their Children

Occupations of Parents (10-P) (Reported by Parents)	Plans for Children (8-P) Prof.	Semi-Prof.	Skilled, Semi-skilled, unsk'ld.	Other	Don't know or Undecided	Total
Professional or semi-professional	52	67	34	7	36	196
Skilled, semi-skilled, unskilled	48	49	41	6	42	186
Farmer	51	64	48	12	60	235
Retired	6	18	8	1	10	43
Unemployed	16	47	30	3	73	169
Other	62	77	53	19	59	270
Not reported	16	38	20	4	33	111
$X^2=62.92$ $p<0.005$	251	360	234	52	313	1210

TABLE 26

Comparison of Parents' Occupations with those Desired by Their Children

Occupations of Parents (11-S) (Reported by Children)	Plans of Children (9-S) Prof.	Semi-Prof.	Skilled, Semi-skilled, unsk'ld.	Other	Don't know or Undecided	Total
Professional	12	13	18	5	9	57
Semi-Professional	63	54	41	15	43	216
Skilled, semi-skilled, unskilled	59	61	77	18	55	270
Farmer	51	73	82	19	64	289
Unemployed or retired	36	73	61	28	56	254
Other	82	99	94	46	81	402
Don't know	5	10	20	5	32	72
$X^2=62.08$ $p<0.005$						
Total	308	383	393	136	340	1560

TABLE 27

Fathers' Occupations and Preparation Desired for Children

Occupations of Fathers (10-P)	Preparation Desired for Children (4-P)				
	High School	2 Yrs. College or less	College	Post Graduate	Total
Professional and/or semi-professional	35	40	92	22	189
Skilled, semi-skilled, unskilled	46	43	71	14	174
Farmer	72	56	85	14	227
Unemployed or retired	89	30	68	11	198
Other	61	63	106	28	258
Not reported	21	19	48	7	95
$X^2=51.76$ $p< 0.005$					
Total	324	251	470	96	1141

Relationships Between Parents' Schooling and Preparation Desired for Children

As shown in Table 28, only 40 per cent of fathers with less than eight years of school desired a college education for their children, whereas over 50 per cent of those with more than eight years wished the same amount for theirs. Fifty per cent, in turn, of all fathers interviewed wanted children to graduate from college, 20 per cent preferred two years of college, while 30 per cent would be satisfied if their children completed high school only. Cross-tabulation of mothers' education and occupation with the degree of schooling desired by parents for their children showed the same relationships contained in Tables 27 and 28.

TABLE 28

Comparison of Fathers' Preparation with that Desired for Children

Preparation of Fathers (11-P)	Preparation Desired for Children (4-P)				
	High School	High School and Specialized Training	College	Post Graduate	Total
Less than 8th grade	229	151	258	50	688
8th grade	31	38	72	15	156
Some high school	18	11	36	10	75
High school	5	11	22	3	41
Some college, college graduate, or post graduate	3	4	27	7	41
$X^2=44.52$ $p<0.005$					
	286	215	415	85	1001

Concurrence of High School Programs Studied with Future Educational Plans and Occupational Choices

Table 29 shows that the majority of students were studying programs that concurred with their future educational plans. The proportion of those who were planning to attend college was greater among students enrolled in the general program than that for either of the other two groups.

Forty-seven per cent of all students taking general subjects were sure they would continue their studies, although almost the same number were still undecided. Thirty per cent of those studying commercial subjects were sure they, too, were going on to college, while only 14 per cent taking vocational courses were certain. On the other hand, students in this last group appeared

to be more conscious than the others about their intentions for the future.

Similarly, programs of students are compared in Table 30 with the occupations they planned to enter on completion of their formal schooling. It is noted that 70 per cent had already made vocational choices.

TABLE 29

Relevance of High School Programs Studied to Future Educational Plans

High School Programs (4-S)	Enrollment in Post-Secondary Institution (5-S)			
	Yes	No	Undecided	Total
General	539	147	472	1158
Commercial	69	25	136	230
Vocational	17	54	50	121
X^2=129.11 $p < 0.005$				
Total	625	226	658	1509

TABLE 30

Relevance of High School Programs Studied to Choice of Future Occupations

High School Programs (4-S)	Occupations Desired (9-S)					
	Profes-sional	Semi-Profes-sional	Skilled, Semi-skilled, unskilled	Other	Undeci-ded. Don't Know	Total
General	254	250	309	87	260	1160
Commercial	46	116	20	8	41	231
Vocational	7	12	39	35	29	122
X^2=186.76 $p < 0.005$						
Total	307	378	368	130	330	1513

More than 67 per cent of all students were enrolled in the general course. In turn, almost 50 per cent of these wanted to become professionals or semi-professionals, although the proportion who were studying a commercial program and intended to be professionals or semi-professionals was greater than that for either of the two groups.

Comparison of Parents' Feeling on Four-Year and Community College Attendance for Children

Besides revealing parents' feelings about four-year college attendance for their children, Table 31 indicates how sure the former are their children would attend a public community college.

TABLE 31

Comparison of Parents' Feelings About Children Enrolling in College with Their Enrolling in a Public Community College

Probable College Attendance	Probable Community College Attendance				
	Very Certain	Probably Attend	Uncertain	Probably or certainly not attend	Total
Very certain to attend	64	41	6	5	116
Probably attend	158	378	25	14	575
Uncertain	45	144	137	4	330
Probably or certainly not attend	15	60	34	45	154
$X^2=461.2$ $p<0.005$					
Total	282	623	202	68	1175

Of the total number of parents, 60 per cent were sure or probably sure their children would attend college, the percentage increasing to 75 in the event a public community college were founded, signifying a rise of 25 per cent in enrollment figures. This is accounted for by the fact that more than 50 per cent of those who expressed uncertainty about their children attending college later, or were sure they would not, at the same time stated they were very certain, or it was probable, that their children might attend a public community college.

Probability of Attendance at a Community College Compared with that at a Four-Year College

The probability of their attending a nearby public community college, with transferral later to a four-year institution, is expressed by students in Table 32.

Although the majority of those who would enroll in the two-year college would transfer later to a four-year one, Table 32 also points out the great degree of uncertainty that exists. For example, thirty per cent of those who would enroll first in a public community college were undecided about continuing studies. Only thirty-three per cent of the 1,560 students questioned were sure of their plans for the future; the remaining 67 per cent were uncertain.

TABLE 32

Probability of Community College Attendance with Transferral to a Four-Year Institution

Community College Enrollment (14-S)	Transferral to Four-Year Colleges (18-S)			
	Yes	No	Don't Know	Total
Yes	452	27	208	687
Probably, not definitely	93	22	217	332
Uncertain	38	19	204	261
Will go elsewhere	15	26	52	93
Will not attend	14	72	49	135
$X^2=611.68$ $p<0.005$				
Total	612	166	730	1508

In Table 33 a comparison is made of the various degree of certainty (or uncertainty) in both parents and children about the enrollment of the latter in a public community college.

TABLE 33

Certainty of Parents and Children About the Enrollment of the Latter in a Public Community College

Degree of Certainty of Parents (9-P)	Degree of Certainty of Children (14-S)					
	Yes	Pro-bably	Uncer-tain	Will Attend Other Place	Will not Attend College	Total
Very certain to attend	177	43	26	10	14	270
Probably attend	301	151	80	29	35	596
Uncertain	45	40	61	17	29	192
Probably or certain not to attend	9	8	9	12	25	63
$X^2=214.71$ $p < 0.005$						
Total	532	242	176	68	103	1121

Seventy per cent of parents are certain or probably certain that their children would attend a community college whereas about 80 per cent of their children felt the same way. However, twice as many children were sure of their attendance as their parents, whereas twice as many parents as children thought the latter might attend.

Influence of Parents' Education on Children (College or Non-College Attendance)

From Table 34 it is apparent that 42 per cent of the students expressed a desire to a-tend college, while 43 per cent were undecided. Among the former, the proportion of those whose father or mother (or both) had attended college previously was greater than for those whose parents had never studied beyond high school (65 per cent to 40 per cent).

TABLE 34

Influence of Parents' Education, College or Non-College, on Their Children's Desire to Attend College

Number of Parents Who Attended College (Reported by Children) (12-S)	Probable Enrollment of Children in College (5-S)			
	Yes	No	Undecided	Total
One or both	79	8	35	122
None	557	226	624	1407
$X^2=30.02$ $p<0.005$				
Total	636	234	659	1529

Although only 5.7 per cent of students reported that one parent had attended college and 2.2 per cent reported both, 20.5 per cent of students declared that older brothers and/or sisters were now attending or had attended college at one time or another, indicating a decided change in the college-going pattern of youth.

Desire of Parents for Further Education and/or Training for Themselves

To single out the attitudes of parents toward further education and/or training for themselves, additional preparation desired is compared in Table 35 with the level of formal schooling already obtained. More than 50 per cent of those with less than eight years of schooling stated they wanted to continue studying.

TABLE 35

Comparison of Parents' Educational Level with Their Desire To Further Their Schooling

Preparation of Parents (P-11)	Amount of Additional Preparation Desired (12-P)					
	Father			Mother		
	Some	None	Total	Some	None	Total
Less than 8th grade	409	266	675	321	249	570
Eighth grade	112	43	155	87	38	125
Some high school	44	23	67	30	3	33
High school	35	5	40	33	5	38
Some college, college graduate, or post graduate	31	6	37	17	4	21
	$X^2=23.8$	$p< 0.005$		$X^2=24.7$	$p<0.005$	
Total	631	343	974	488	309	797

The degree expressed toward continuing education, as shown in Table 35, tends to increase in direct proportion to the educational level achieved. Evidently, there was a nucleus of parents in the ten-municipality area who had already graduated from high school or who had had some college studies and who might enroll in post-high-school courses were these available. Men expressed greatest interest in courses to help them in their work or get better jobs, 33.0 per cent; help improve homes, 12.1; work on a college degree, 12.1; and, broaden themselves, 5.6 per cent. Women were equally interested in job improvement, 21.4 per cent; in improving their homes, 22.9; in working on a college degree, 10.0; and, in broadening themselves, 5.7 per cent.

