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ABSTRACT

Presented is the report of a project to train teachers of the visually handicapped in Puerto Rico and the Virgin Islands. Stressed are differences in demographic patterns and needs between the continental United States and the Caribbean islands. Results of a review of demographic data and a survey of Puerto Rico revealed a higher (than in the U.S.) incidence of severe visual handicaps, the presence of predominantly negative attitudes toward the visually handicapped, and the need for more adequate facilities and trained personnel. A prototype educational program for the visually handicapped is proposed which would provide direct educational services to visually handicapped children through service centers and would also contain a manpower training component and a materials production and research center. The main objective of the Virgin Islands phase (the stimulation of education officials to develop a training program and educational services for the visually handicapped) is reported to have been achieved. Results of a survey in the Virgin Islands to determine incidence of visual handicaps and a description of a 2-week teacher training workshop are given. Appended are such items as a report on visual impairment among Puerto Rican public school children, a report of a study to determine the adequacy of the Snellen E screening test in the Puerto Rican school system, a list of government and private agencies serving the blind in Puerto Rico, and an attitude questionnaire. (DB)

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TEACHER PREPARATION PROGRAM FOR THE VISUALLY HANDICAPPED
IN PUERTO RICO AND THE VIRGIN ISLANDS

Special Project Funded by the
Bureau of the Handicapped
United States Office of Education
Department of Health, Education and Welfare
Washington, D.C.

June 1, 1970 - June 30, 1974

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Josephine Taylor - Project Officer
José R. Santana - Project Director

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Message from the Chancellor

The University of Puerto Rico through its College of Education has for the last four years been engaged in a coordinated effort with the Bureau of the Handicapped, United States Office of Education, Department of Health, Education and Welfare to train professionals and to do research in the area of the visually handicapped. We hope that what we have learned from this Project will be of benefit to others who plan to establish programs for the visually handicapped.

On behalf of the staff, the faculty and the students of the University of Puerto Rico and with the authority invested in me as Chancellor, this report is herewith submitted, 28 February 1975.

Ismael Rodríguez Bou
Chancellor

Message from the Dean of the College of Education

The College of Education has for the last four years been engaged in a coordinated effort with the Bureau of the Handicapped, United States Office of Education, Department of Health, Education and Welfare to train professionals and to do research in the area of the visually handicapped.

The teachers who are presently educating visually handicapped children in Puerto Rico and the Virgin Islands are the products of this Project's initial objective. As Dean I would like to submit the research planning results and prototype conceived during the duration of the Special Project hoping that others who plan to establish programs for the visually handicapped will utilize what we have learned. I herewith submit this report on 28 February 1975.

Laura Gallego
Dean

ACKNOWLEDGEMENTS

Our special appreciation goes to Miss Josephine Taylor, Project Officer, United States Office of Education, Washington, D.C., for her valuable support and advice. It also goes for the many government officials and private citizens who have assisted us throughout the many hours of trials and tribulations for the worthy cause of serving the visually handicapped children in Puerto Rico and the Virgin Islands.

The successful achievement of the objectives planned for this Project could not have been possible without the assistance of an efficient staff. Special recognition goes to Mrs. Eladia R. Hernández, Assistant Project Coordinator for Puerto Rico; Mr. Edwin L. White, Coordinator for Virgin Islands; Mr. Humberto Hernández, Coordinator of the Materials, Production and Research Center; Professors Miriam Rodríguez, Zacarías Vázquez, Dr. Charles Lee, Dr. Judith Román, Dr. José L. Soto Padín, and Dr. Germán Oliver Padilla; and Project secretaries Mrs. Gloria Rivera and Miss Agnes Colón Comas.

José R. Santana
Project Director

TABLE OF CONTENTS

	PAGE
Introduction	1
Part I - Puerto Rico Phase	3
Part II - Procedure and Findings	6
Part III - Recommendations for an Educational Program for the Visually Handicapped in Puerto Rico	35
Part IV - Summary and Recommendations	53
Part V - Virgin Islands Phase	55
Appendix A - Visual Impairment Among Puerto Rican Public Schools	60
Appendix B - Study to Determine the Adequacy of the Snellen E Screening Test as it is Administered by Teachers in the Elementary Schools in the Puerto Rico School System	79
Appendix C - Government and Private Agencies serving the Blind in Puerto Rico	130
Appendix D-I - Attitude Questionnaire	133
Appendix D-II - Directed Interview	134
Appendix E - Results of Directed Interviews	139
Appendix F - Structured Observation Guides	150
Appendix G-I - Minimum Competencies for Teachers of the Visually Handicapped	155
Appendix G-II - Graduate Questionnaire	157
Appendix H - Project Interns 1973-74	159
Special Project Staff and Consultants	160
1975 and Beyond	161

DEVELOPING EDUCATIONAL SERVICES FOR
VISUALLY HANDICAPPED CHILDREN AND YOUTH
IN PUERTO RICO

Introduction

Educators have been aware for many years that many severely visually handicapped children in Puerto Rico were not being provided with adequate educational services. Accurate statistics were not available, however, and there was not sufficient funding to meet other needs of the school-age population; hence no extensive surveys of this sub-group were made. Absence of the information needed to identify these children, lack of general demographic information regarding Puerto Rico, confusion over definitions of blindness and visual impairment, conflict over priorities in the educational system, and the effect of various cultural factors influencing attitudes toward the blind and visually impaired impeded all program development.

Since 1964 the United States Office of Education has been granting funds to increase and improve the quality and quantity of services available to exceptional children and youth. In consequence, the Commonwealth of Puerto Rico now has the opportunity to develop services for the visually handicapped and programs for professional preparation to support those services.