In all cases the calculated value of chi-square was found highly significant which implies that the occupations and level of schooling desired by children is not independent of the occupation and preparation of their parents. That is, the desires of children are affected by the expectancies of their parents. The proportion of children planning to attend college is greater among those whose parents attended college than among those whose fathers or mothers never went beyond high school.

Puerto Rican Institutions of Higher Education

General Description

As shown in Figure 5, three of the facilities for higher learning are located within the metropolitan area (San Juan), with a population of 588,805. The University of Puerto Rico, founded in 1900, is the oldest, largest, and one of two Commonwealth-supported institutions in operation. Established at Rio Piedras, a city annexed to San Juan in 1951, it offers liberal arts and general programs. Together with its affiliate College of Agriculture and Mechanic Arts at Mayaguez, the University of Puerto Rico offers a master's degree in public administration, history, social work, economics, Spanish, nuclear technology, mathematics, sanitary and natural sciences, philosophy, public health and public health education and a doctor's degree in Spanish. Whereas the branch at Mayaguez has separate divisions for agriculture, engineering, and natural sciences, the University of Puerto Rico has eight colleges, all located on the Rio Piedras campus. These are the Colleges of Business Administration, Education, General Studies, Humanities, Law, Natural Sciences, Pharmacy, and Social Sciences, the latter including the Schools of Social Work, Labor Relations, and Public Administration. On the San Juan campus, the University of Puerto Rico administers the Schools of Dentistry and of Medicine and Tropical Medicine.

In Santurce, another sector of the capital, the College of the Sacred Heart, established in 1935 under the Roman

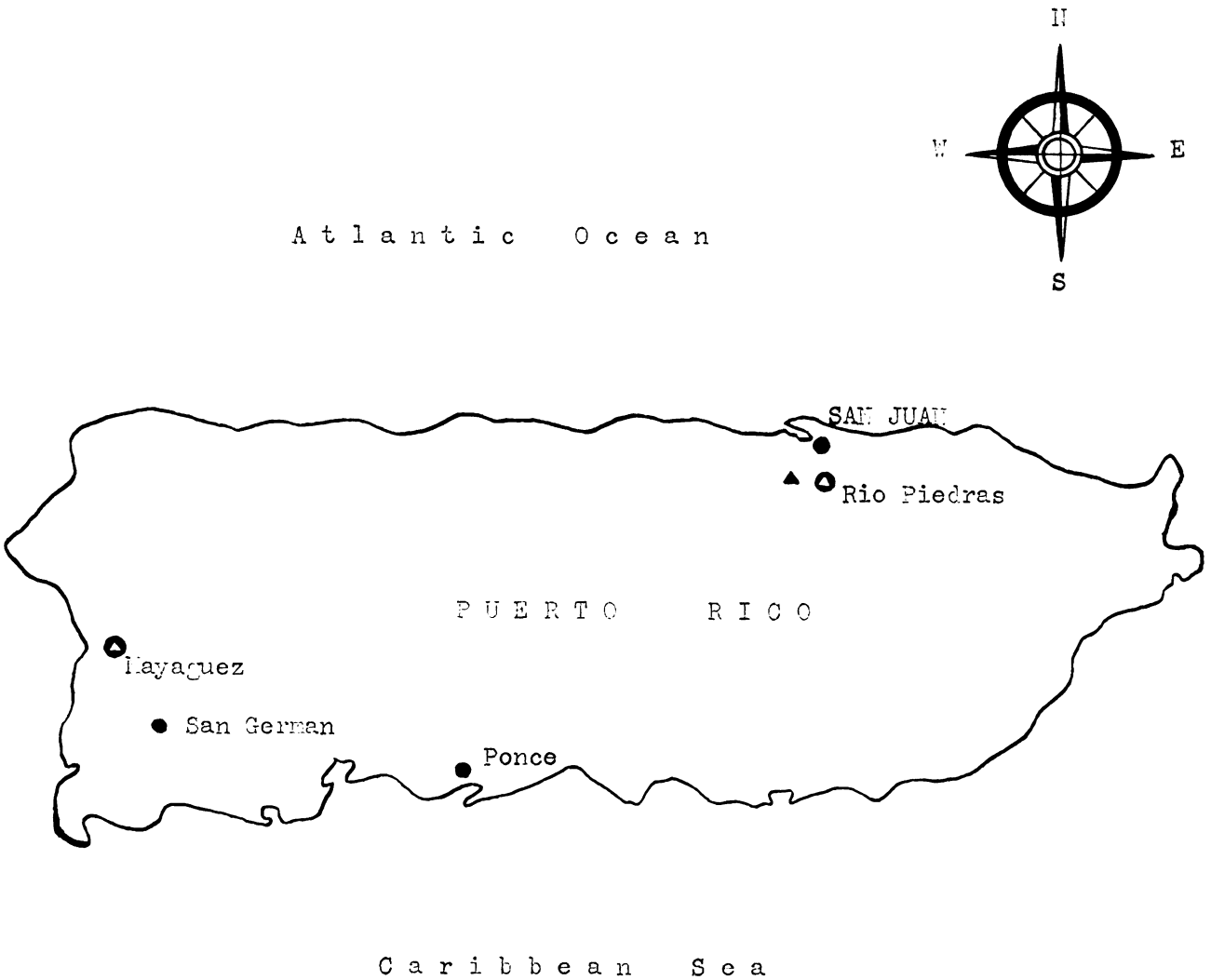

FIGURE 5

LOCATIONS OF PUERTO RICAN INSTITUTIONS OF HIGHER EDUCATION

Catholic Church, offers liberal arts, general, terminal-occupational, and teacher-preparatory courses. Only the bachelor's degree is awarded.

The only accredited two-year institution on the Island, the Puerto Rico Junior College, is still in the process of construction in Cupey Ward, Rio Piedras. It is the most recent addition to higher education in Puerto Rico and is under private control, offering a program similar to that provided by the College of the Sacred Heart but covering two to four years beyond the 12th grade level. Degrees offered are the A.A. and the A.S.

The College of Agriculture and Mechanic Arts, organized in 1911 at Mayaguez, provides instruction similar to that of the University of Puerto Rico, with the exception of agricultural and engineering specializations. Mayaguez has a population of 83,850.

The Inter American University of Puerto Rico, at San German, (population 27,667), south and east of Mayaguez, was founded in 1912 as the Polytechnic Institute. Related to the Presbyterian Church, it offers liberal arts, general, and teacher-preparatory curriculums leading to the B.A. and B.S. degrees. An A.A. diploma may also be obtained. Advanced degrees are offered by the School of Banking and Finance.

A second Roman Catholic institution, the Catholic University of Puerto Rico, was incorporated in 1948 in Ponce, the second city of importance on the Island, with a population of 145,586. It offers the B.A., B.S., and B.B.A. degrees for

programs in liberal arts, general, terminal-occupational, and teacher-preparatory education. A two-year A.Ed. degree is also given. Both evening and Saturday sessions are operated. A College of Law was inaugurated on August 23, 1961.

All institutions have been accepted as members of the Middle States Association of Colleges and Secondary Schools and are co-educational, with the exception of the College of the Sacred Heart. Table 36 provides additional data relevant to the six facilities, including enrollments for the first semester, 1960.

TABLE 36

ADDITIONAL INFORMATION RELEVANT TO INSTITUTIONS OF HIGHER EDUCATION

Name	Teachers[1]	Total Professional Staff[2]	Fees	Degree-Credit Students[3]	
				Total[4]	First-Time[4]
University of Puerto Rico and College of Agriculture and Mechanic Arts	1,305	2,545	$124 for freshmen and sophomores; $154 for juniors & seniors. Summer-$5 -$6 per credit hr.	18,554	3,423
Catholic University	126	135	$350 annually. Summer-$9 per credit hour.	3,020	1,079
Inter American University	93	97	$450 annually. Summer-$10.50 per credit hr.	3,211	774[5]
College of the Sacred Heart	28	38	$570 annually. Summer-$14 per cr. hr.	212	71
Puerto Rico Junior College	40		$230 per semester	1,041	684
Totals	2,855	1,552		26,038	6,031

[1]
[2]For 1958-59.
[3]In First Semester, 1957-1958.
[4]For Fall, 1960.
[5]Figures for resident and extension students.
Estimated by U.S. Office of Education.

TABLE 36--Continued

Sources:

1. American Universities and Colleges, American Council on Education, Eighth Edition, Washington: 1960, pp. 935-938.

2. Opening (Fall) Enrollment in Higher Education, 1960, Institutional Data, U.S. Department of Health, Education, and Welfare (Office of Education). Washington: U.S. Government Printing Office, 1960, p. 34.

3. Faculty and Other Professional Staff in Institutions of Higher Learning (First Term 1957-58), U.S. Department of Health, Education, and Welfare (Office of Education), Washington: U.S. Government Printing Office, 1959, p. 62.

4. Benjamin Fine, Fine's American College Counselor and Guide. 1958-1959 Edition. Englewood Cliffs, N.J.: Prentice-Hall, Inc., June 1, 1959, pp. 190-191.

Extension Programs

Decentralization of higher education by the institutions of the island is a recent trend, indicating a belief by educational authorities that many more potential college-age and older adults can be reached.

According to population estimates there are 443,500 persons in the 6 to 12 year group (corresponding to grades 1 to 6), 280,000 in the 13 to 18 year group (corresponding to grades 7 to 12), 131,500 in the 19 to 22 year group (corresponding to college level), and 1,037,000 in the 23 plus group (corresponding to adult education levels) (4:1-2). Since extension education exists to serve the needs of those no longer in school, it can be seen that potential enrollments in all extension programs could conceivably exceed enrollments within the formal educational pattern.

A pioneer in the extramural movement, the University of Puerto Rico operated four centers during 1961-62 at Arecibo, Humacao, Ponce, and Vega Baja, with a total enrollment of 1,688. The Inter American University has set up off-campus units, including evening sessions, at Aguadilla and Arecibo; opened a Law School on August 28, 1961, at Hato Rey, a suburb of San Juan; and leased the former Baptist Academy at Barranquitas, a town in the interior, where night classes are also conducted. Courses are also offered at Bayamon, Fajardo, Guayama, Ponce, Cayey, Yauco, Isabela, Anasco, Mayaguez, Ciales, Adjuntas, Lares and Utuado. The Catholic University, in turn, offers extension courses at Aguadilla, Aibonito, Arecibo, Bayamon, Caguas,

Guayama, and Mayaguez. Table 37, indicating enrollments in extension courses, shows how interest in the movement has steadily increased over the years.

Programs of study offered in extension centers are almost entirely related to the preparation and upgrading of teaching personnel, the bulk of students being instructors in the Commonwealth's public schools. For example, of the 2,973 students enrolled in classes sponsored by the University of Puerto Rico during the second semester of 1960-61, 1,035 were being taught by personnel of the College of General Studies, while another 1,036 were enrolled in courses given by the College of Education (3:Table VI).

> . . . at least two-thirds of the over 3,000 students following the several extra-mural programs offered by the University of Puerto Rico, Inter American and Catholic Universities, are teachers in service completing requirements for an academic or a teaching credential, as are a large proportion of the 9,000 summer school students at the University (9:13 of Part 10).

The Humacao Center, under the University of Puerto Rico, is the only one within daily commuting distance of every sector of the ten-municipality area under study. Enrollment has been rather stable since 1957-58 with 502 and 450 students matriculated (first and second semester, respectively), 473 and 423 for 1958-59, 467 and 403 for 1959-60, and 462 and 405 for 1960-61, the over-all average for the period reaching 448. Enrollments recorded for the first semester of 1961-62 were 458.

TABLE 37

ENROLLMENT OF EXTENSION DEGREE-CREDIT AND NON-DEGREE CREDIT STUDENTS[1]

Year and Name of Institution	No. of Degree-Credit Students	No. of Non-Degree Credit Students (Adult Education)
1958-59		
University of Puerto Rico	2775	
College of Sacred Heart	53	
Inter American University	697	
Catholic University	113	
Total	3638	
1957-58		
University of Puerto Rico	2217	
College of Sacred Heart		
Inter American University	327	
Catholic University	102	433
Total	2646	433
1955		
University of Puerto Rico	2264	
College of Sacred Heart	60	
Polytechnic Institute[2]		
Catholic University		88
Total	2324	88
1954		
University of Puerto Rico	1860	127
College of Sacred Heart		
Polytechnic Institute[2]		
Catholic University		
Total	1860	127
1953		
University of Puerto Rico	1793	
College of Sacred Heart		
Polytechnic Institute[2]		
Catholic University		83
Total	1793	83

[1] Figures do not include those matriculated in evening or summer school classes.

[2] The Polytechnic Institute of Puerto Rico became the Inter American University of Puerto Rico in 1956.

Note: Figures are taken from the only issues for the available second source cited.

TABLE 37--Continued

Sources:

1. American Universities and Colleges, American Council on Education, Eighth Edition, Washington: 1960, pp. 935-938.

2. Resident, Extension, and Other Enrollments in Institutions of Higher Education, 1957-58, 1955, 1954, 1953, U.S. Department of Health, Education, and Welfare (Office of Education). Washington: U.S. Government Printing Office.

TABLE 37--Continued

Sources: 1. American Universities and Colleges, American Council on Education, Eighth Edition, Washington: 1960, pp. 935-938.

2. Resident, Extension, and Other Enrollments in Institutions of Higher Education, 1957-58, 1955, 1954, 1953, U.S. Department of Health, Education, and Welfare (Office of Education). Washington: U.S. Government Printing Office.

Financial Support

Support for public higher education in Puerto Rico comes from three sources: the Commonwealth Legislature, student fees and tuition; and the U.S. Government through various laws and acts.

For 1960-1961, 84 per cent of all income received by the two state-supported institutions, or $19,088,400 out of a total of $22,647,046, was allocated by the Commonwealth Lawmakers through self-renewing budgets established by the statement of accounts required by the Commonwealth Auditor.

However, Public Law No. 135 (the University Law) of May 7, 1942, not only stipulates that rents be imposed for maintenance of the University of Puerto Rico and its College of Agriculture and Mechanic Arts, but it also places the administration of all monies destined for educational purposes in the hands of the Superior Education Council, subject to the approval of the Treasurer of the University.

In actual practice, the University Board, consisting of the Chancellor, Deans, and a representative of the Faculty, not only receives a model budget proposed by the Auditor, but it also formulates its own projection of expenses accordingly. This is submitted to the Superior Education Council, which in turn, after approving globally its budget for all faculties, schools, and other dependencies, forwards its version to both Auditor and Legislature.

A second source of income for the maintenance of the state institutions of higher learning are tuition and other

fees received from students which, in 1960-1961, amounted to $3,371,794, or 15 per cent of all income.

The third and last source of revenues is a series of Federal laws and acts, accepted by the Legislature on May 15, 1938, and ratified by the University Law. These account for only one per cent of all income. In addition to the Second Morrill Act of 1890 and the Nelson Amendment, benefits of the Hatch, Adams, Purnell, Smith-Lever, and Capper-Ketcham Acts have been received since July 1, 1933. On August 28, 1936, Congress extended to the Island the provisions of Section 21 of the Bankhead-Jones Act, which allows for further development of cooperative agricultural extension work.

To secure greater economic autonomy for the two state-owned institutions and to assure adequate means for fulfilling the growing demand for higher education a proposed revision of Public Law No. 135 would allocate to these one and one-half per cent of the net national incomes of Puerto Rico for the preceding year. If this amount is insufficient the institutions could appeal to the Commonwealth Bureau of the Budget and Legislature for special emergency assignments.

To support the Commonwealth budget for 1960-61 of $318 million the Legislature provided 31 per cent ($98 millions) for all education, an increase of 24.1 per cent over expenditures for the same concept in 1959-1960. The remaining assignments, in order of size, were 23 per cent to health and welfare, 11 per cent to industrial, agricultural, and business development; 10 per cent to general administration, 8 per cent to protection

of persons and property; and, 7 per cent to others (25:53).

The following resources expected to finance the 1960-1961 budget, were taken from Budgetary Activity in Puerto Rico, Annual Report, 1959-60 (23:18).

Taxes	$187,200,000	or	58 per cent
Federal support	34,300,000	or	11 per cent
Customs and taxes	33,800,000	or	11 per cent
Bond issue	25,000,000	or	8 per cent
Previous funds	13,000,000	or	4 per cent
Other income	24,800,000	or	8 per cent
	$318,272,776	or	100 per cent

Together with the total budget of $318 million for 1960-1961, net Commonwealth income increased by 7.5 per cent, reaching the figure of $1,465 million. This rise is significant, considering the economic recession that lasted the greater part of that year on the mainland. In turn, general price level rose 1.7 per cent, leaving a balance of 5.9 per cent increase at stable price levels (25:11).

Four factors are given as leading to this growth of economy: an increase in construction, expansion of manufacturing, a rise in the net income of the government, and continued agricultural growth.

For 1961-1962 it was predicted net income would reach $1,595 million or $130 million more than for 1960-1961, an increase of 9 per cent (25:97).

Based on interviews with various organizations, it was

predicted private and public works would exceed $300 million in value, or an increase of 12 per cent (25:91).

In industry it was estimated 90 new branch plants of mainland firms would begin operations, compared with 72 for 1960-1961, resulting in a grand total of 750. Income from this source, alone, it was expected, would be $368 millions, or an increase of 15 per cent (25:94-95).

Whereas net income generated in government rose 8.8 per cent in 1960-1961, reaching a total of $169 million, it was estimated in 1961-1962 that this same source of income would increase by 8.4 per cent (25:95).

FACTORS IN THE SELECTION OF A LOGICAL SITE

Puerto Rico is divided, politically, into eight districts, each comprising a number of municipalities. A glance at a map of the Island, Figure 6, shows highways in the ten-municipality area converging toward the city of Humacao, the seat of government of the Humacao District.

If a semi-circle be drawn from Fajardo, touching on Caguas, and then on down through Maunabo, one finds enclosed the following cities and towns, all within daily commuting distance of Humacao.

City of Humacao to Caguas----------16 miles
Ceiba----------17 miles
Fajardo----------23 miles
Gurabo----------14 miles
Juncos----------10 miles
Las Piedras------- 4 miles
Maunabo----------15 miles
Naguabo----------11 miles
San Lorenzo-------11 miles
Yabucca---------- 9 miles

Although 370 of the 11th grade students expressed their desire through the questionnaire to attend the University of Puerto Rico upon graduation, 24 the Puerto Rico Junior College, 3 the Inter American University, and 2 the Catholic University of Puerto Rico, many of these, might attend college in Humacao were one to be organized. If we use the ratio of 45 to 100 as the relationship of college enrollments to high school graduates, approximately 197 Humacao High School graduates, alone, would have been proceeding to college in 1961.

Based on the almost stable enrollment of teachers in the University of Puerto Rico extramural classes, 140 of which in 1957-58 stated they would like to take courses throughout the

FIGURE 6

EASTERN SECTOR OF PUERTO RICO

Source: Official Road Map. Puerto Rico. Specially prepared for the Department of Tourism by the Shell Company (Puerto Rico), Ltd.

week, Humacao already has the nucleus of a community college. By fusing the functions of extramural classes into those relating to a community college, there would, not only be greater flexibility in organization and administration, but also greater variety in courses, programs, and instructors. While it can be assumed the majority of potential students would commute daily to and from the college, there are two small hotels located in Humacao, together with various rooming and boarding houses, for the convenience of students coming from the nearby islands of Vieques and Culebra. Were the college to convene with evening sessions, rooms and buildings occupied by public schools could be used temporarily. Teaching staff could be hired from personnel already residing in the community or from among those originally from Humacao but who are presently teaching at the University of Puerto Rico or at some other similar institution.

Other students likely to matriculate would be those who could not attend extramural classes on Saturdays, students who could not be admitted to other institutions, and those who would prefer to live at home the first two years for economical reasons. Residents of Caguas, still within a reasonable travelling distance, might also enroll.

Because of its extensive population, no doubt there would be a sizeable number of persons in the immediate community of Humacao desirous of adding to their previous preparation or of taking general education courses without credit.

Other benefits to accrue to students commencing studies

at Humacao would be smaller classes, more and closer contacts with classmates and instructors, and greater opportunities to receive the advantages of counselling in adjusting to college study.

In his annual report to Chancellor Jaime Benitez, Dr. Augusto Bobonis, Dean, College of Education, University of Puerto Rico, states that the enrollment in his college has risen to 6,779 students, the faculty to 185, including instructors in the elementary, junior, and senior high schools of the University. He also relates that it is necessary to reduce class size by adding to both teaching and administrative personnel. A two-year branch at Humacao would certainly aid in solving enrollment and staffing difficulties such as these (41:1).

Not only would instructional materials and equipment of the Humacao Center be available, but the city is also served by two public libraries.

CHAPTER IV

CONCLUSIONS

1. Total population in the ten-municipality area grew from 1930 to 1950, primarily as a result of natural increase.
   a. In 1930 the number of inhabitants was 167,222; in 1940, 192,019; in 1950, 211,260. But by 1960 the population had dropped to 201,635.
   b. The municipality of Humacao registered the greatest growth in number of residents from 1930 to 1950.
   c. Ninety-three per cent of parents interviewed stated they had lived in their present homes more than six years.
2. Public school enrollments increased yearly since 1951-1952. The 1959-1960 figure was 8,777, or 18.3 per cent greater than that for 1951-1952.
   a. High school graduating classes increased from 858 in 1951-1952 to 1,368 in 1960-1961, a difference of 510.
   b. Assuming 45 per cent of graduates proceed to college and that a post-secondary facility existed in the locality, of 1,368 students who graduated in 1961 approximately 616 might have enrolled for further instruction.
3. In three private school systems (Fajardo, Humacao, and San Lorenzo) enrollments grew steadily during 1950 to 1960,

showing increases of 430,290, and 232 students, respectively.

4. From 1957 to 1960 average enrollments in extension courses at the Humacao Center reached 448. Of these, 140 expressed interest in 1957-1958 in pursuing additional studies throughout the week.

5. The city of Humacao is not only the geographical and population center of the area, with the greatest number of facilities, but it is also within daily commuting distance of any sector.

6. Student questionnaire findings indicated decided interest in acquiring more education and/or training.

   a. Forty-two per cent of students expressed a desire to attend college, while 43 per cent stated they were still undecided. Sixty-five per cent of the former had parents, one or both of whom had attended or graduated from college, while 40 per cent had parents who had never gone beyond high school.

   b. Sixty-seven per cent said they would or probably would attend a public community college were one available.

   c. Forty-six per cent said they would take advantage of one- or two-year programs in business, commercial, and technical areas, while 41 per cent said they would study the first two years of a four-year program.

   d. Forty-four per cent wanted to become professionals or semi-professionals (20 per cent desired a professional career; 24 per cent, a semi-professional one).

e. The majority of students had enrolled in programs that concurred with future educational plans. Forty-seven per cent of those taking general courses were sure they would continue studying; about the same percentage were undecided. Thirty per cent of students studying commercial courses were also certain they would go on to college. Only 14 per cent of those taking vocational courses, thought they might continue to college.

f. Seventy per cent of students had already made vocational choices, ninety-four per cent of these remarking that training beyond high school was necessary.

7. Parents not only expressed a desire that children continue studying but also an interest in furthering their own education and training.

   a. Fifty per cent desired their children become professionals or semi-professionals, that is, that they complete at least two years of college (20 per cent wanted a professional career, 30 per cent a semi-professional one).

   b. Approximately 50 per cent of fathers and mothers, when interviewed separately, wanted children to have four years of college, while 20-25 per cent desired that children complete at least two years of higher education.

   c. The wish that children obtain a college education was more intense among fathers and mothers with more than eight years of school than among those with less.

   d. Sixty per cent were sure or probably sure that children would attend college. This percentage increased to 75

when asked if children might attend a public community college.

e. Fifty per cent of those expressing doubt about children proceeding to college (or said they would not be going) stated they were certain or it was probable they might attend a community college.

f. More than 50 per cent of parents with less than eight years of schooling wanted to study further, the degree of interest toward continuing education increasing in direct proportion to the level of education already achieved.

8. Although employment opportunities for college graduates (or those with some college) are limited among business and industry, having some education and training beyond the 12th grade was considered advantageous.

a. Seventy-seven per cent of respondents stated there were opportunities for employment for people with two years of technical or semi-professional training.

b. Fifty-seven per cent of organizations replied that employees having two years of training beyond high school could supplement college graduates now employed.

c. In 81 per cent two years of post-secondary education or training would be recognized by job advancement, while in 36 per cent it would mean higher pay.

d. In general, opportunities for on-the-job training were only "Fair" or "Poor."

RECOMMENDATIONS

Although this study shows need for some type of post-secondary institution in the area surveyed, further research is required in the following aspects before a public community college can be recommended:

1. Attitudes of educational and governmental leaders.
2. Present and future financial capabilities and responsibilities of community and Commonwealth.
3. Supply of and demand for teaching and administrative personnel.
4. College curriculums, including those of community colleges.
5. Home addresses (origins) of students enrolled in institutions of higher education.
6. Specific and detailed training needs of business and industry.
7. A comparison of tuition and other costs related to college attendance.
8. Availability of buildings and other facilities.
9. Administrative structure in which the new institution would operate.
10. Relationship between parents' income and the college-going pattern of youth.

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APPENDIX A

 Núm. _____

CUESTIONARIO DEL ESTUDIANTE
Introducción

Los rápidos cambios sociales, científicos y tecnológicos han presentado muchos problemas para el individuo, la escuela y la comunidad. Uno de los problemas más apremiantes es la necesidad cada vez mayor de instrucción y entrenamiento de nivel más alto que el de la escuela superior para poder así alcanzar la suficiencia individual y vocacional del mundo actual. Este informe es parte de un estudio para determinar las necesidades de oportunidades educativas de nivel más alto que el de escuela superior para jóvenes y adultos en diez municipios en Puerto Rico. Usted puede ayudar en este estudio dando la información que este cuestionario requiere. Como aclaración, un colegio regional de dos años generalmente ofrece los primeros dos años de un currículo de nivel universitario. Los cursos incluyen tanto educación general o pre-profesional como programas técnicos, vocacionales y de educación de adultos. Normalmente, tales colegios se encuentran a una distancia relativamente accesible a los estudiantes que a ellos asisten, eliminando los gastos de hospedaje fuera del hogar.

Direcciones

No necesita escribir su nombre en esta hoja. Todas las contestaciones son estrictamente confidenciales. Indique la contestación más apropiada para usted haciendo un círculo alrededor del número correspondiente.

1. ¿Cuál es el nombre del municipio donde usted vive?

~~Caguas~~ Fajardo	1
Ceiba	2
Gurabo	3
Humacao	4
Juncos	5
Las Piedras	6
Maunabo	7
Naguabo	8
San Lorenzo	9
Yabucoa	10

2. ¿A qué escuela superior asiste usted?

_____

3. ¿Cuál es su sexo?

Varón	1
Mujer	2

4. ¿Qué curso de estudio está siguiendo usted?

Preparatorio de Colegio	1
General	2
Comercial	3
Vocacional	4
Otro (especifique) ____	5

5. ¿Está usted planeando tomar entrenamiento especializado o ir a colegio después de que se gradue de escuela superior?

Sí	1
No	2
Indeciso	3

6. Si la contestación es "Sí", ¿ha decidido usted a qué colegio o escuela de entrenamiento especializado le gustaría ir?

Nombre _____	1
Indeciso	2
Mi contestación anterior fué "No"	3

7. ¿Qué pasos, si alguno, ha dado usted para lograr admisión a la institución de su selección?

He solicitado admisión a la institución	1
He recibido o he solicitado información	2
Me he puesto en contacto con un representante del colegio	3

Puede que vaya a colegio pero no tengo planes definitivos todavía 4
No intento ir a colegio ni tomar entrenamiento especializado 5

8. Si usted no planea ir a colegio al graduarse, ¿qué planes tiene?

Indeciso 1
Casarme 2
Trabajar 3
Estudiar un curso comercial 4
Entrar en las Fuerzas Armadas 5
Otro (especifique) _____ 6

9. ¿En qué ocupación piensa usted entrar al terminar su instrucción?

Indeciso 10
Contabilidad 11
Agricultura 12
Arquitectura 13
Fuerzas Armadas 14
Arte o artes y oficios 15
Mecánica de automóviles y aviación 16
Banca 17
Embellecedora o barbero 18
Construcción (albañil, carpintero, electricista 19
Administración Comercial 20
Químico 21
Servicios a la comunidad 22
Técnico dental 23
Odontología 24
Delineante 25
Electrónica 26
Ingeniería 27
Serv. gubernamentales 28
Economía doméstica 29
Periodismo 30
Técnico de laboratorio 31
Leyes 32
Tecnología Médica 33
Medicina 34
Trabajo en metales y taller de maquinaria 35
Ministerio o educación 36
Música 37
Enfermera 38
Farmacia 39
Radio y televisión 40
Detallista o ventas al por mayor 41
Vendedor 42
Investigación científica 43
Secretarial 44
Trabajo Social 45
Capataz Industrial 46
Veterinario 47
Otros (especifique) _____ 48

10. ¿Cuántos años de entrenamiento después de la escuela superior se requieren para la ocupación escogida por usted e indicada en la pregunta 9?

Uno 1
Dos 2
Tres 3
Cuatro 4
Cinco 5
Seis 6
Siete 7
Más de siete 8

11. ¿Cuál es la ocupación del Jefe de su hogar?

Desempleado 10
Contabilidad 11
Agricultura 12
Arquitectura 13
Fuerzas Armadas 14
Arte o artes y oficios 15
Mecánica de automóviles y aviación 16
Banca 17
Embellecedora o barbero 18
Trabajos de Construcción (albañil, electricista, carpintero) 19
Administración comercial 20
Químico 21
Servicios a la comunidad 22
Técnico dental 23
Odontología (dentista) 24
Delineante 25
Eléctronica 26
Ingeniería 27
Servicios gubernamentales 28

Economía doméstica	29
Capataz industrial	30
Periodismo	31
Técnica de Laboratorio	32
Leyes	33
Tecnología Médica	34
Medicina	35
Trabajo en metales y taller de maquinaria	36
Ministerio o educación religiosa	37
Música	38
Enfermera	39
Farmacia	40
Radio y televisión	41
Detallista o venta al por mayor	42
Vendedor	43
Investigación científica	44
Secretarial	45
Trabajo Social	46
Pedagogía (maestro)	47
Veterinaria	48
Retirado (o pensionado)	49
Otros (especifique) _____	50

12. ¿Estuvo uno o los dos de sus padres en colegio o universidad?

Uno	1
Ambos	2
Ninguno	3

13. ¿En qué instrucción adicional después de la escuela superior, está usted personalmente interesado?

Cursos para ayudarme en mi trabajo o para ayudarme a conseguir un empleo mejor	1
Cursos que me ayuden a mejorar mi vida en el hogar	2
Cursos que me ilustren más ampliamente	3
Cursos de mejoramiento personal	4
Cursos para adelantar en mis pasatiempos	5
Otros (especifique) _____	6

14. Si se estableciera un colegio regional de 2 años completamente acreditado a una distancia o que usted le fuera fácil la transportación diaria que ofreciera los dos primeros años de colegio y/o un programa de entrenamiento especial en el cual usted está particularmente interesado, ¿asistiría usted a él?

Sí	1
Probablemente, pero no definitivamente	2
Inseguro	3
Planeo ir a otro sitio	4
No pienso asistir a colegio	5

15. ¿Tiene usted hermanos y/o hermanas mayores?

Sí	1
No	2

16. ¿Ha asistido o está asistiendo uno o más de ellos a colegio o universidad?

No	1
Sí	2
No tengo hermanos mayores	3

17. Si la contestación es "Sí" ¿a qué colegios o universidades asisten o asistieron?

Nombre _____

_____

18. Si hubiese un colegio regional a una distancia razonable que ofreciera los dos primeros años de colegio, ¿planearía Ud. tomar sus dos años en él y transferirse luego a un colegio de 4 años para terminar su carrera?

Sí	1
No	2
No sé	3

19. Si hubiese un colegio cercano que ofreciera programas de uno o dos años en campos tales como negocios, comercial y cursos técnicos, ¿tendría usted interés en asistir al colegio para seguir uno de estos programas?

Sí	1
No	2
No sé	3

Results of Student Survey

There were 2,010 grade students enrolled in high schools in nine of ten municipalities included in the survey (Las Piedras has no high school) at the beginning of the 1961-1962 school year. Completed questionnaires were returned by 1,553 students, or 72.2 per cent. Enrollment figures used were those submitted by high school officials at the beginning of the school year. Evidently, in certain instances, enrollments now exceed those reported earlier. Hence, the high rate of return for 11th grade students from the municipalities of Ceiba and Gurabo. The number and percentage return by schools and municipalities is as follows:

	11th Grade Enrollment	Responses Received	Per Cent Return
Ceiba Santiago I. Pantin	63	77	122.2
Fajardo Santiago V. Calzada	335	185	55.2
Gurabo Gurabo High School	154	166	107.8
Humacao Ana Roque	570	390	68.4
Juncos Jose M. Gallardo	210	167	79.5
Maunabo Maunabo High School	94	81	86.2
Naguabo Rafael Rocca	163	144	88.3
San Lorenzo Luis Munoz Rivera	163	156	95.7
Yabucoa Teodoro Aguilar Mora	258	193	74.8
Total	2,010	1,559	86.5

Question 1. What is the name of the municipality in which you live?

Ceiba	82	5.3
Fajardo.	186	11.9
Gurabo	163	10.4
Humacao	269	17.3
Juncos	163	10.4
Las Piedras	93	6.0
Maunabo	83	5.3
Naguabo	154	9.9
San Lorenzo	154	9.9
Yabucoa	212	13.6
Total	1,559	100.0

Question 2. What high school do you attend?

Ceiba-Santiago I. Pantin	63	78	123.8	5.0
Fajardo-Santiago V. Calzada	335	186	55.5	12.0
Gurabo-Gurabo High School	154	166	107.8	10.7
Humacao-Ana Roque	570	385	67.5	24.7
Juncos-Jose M. Gallardo	210	167	79.5	10.7
Maunabo-Maunabo High School	94	82	87.2	5.3
Naguabo-Rafael Rocca	163	144	88.3	9.2
San Lorenzo-Luis Munoz Marin	163	156	95.7	10.0
Yabucoa-Teodoro Aguilar Mora	258	193	74.8	12.4
Total	2,010	1,557	86.7	100.0
No answer		2		

Question 3. What is your sex?

	Number	Per cent
Male	683	44.0=
Female	871	56.0
	1,554	100.0
No answer	5	

[x]Per cent of total responses from 9 municipalities contributed by each school.

Question 4. What is your present course of study?

College preparatory	15	1.0
General	1,160	75.1
Commercial (Business)	231	15.0
Vocational	122	7.9
Other	15	1.0
Total	1,543	100.0
No answer	16	

Question 5. Do you plan on taking specialized training or going to college after you graduate from high school?

Yes	642	41.4
No	239	15.4
Undecided	671	43.2
Total	1,552	100.0
No answer		

Question 6. If "yes" above, have you decided which college or specialized training school you would like to attend?

	Number	Per Cent
(Name)	489	34.5
Undecided	731	51.6
My answer to question 5 was "no"	197	13.9
Total	1,417	100.0
No answer	142	

Breakdown on institutions named

	Number	Per Cent of Choices
Puerto Rican Public Colleges and Universities		
University of Puerto Rico	322	67.7
College of Agriculture and Mechanic Arts	52	10.9
	374	78.6

Puerto Rican Private Colleges and Universities		
Inter American University of Puerto Rico	3	.6
Puerto Rico Junior College	24	5.1
Catholic University of Puerto Rico	2	.4
	29	6.1
Out-of-State Colleges and Universities		
	3	.6
	3	.6
Other		
Nurse training	15	3.2
Specialized training in Puerto Rico	53	11.1
Specialized training outside of Puerto Rico	2	.4
	70	14.7
Total	476	100.0

Question 7. What steps, if any, have you taken towards gaining admittance to the institution of your choice?

	Number	Per Cent
I have applied to the institution	26	1.9
I have received or written for information	173	12.6
I have contacted a representative of the school	48	3.5
I may go to college but have made no plans	963	70.1
I do not intend to take college work or specialized training	164	11.9
Total	1,374	100.0
No answer	185	

Question 8. If you do not plan to go to college upon graduation, what do you plan to do?

	Number	Per Cent
Undecided	355	33.2
Get married	15	1.4
Go to work	396	37.1
Study a commercial course	177	16.6
Enter armed services	74	6.9
Other	51	4.8
Total	1,068	100.0
No answer	489	

Question 9. What vocation do you plan to enter after you complete your education?

	Number	Per Cent
Undecided	292	19.2
Accounting	73	4.7
Agriculture	8	.5
Architecture	8	.5
Armed service	61	4.0
Art or arts and crafts	28	1.8
Auto and airplane mechanics	57	3.8
Banking	1	.1
Beautician or barber	65	4.3
Building trade (mason, electrician, carpenter, etc.)	21	1.4
Business administration	61	4.0
Chemist	1	.1
Community service	11	.7
Dental technology		
Dentistry	1	.1
Drafting	10	.7
Electronics	1	.1
Engineering	61	4.0
Government service	9	.6
Homemaking	28	1.8
Journalism	4	.3
Laboratory technician	10	.7
Law	34	2.3
Medical technology	6	.4
Medicine	36	2.4
Metal trades and machine shop	6	.4
Ministry or education	68	4.5
Music	12	.8
Nursing	113	7.5

Pharmacy	19	1.3
Radio-TV	28	1.9
Retailing or wholesale trades	6	.4
Salesmanship	17	1.1
Science research	7	.5
Secretarial	169	11.2
Social work	42	2.8
Industrial foreman		
Veterinary medicine	1	.1
Other (specify)	136	9.0
Total	1,511	100.0
No answer	48	

Question 10. How many years of training beyond high school are required for the vocational choice you checked in question 9?

	Number	Per Cent
One	158	13.7
Two	306	26.5
Three	162	14.0
Four	321	27.8
Five	109	9.4
Six	26	2.2
Seven	21	1.8
Over seven	53	4.6
Total	1,156	100.0
No answer	403	

Question 11. What is the occupation of the head of your home?

	Number	Per Cent
Unemployed	216	14.5
Accounting	10	.7
Agriculture	288	19.3
Architecture	6	.4
Armed service	9	.6
Arts and crafts	3	.2
Auto and airplane mechanics	20	1.3
Banking		
Beautician or barber	23	1.3
Building trades (mason, carpenter, etc.)	160	10.7
Business administration	23	1.5
Chemist	3	.2
Community service	33	2.2
Dental technology	1	.1
Dentistry		

Drafting	1	.1
Electronics	1	.1
Engineering	3	.2
Government service	40	2.7
Homemaking	19	1.3
Industrial foreman	29	1.9
Journalism		
Laboratory technician		
Law		
Medical technology	1	.1
Medicine	1	.1
Metal trades and machine shop	18	1.2
Ministry or religious education	7	.5
Music		
Nursing	6	.4
Pharmacy	3	.2
Radio-TV	2	.1
Retailing	35	2.3
Salesmanship	56	3.7
Science research		
Secretarial	9	.6
Social work	12	.8
Teaching	8	.5
Veterinary medicine	1	.1
Retired	45	3.0
Other (specify)	402	26.9
Total	1,494	100.0
No answer	65	

Question 12. Did either or both of your parents attend college?

	Number	Per Cent
One	88	5.7
Both	33	2.2
Neither	1,410	92.1
Total	1,531	100.0
No answer	28	

Question 13. In what additional education beyond high school are you personally interested?

	Number	Per Cent
Courses to help me in my job or me get a better one	764	52.2
Courses to help me improve my home life	344	23.5

Courses to broaden myself	194	13.3
Personal improvement courses	84	5.7
Courses to advance hobbies	42	2.9
Other	35	2.4
Total	1,463	100.0
No answer	96	

Question 14. If a fully accredited community college were located within driving distance of your home and offered the first two years of college and/or a specialized training program in which you are particularly interested, would you attend it?

	Number	Per Cent
Yes	690	45.3
Probably, but not definitely	335	22.0
Uncertain	264	17.4
I plan to go elsewhere	97	6.4
I do not intend to attend college	136	8.9
Total	1,522	100.0
No answer	37	

Question 15. Do you have older brothers and/or sisters?

	Number	Per Cent
Yes	1,207	79.1
No	319	20.9
Total	1,526	100.00
No answer	33	

Question 16. Have one or more older brothers or sisters attended college or are they now attending?

	Number	Per Cent
Yes	313	20.5
No	973	63.9
No older brothers or sisters	238	15.6
Total	1,524	100.0
No answer	35	

Question 17. If "yes" above, what college or colleges did they attend or are they attending?

	Number	Per Cent
Puerto Rican Public Colleges and Universities		
University of Puerto Rico	178	60.1
College of Agriculture and Mechanic Arts	25	8.5
Total	203	68.6
Puerto Rican Private Colleges and Universities		
Puerto Rico Junior College	18	6.1
Catholic University of Puerto Rico	6	2.0
Inter American University of Puerto Rico	17	5.7
Total	41	13.8
Out-of-state public colleges	4	1.4
Out-of-state private colleges	0	
Total	4	1.4
Other		
Nurse training	6	2.0
Specialized training in Puerto Rico	42	14.2
	48	16.2
Total	296	100.0
No answer	35	

Question 18. With a community college within driving distance providing the first two years of college work, would you plan on taking your first two years there and transferring to a four year college for the upper division work?

	Number	Per Cent
Yes	620	40.6
No	167	10.9
Don't know	740	48.5
Total	1,527	100.00
No answer	32	

Question 19. If a community college were available offering one and two year programs in such areas as business, commercial, and technical courses, would any of these programs interest you in attending the college?

	Number	Per Cent
Yes	672	45.5
No	256	17.3
Don't know	550	37.2
Total	1,478	100.0
No answer	81	

APPENDIX B

a ___ de septiembre de 1961

Estimados padres:

Este cuestionario trata de los planes educativos que usted pueda tener para sus hijos una vez ellos se hayan graduado de escuela superior. El mismo ha sido autorizado por las autoridades escolares.

Hay muchos problemas apremiantes respecto a las oportunidades educativas para aquellas personas que interesan instrucción adicional luego de graduarse de escuela superior. Este estudio determinará las necesidades existentes y futuras de programas y facilidades para satisfacer los intereses de las personas mencionadas.

No es necesario firmar este cuestionario. Agradeceré que conteste todas las preguntas del cuestionario y lo devuelva a la escuela con su hijo lo antes posible.

Gracias por su cooperación.

Sinceramente,

Richard F. Keeler
Departamento de Inglés Comercial
Facultad de Administración Comercial
Universidad de Puerto Rico

rngms

Núm. _____

CUESTIONARIO PARA PADRES
Introducción

Los rápidos cambios sociales, científicos y tecnológicos han presentado muchos problemas para el individuo, la escuela y la comunidad. Uno de los problems más apremiantes es la necesidad cada vez mayor de instrucción y entrenamiento de nivel más alto que el de la escuela superior para poder así alcanzar la suficiencia individual y vocacional del mundo actual. Este informe es parte de un estudio para determinar las necesidades de oportunidades educativas de nivel más alto que el de escuela superior para jóvenes y adultos en diez municipios de Puerto Rico. Usted puede ayudar en este estudio dando la información que este cuestionario requiere. Como aclaración, un colegio regional de dos años generalmente ofrece los primeros dos años de un currículo de nivel universitario. Los cursos incluyen tanto educación general o pre-profesional como programas técnicos, vocacionales y de educación de adultos. Normalmente, tales colegios se encuentran a una distancia relativamente accesible a los estudiantes que a ellos asisten, eliminando los gastos de hospedaje fuera del hogar.

Direcciones

Usted no tiene que escribir su nombre en esta hoja. Toda la información es estrictamente confidencial. Indique la contestación más apropiada para usted haciendo un círculo alrededor del número correspondiente.

1. ¿Cuál es el nombre del municipio en que usted vive?

~~Caguas~~ Fajardo	1
Ceiba	2
Gurabo	3
Humacao	4
Juncos	5
Las Piedras	6
Maunabo	7
Naguabo	8
San Lorenzo	9
Yabucoa	10

2. ¿A qué escuela asiste su hijo?
   Nombre _____

3. ¿Cuántos hijos tiene usted en cada uno de los siguientes grupos?

   (Indique el número de hijos en cada grupo según la edad)

   Pre-escolar _____
   "Kinder" o escuela de párvulos _____
   Grados primero al sexto _____
   Grados séptimo al duodécimo _____
   Graduados de escuela superior o fuera de la escuela _____

4. En general, ¿qué grado de instrucción desea para su hijo? _____

Terminar la escuela superior	1
Escuela superior más entrenamiento técnico o comercial especializado	2
Terminar una carrera universitaria	3
Una carrera universitaria más estudios de nivel graduado	4
Otra (especifique) _____	5

5. En general, ¿a qué personas cree usted que debe permitírsele ir a colegio o universidad?

Sólo aquellos con habilidad superior	1
Aquellos con habilidad y en buena condición económica	2

Todos los que puedan beneficiarse del trabajo universitario sin importar su condición económica 3
Otros (especifique) _____ 4

6. ¿Qué planes tiene usted al presente para que su hijo continúe sus estudios una vez termine la escuela superior?

Ninguno actualmente 1
Lo he dejado a discreción de mi hijo 2
Ayudaré a mi hijo en sus gastos escolares 3
Tengo un plan de ahorros educativos 4
Espero que mi hijo obtenga una beca 5
Espero que el gobierno pague su carrera 6
Otros (especifique) _____ 7

7. ¿Cuán seguro está usted de que su hijo pueda ir a colegio?

Muy seguro de que irá 1
Probablemente irá 2
Inseguro 3
Probablemente no irá 4
Seguro de que no irá 5

8. Si usted cree que su hijo irá a colegio, ¿qué clase de programa espera usted que él siga?

Indeciso 10
Contabilidad 11
Agricultura 12
Arquitectura 13
Fuerzas Armadas 14
Arte o artes y oficios 15
Mecánica de automóviles y aviación 16
Banca 17
Embellecedora o barberó 18
Construcción (albañil, electricista, carpintero, etc.) 19
Administración Comercial 20
Químico 21
Servicios a la comunidad 22
Técnica dental 23
Odontología 24
Delineante 25
Electrónica 26
Ingeniería 27
Servicios Gubernamentales 28
Economía Doméstica 29
Capataz Industrial 30
Periodismo 31
Técnico de laboratorio 32
Leyes 33
Tecnología Médica 34
Medicina 35
Trabajo en metal y taller de maquinaria 36
Ministerio o educación religiosa 37
Música 38
Enfermera 39
Farmacia 40
Radio y televisión 41
Detallista o venta al por mayor 42
Vendedor 43
Investigación científica 44
Secretarial 45
Trabajo social 46
Pedagogía (maestro) 47
Veterinario 48
Otros (especifique) _____ 49

9. Si hubiera un colegio regional de 2 años debidamente acreditado en el área en que usted vive, ¿cuán seguros estarían uno o más de sus hijos de poder asistir a este tipo de institución?

Muy seguros de poder asistir 1
Probablemente asistirán 2
Inseguros 3
Probablemente no asistirán 4
Seguros de no asistir 5

10. ¿Cuál es la ocupación de los jefes de la casa?	Esposo	Esposa
Desempleado	10	10
Contabilidad	11	11
Agricultura	12	12
Arquitectura	13	13
Fuerzas Armadas	14	14
Arte o artes y oficios	15	15
Mecánica de automóviles y de aviación	16	16
Banca	17	17
Embellecedora o barbero	18	18
Construcción (albañil, carpintero, electricista, etc.)	19	
Administración Comercial	20	20
Químico	21	21
Servicios a la Comunidad	22	22
Técnico Dental	23	23
Odontología	24	24
Delineante	25	25
Electrónica	26	26
Ingeniería	27	27
Servicios Gubernamentales	28	28
Economía Doméstica	29	29
Capataz Industrial	30	30
Periodismo	31	31
Técnico de laboratorio	32	32
Leyes	33	33
Tecnología Médica	34	34
Medicina	35	35
Trabajo en metal y taller de maquinaria	36	36
Ministerio o educación religiosa	37	37
Música	38	38
Enfermera	39	39
Farmacia	40	40
Radio y televisión	41	41
Detallista o ventas al por mayor	42	42
Vendedor	43	43
Investigación científica	44	44
Secretarial	45	45
Trabajo social	46	46
Pedagogía (maestro)	47	47
Veterinario	48	48
Jubilado o pensionado	49	49
Otro (especifique) _____ _____	50	50

11. ¿Qué clase de entrenamiento formal han tenido los jefes de la casa?	Esposo	Esposa
No terminaron el octavo grado	1	1
Terminaron el octavo grado solamente	2	2
Unos años de escuela superior	3	3
Terminaron la escuela superior	4	4
Alguna preparación universitaria	5	5
Terminaron estudios universitarios	6	6
Escuela profesional o postgraduada	7	7

12. ¿En qué preparación adicional estarían los jefes de la casa interesados?		
Ninguna	1	1
Estudios hacia un grado académico	2	2
Cursos que me ayuden en mi trabajo o que me ayuden a conseguir un empleo mejor	3	3
Cursos que me ayuden a mejorar mi hogar	4	4
Cursos que me ilustren más ampliamente	5	5
Otros (especifique) _____ _____	6	6

13. ¿Cuánto tiempo ha vivido usted en este pueblo?	
Menos de un año	1
1 a 2 1/2 años	2
3 a 5 1/2 años	3
6 a 10 1/2 años	4
11 a 20 años	5
Más de 20 años	6

Comentarios que usted desee añadir:

_____

_____

_____

_____

_____

Results of Parent Survey

Completed questionnaires were returned by the parents of 1,209, or 60.1 per cent of the 2,010 eleventh grade high school students enrolled in the 10-municipality area. The number and percentage return by municipalities and schools is as follows:

	11th Grade Enrollment	Responses Received	Per Cent Return
Ceiba Santiago I. Pantin	63	43	68.2
Fajardo Santiago V. Calzada	335	166	49.5
Gurabo Gurabo High School	154	96	62.3
Humacao Ana Roque	570	357	62.6
Juncos Jose M. Gallardo	210	99	47.1
Maunabo Maunabo High School	94	70	74.4
Naguabo Rafael Rocca	163	93	57.0
San Lorenzo Luis Munoz Rivera	163	144	88.3
Yabucoa Teodoro Aguilar Mora	258	141	54.6
Total	2,010	1,209	62.7

The questions, as stated on the questionnaires, have been copied below, together with the number and percentage of responses received.

Question 1. What is the name of the municipality in which you live?

	Number	Per Cent
Ceiba	44	3.6
Fajardo	165	13.7
Gurabo	96	8.0
Humacao	242	20.0
Juncos	103	8.5
Las Piedras	84	7.0
Maunabo	69	5.7
Naguabo	102	8.4
San Lorenzo	142	11.8
Yabucoa	161	13.3
Total	1,208	100.0
No answer	1	

Question 2. What high school does your child attend?

	Enrollment	Number Return	PerCent Return	Per Cent of Total Response
Ceiba				
Santiago I. Pantin	63	42	66.7	3.5
Fajardo				
Santiago V. Calzada	335	165	49.3	13.7
Gurabo				
Gurabo High School	154	97	63.0	8.0
Humacao				
Ana Roque	570	357	62.6	29.6
Juncos				
Jose M. Gallardo	210	99	47.1	8.2
Maunabo				
Maunabo High School	94	69	73.4	5.7
Naguabo				
Rafael Rocca	163	93	57.1	7.7

San Lorenzo Luiz Munoz Rivera	163	144	88.3	11.9
Yabucoa Teodoro Aguilar Mora	258	141	54.7	11.7
Total	2,010	1,207	62.5	100.0
No answer		2		

[x]Per cent of total responses from 9 municipalities contributed by parents of 11th graders in each school.

Question 3. How many children do you have in each of the following groups? (Indicate number of children in each age group.)

	Number	Per Cent
Pre-School	224	4.8
Kindergarten	41	.9
Grades 1-6	1,163	25.0
Grades 7-12	1,904	40.8
Beyond grade 12 or out of school	1,325	28.5
	4,657	100.0

Question 4. How far in school do you want your 11th grade child to go?

	Number	Per Cent
Through high school	324	27.7
High school plus specialized technical or business training	251	21.4
Through college	470	40.1
College plus advanced degree	96	8.2
Other	30	2.6
Total	1,171	100.0
No answer	38	

Question 5. In general, who do you feel should be permitted to go to college?

	Number	Per Cent
Those with superior ability only	122	10.5
Those with ability who have financial means	267	22.9
All who can profit from college work regardless of financial means	763	65.5
Other	13	1.1
	1,165	100.0
No answer	44	

Question 6. What plans do you now have for your 11th grade child to continue his or her education beyond high school?

	Number	Per Cent
None at present	172	14.5
Am leaving it up to child	233	19.7
Have a definite educational savings program	370	31.2
Will help child work his way	26	2.2
Expect child to win scholarship	235	19.8
Expect child to be trained at government expense	138	11.7
Other	11	.9
	1,185	100.0
No answer	24	

Question 7. How certain are you that your 11th grade child will attend college?

	Number	Per Cent
Very certain to attend	117	9.8
Probably attend	581	48.7
Uncertain	337	28.2
Probably not attend	96	8.0
Certain not to attend	62	5.3
	1,193	100.0
No answer	16	

Question 8. If you feel that your child will attend post high school education college, what type of educational program would you expect him or her to take?

	Number	Per Cent[x]
Undecided	264	22.8
Accounting	59	5.1
Agriculture	3	.3
Architecture	6	.5
Armed service	17	1.5
Art or arts and crafts	24	2.1
Auto and airplane mechanics	44	3.8
Banking		
Beautician or barber	44	3.8
Building trade (mason, electrician, etc.)	11	.9
Business administration	68	5.9
Chemist		
Community service	7	.6
Dental technology	1	.1
Dentistry	2	.2
Drafting	7	.6
Electronics	5	.4
Engineering	57	4.9
Government service	4	.3
Homemaking	23	2.0
Industrial foreman		
Journalism	3	.3
Laboratory technician	12	1.0
Law	22	1.8
Medical technology	12	1.0
Medicine	23	2.0
Metal trades and machine shop		
Ministry or religious education	13	1.1
Music	9	.8
Nursing	78	6.7
Pharmacy	19	1.6
Radio-TV	12	1.0
Retailing or wholesale trades	2	.2
Salesmanship	2	.2
Science research	3	.3
Secretarial	131	11.3
Social work	36	3.1
Teaching	84	7.2
Veterinary medicine	1	.1
Other (specify)	52	4.5
	1,160	100.0
No answer	49	

[x]To nearest tenth per cent

Question 9. If there is or will be a fully accredited community college in your area, how certain would one or more of your children be to attend this institution?

	Number	Per Cent
Very certain to attend	285	24.2
Probably attend	623	52.9
Uncertain	202	17.1
Probably not attend	36	3.1
Certain not to attend	32	2.7
	1,178	100.0
No answer	31	

Question 10. What is the occupation of the heads of the household?

	Husband		Wife	
	No.	Per Cent	No.	Per Cent
Unemployed	169	15.4	319	36.8
Accounting	5	.5	3	.3
Agriculture	234	21.1	2	.2
Architecture	3	.3		
Armed service	6	.5	1	.1
Art or arts and crafts	1	.1		
Auto and airplane mechanics	13	1.2		
Banking	1	.1	1	.1
Beautician or barber	18	1.6	3	.3
Building trades (mason, electrician, etc.)	113	10.2		
Business administration	13	1.2	3	.3
Chemist	1	.1		
Community service	20	1.8	12	1.4
Dental technology				
Dentistry				
Drafting	2	.2		
Electronics				
Engineering	3	.3	1	.1
Government service	41	3.8	11	1.3
Homemaking	5	.5	104	12.0
Industrial foreman	19	1.7	1	.1
Journalism	1	.1	1	.1
Lab. technician				
Law	1	.1		
Medical Technology	2	.2		
Medicine	3	.3		
Metal trades and machine shop	12	1.1	5	.6
Ministry or religious education	8	.8	1	.1
Music				
Nursing	2	.2	13	1.5

Pharmacy	1	.1		
Radio-TV	2	.2		
Retailing or wholesale trades	36	3.3	6	.7
Salesmanship	31	2.9	5	.6
Science research	2	.2	1	.1
Secretarial	3	.3	6	.7
Social work	1	.1	6	.7
Teaching	12	1.1	9	1.0
Veterinary medicine	1	.1		
Retired	42	3.9	13	1.5
Other	270	24.4	341	39.3
	1,108	100.0	869	100.0
No answer	111		340	

Question 11. What formal training have the heads of the household had?

	Husband		Wife	
	No.	Per Cent	No.	Per Cent
Did not complete 8th grade	718	68.6	723	72.5
Completed 8th grade only	165	15.8	157	15.7
Some high school	77	7.4	51	5.1
Complete high school	44	4.2	41	4.1
Some college	19	1.8	9	.9
Complete college	18	1.7	11	1.1
Professional or graduate school	5	.5	6	.6
	1,046	100.0	998	100.0
No answer	163		211	

Question 12. In what additional education, if any, would the heads of the household be interested?

	Husband		Wife	
	No.	Per Cent	No.	Per Cent
None	379	36.3	337	39.2
Work on college degree	126	12.1	86	10.0
Courses to help in my job or help me get a better job	348	33.3	183	21.4
Courses to help me improve my home	126	12.1	197	22.9
Courses to broaden myself	60	5.6	49	5.7
Other	6	.6	7	.8
	1,045	100.0	859	100.0
No answer	164		350	

Question 13. How long have you lived in your present home?

	Number	Per Cent
Less than 1 year	14	1.2
1-2-1/2 years	35	3.0
3-5-1/2 years	32	2.8
6-10-1/2 years	82	7.0
11-20 years	158	13.5
More than 20 years	846	72.5
	1,167	100.0
No answer	42	

APPENDIX C

Department of Business English
College of Business Administration
University of Puerto Rico
Rio Piedras, Puerto Rico

September 11, 1961

Dear Sir:

The determination of the need for certain types of technical training for industry and business in a region comprising 10 municipalities in Puerto Rico is part of a study that I am making to complete the requirements for a doctorate at Michigan State University, East Lansing, Michigan.*

The objective of this survey is to measure the demand for a public post-high school institution that would be available to all high school graduates in the 10 municipalities and which would provide a low-cost yet effective educational programs. The purpose of the institution would be to offer the first two years of regular collegiate work to those wanting to pursue a professional degree, in addition to a technical-terminal program for pre-training and on-the-job training for semi-skilled and semi-professionals for business and industry in this area.

I would appreciate your answering the enclosed questionary at your earliest convenience, adding any comments you would like to make.

Yours very truly,

Richard F. Keeler, Jr.
Instructor

RFK:gh

*The 10 municipalities are: ~~Caguas~~ Fajardo, Ceiba, Gurabo, Humacao, Juncos, Las Piedras, Maunabo, Naguabo, San Lorenzo, Yabucoa.

___ de diciembre de 1961

_____

_____

_____

Senores:

Al presente curso estudios para un doctorado en Administracion en esta institucion. Para mi tesis he escogido hacer un censo de las necesidades para establecer un colegio de dos anos en un area de 10 municipios de la Isla, comprendiendo Ceiba, Fajardo, Gurabo, Humacao, Juncos, Las Piedras, Maunabo, Naguabo, San Lorenzo, y Yabucoa.

Hay muchos problemas apremiantes respecto a las oportunidades educativas para aquellas personas que interesan instruccion adicional luego de graduarse de escuela superior. Asi es que este estudio determinara las necesidades existentes y futuras de programas y facilidades para satisfacer los intereses de las personas mencionadas.

Por eso necesito de su ayuda al llenar el formulario que le envio, devolviendolo a mi direccion lo antes posible.

Gracias por su cooperacion.

Sinceramente,

_____

Richard F. Keeler, Jr.
1312 H, University Village
Michigan State University
East Lansing, Michigan

TECHNICAL EDUCATION PRELIMINARY SURVEY

Name of Establishment or Firm _____

Location _____

Kind of Business _____ Person Reporting _____

oooooo

1. Would there be opportunities for employment, in your organization, for people with two years of technical or semi-professional training beyond high school? (Check one): 1. Yes _____ 2. No _____

2. If the answer is "Yes," would you check or name the types of training (in the list below) which, if offered by a community college, would be of value to your business or industry.

1. Drafting, & Blueprint Reading
2. Factory Management
3. Labor-Management Relations
4. Instrumentation & Plant Control
5. Laboratory Technician
6. Metallurgy
7. Business Management
8. Dental Technician
9. Sciences
10. Foreign Languages
11. Economics & Government
12. English & Speech
13. Mathematics
14. Literature & History
15. Gardening
16. Interior Decorating
17. Play & Story Writing
18. Mental Hygiene
19. Advertising
20. Product Design
21. Commercial Art
22. Dietetics
23. Photography
24. Applied Science
25. Applied Mathematics
26. Machine Technology
27. Welding
28. Retailing
29. Plant Protection
30. Secretarial Practice
31. Clerical Practice
32. Business Machines
33. Merchandising
34. Bookkeeping & Accounting
35. Air Cond. & Refrigeration
36. Electronics, Radio & TV
37. Electric Wiring & Motors
38. Automotive Shop Practice
39. Practical Nursing
40. Related Apprentice Training
41. Music Appreciation
42. Diesel Mechanics

Other: _____

_____

Other: _____

_____

3. Could employees having two years of training beyond high school supplement some of the college graduates in your organization? (Check one):
1. Yes _____ 2. No _____

4. For what purpose would two years of post-high school training be recognized in your company or organization? (Check below all that apply):

   1. Job Advancement _____ 2. Higher Pay _____ 3. Other (Write in):

   _____

5. To what extent, in your opinion, do existing educational facilities in the area meet the on-the-job training needs of your company?
   (Check one): 1. Excellent _____ 2. Fair _____ 3. Poor _____

6. Is there an organized training program in your company?
   (Check one): 1. Yes _____ 2. No _____

7. If "Yes," list each type such as orientation, on-the-job promotion, apprenticeship, etc. _____
   _____
   _____

8. If "Yes," would you expect that a two-year terminal-technical program in a community college could replace or supplement your program?
   (Check one): 1. Some _____ 2. All _____ 3. None _____

9. Comments: _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
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   _____
   _____
   _____
   _____
   _____
   _____
   _____

RESULTS OF TECHNICAL EDUCATION PRELIMINARY SURVEY

Name of Establishment or Firm _____

Location _____

Kind of business _____ Person Reporting _____

.....

1. Would there be opportunities for employment, in your organization, for people with two years of technical or semi-professional training beyond high school?
(Check one): 1. Yes 36 2. No 5 3. No answer 4

2. If the answer is "Yes," would you check or name the types of training (in the list below) which, if offered by a community college, would be of value to your business or industry.

1.	Drafting & Blueprint Reading	6
2.	Factory Management	23
3.	Labor-Management Relations	17
4.	Instrumentation & Plant Control	9
5.	Laboratory Technician	8
6.	Metallurgy	4
7.	Business Management	8
8.	Dental Technician	
9.	Sciences	1
10.	Foreign Languages	1
11.	Economics & Government	
12.	English & Speech	5
13.	Mathematics	1
14.	Literature & History	
15.	Gardening	1
16.	Interior Decorating	
17.	Play & Story Writing	
18.	Mental Hygiene	
19.	Advertising	1
20.	Product Design	3
21.	Co-mercial Art	

Other:	Cutters	1
	Sewing Machine Mechanics	1
	Sewing Machine Operators	1
	Boning	1
	Physics	1
	Slaughtering	1
	Sugar Boiling	1
	Engineering	1

22.	Dietetics	
23.	Photography	
24.	Applied Science	2
25.	Applied Mathematics	1
26.	Machine Technology	14
27.	Welding	10
28.	Retailing	2
29.	Plant Protection	6
30.	Secretarial Practice	21
31.	Clerical Practice	20
32.	Business Machines	8
33.	Merchandising	2
34.	Bookkeeping & Accounting	22
35.	Air Cond. & Refrigeration	6
36.	Electronics, Radio & TV	6
37.	Electric Wiring & Motors	10
38.	Automotive Shop Practice	6
39.	Practical Nursing	2
40.	Related Apprentice Training	7
41.	Music Appreciation	
42.	Diesel Mechanics	5
43.	Pigments	1

Other:	Basic & Adv. Electric Theory	1
	Forge & Foundry	1
	Machine Shop Practice	3
	Mechanic Arts	1
	Supervision	1
	Evaporator Operator	1
	Color Matching	1
	Tool and Die	1
	Industrial Sewing	1
	Machine Mechanic	1
	Pattern Making	1
	Cutting of Goods	1

3. Could employees having two years of training beyond high school supplement some of the college graduates in your organization?

   (Check one): 1. Yes 27 2. No 15 3. No answer 5

4. For what purpose would two years of post-high-school training be recognized in your company or organization? (Check below all that apply):
   1. Job Advancement 38 2. Higher Pay 17 3. Other (Write in): 4. No Answer 9

   Replacing Semi-Skilled Leaders-Supervisory Positions-Self-Improvement Depending on Individual. Training would be a help in employing men needing less on-the-job training.

5. To what extent, in your opinion, do existing educational facilities in the area meet the on-the-job training needs of your company?
(Check one): 1. Excellent 5 2. Fair 20 3. Poor 16 4. No Answer 5

6. Is there an organized training program in your company?
(Check one): 1. Yes 18 2. No 26 3. No Answer 2

7. If "Yes," list each type such as orientation, on-the-job promotion, apprenticeship, etc. Orientation - 3, Apprenticeship - 8, On-the-Job Promotion - 5, Supervisory Instruction - 1, Progress Graphs - 1, Follow-Up - 1, Quantity and quality review - 1, 6 Mos. Training (Each Dept. Divided into 6 Mos.) - 1, EDA Schooling if Possible - 1, Learning Program - 1, Production Skills - 1

8. If "Yes," would you expect that a two-year terminal-technical program in a community college could replace or supplement your program? (Check one): 1. Some 16 2. All 3 3. None 3 4. No Answer 9

9. Comments: The medical-surgical instrument field is highly technical and of a specialized nature. Most courses confine themselves to general industry, and, as a result, most of our training is performed in our plant.

Columbia Manufacturing Company is at the present time contemplating an organized technical-training session to be offered to employees free of charge. It would cover basic machine shop technology. Instructors would be shop management, and the course would be on the employee's own time.

The problem as we see it here is the improvement of the educational system on the lower levels, and most students are not qualified to go on for post-high-school training. For example, we find that most of the high school graduates require help to fill out a simple form like the Withholding Tax Certificate. This includes a man with college training. We can find plenty of people with college training but what they lack is practical experience and that is the crying need here.

Our business being such that it is, even college grads have to go thru our factory and first learn how to make the product and then begin to apply their knowledge to our business. Once a factory is organized and running properly, I feel that only occasionally would we call for this type of help. In 3 years in Puerto Rico our firm has called the University of Puerto Rico for one mechanical engineering graduate to be trained in our field.

This company employs people in the above-checked activities. At present, it is properly staffed and has no vacancies, but occasionally one may arrive.

This is a very small operation and conditions here vary considerably from other places (other companies). There are only 18 people working when in full operation.

My business is too small, and I feel I am not expert enough to fairly answer this questionnaire.

I think your plan is a very good one for the industries of Puerto Rico.

It will supplement our program without any doubt.

I think additional educational facilities would be of benefit for industry in eastern Puerto Rico. Industry demands more skilled workers.

The Langston Paper Bag Co. is an industry which deals with the manufacture of new burlap and cotton bags. We use sewing machines (6) and one big press for printing and cutting the bags. Most of the operations are done by unskilled workers. Administrative and supervisoring personnel would be the only ones which require more education in the way of administration, marketing, management. The rest do not need this type of training.

In general, local potential employees are not familiar with machinery or related fields. Most of our employees are graduates of our own apprenticeship or learner programs. A technical program certainly would provide its students with a basic knowledge, in fields related to business, which in turn would enable our internal training problems to be greatly reduced.

All employees hired are trained for the specific jobs we have in the factory. We prefer people without experience as we find they can be trained more easily.

ROOM USE ONLY