The initial phase of the Project began on June 1, 1970 under a grant by the Bureau of the Handicapped, Division of Special Projects, United States Office of Health, Education and Welfare. The purpose of this first phase of the Project was to plan a Teacher Preparation Program for the Visually Handicapped in Puerto Rico and the Virgin Islands. The purpose of this

final report is to present the findings for Puerto Rico under Part I and a subsequent summary for the Virgin Islands in Part II of the report. The preliminary findings during the planning phase of the Project exposed cultural and socio-economic problems which are relevant to the establishment of special educational programs in the Caribbean and Latin America.

Two questions have to be answered: Should proposals be submitted based upon demographic patterns commonly assumed to be true for the United States? Should proposed programs be based upon existing educational programs which seem to be viable within the culture and socio-economic milieu of the United States?

"Most Latin American and Caribbean countries are converting from agricultural to industrial economies. This transition will bring with it not only the benefits but also the ills of industrialization such as unemployment, urbanization problems, imbalance in nature and the needs of the rural and city educational systems".

As these issues and problems in Latin America and the Caribbean countries are assessed, it is apparent that the practice of shifting special education programs designed for the general culture of the United States to these cultures is likely to be inappropriate. Many of these programs do not account for: differences in language, insufficient schools, lack of teachers, and negative attitudes toward the handicapped.

PART I

PUERTO RICO PHASE

It has been the contention of many Puerto Ricans that the idiosyncratic factors of culture and demography peculiar to Puerto Rico, have not been given due consideration by the Commonwealth Government in planning new educational programs. Patterns which have evolved to respond to educational, social, and economic needs in the United States have been lifted bodily and transplanted to Puerto Rico. Rejection reactions have often occurred and critically needed services have not survived. In an attempt to resolve these problems the University of Puerto Rico, under special federal grants, now assists the various governmental offices of the Commonwealth in planning new programs and services for the visually handicapped, with attention to the uniqueness of Puerto Rico and to the principles of good education for the visually handicapped which are valid in both cultures.

Until 1940, Puerto Rico was an agrarian country of extremely low per capita income. Since then, it has rapidly changed to a prosperous industrialized and relatively modern society. "Operation Bootstrap", as the Government of Puerto Rico has termed its progressive economic and social reform program, has resulted in an increase of over 700 percent in the gross national product of the Island. The Island's standard of living has spiraled to figure among the three highest in Latin America. Illiteracy, once 75-80 percent on the Island, has been reduced to virtual non-existence. Industry has flourished. Tourism has injected millions of dollars into the Puerto Rican economy. Thus, the "Poorhouse" of the United States has been transformed into a showcase for developing nations.

According to official figures published by the Department of Education

of the Commonwealth of Puerto Rico, there were approximately 700,000 students enrolled in public schools throughout the Island at the beginning of the 1969-70 school year. This figure does not include the thousands of students attending private schools on the Island.

Prosperity is reflected in the educational opportunities for Puerto Rican children, as evidenced in the Statewide Annual Report on Education published by the Board of Education of the Commonwealth of Puerto Rico. Educational opportunities have also been extended to many of the physically and mentally handicapped children and youth in Puerto Rico. There are programs for educating the mentally retarded, the deaf, and the emotionally disturbed.

Provisions for education of the visually handicapped in Puerto Rico have been limited, essentially to only part of the blind population and have followed the traditional residential school pattern, of one special school in San Juan, founded in 1919, and administered by the Department of Social Services. As of August 1971, this school for the blind had an enrollment of 98 students from all over the Island, and a faculty of 16 teachers. In addition to this school, the Department of Social Services has provided some limited home teaching with 13 teachers serving the adult blind population throughout the Island. Based on a preliminary report, the legally blind school population in Puerto Rico is approximately 1,418. This represents 21.3 percent of a reported total blind population of 6,644.

There has been no study of the visually impaired (partially seeing) population, but incidence figures from the United States reported by the National Society for the Prevention of Blindness, indicate that the approximate number of visually impaired would be, minimally, two and a half times the number of legally blind in the population. The number may be considerably higher if a

proposed new definition of the visually handicapped is adopted.

The Government of Puerto Rico intends to expand the educational services for visually handicapped children on the Island by establishing public schools classes for visually impaired (partially seeing). During the summer of 1969, two courses were offered at the University of Puerto Rico for teachers of the visually handicapped. In August 1969, the Division of Special Education, Department of Education of the Commonwealth of Puerto Rico initiated a special sight conservation class for partially seeing students in Bayamón, Puerto Rico. The use of the term "Sight Conservation", as applied to this special group of partially seeing children, implies a lag of 25 years in the utilization of appropriate terminology for the visually handicapped in Special Education.

The drastic social and economic changes on the Island, combined with the cultural heritage of the Puerto Ricans, may create problems in providing a proper education for visually handicapped children. According to a recent article in the New York Times:

To some extent, Puerto Rico is a microcosm of many of the world's underdeveloped countries. It has one foot in Latin America--with a common cultural legacy and a economic history rooted in a rural, agrarian--peasant economy.

But it also has one foot in modern America--with a rapidly growing industrialization, urbanization, and a booming economy that is bringing prosperity to a growing middle class.

Both characteristics are causing problems . . .

It was concluded at the end of the planning phase of the Project that before any long range program for the education of the visually handicapped was to be implemented, a study of specific demographic factors and an analysis of existing services for the visually handicapped should be undertaken, bearing in mind the cultural factors indigenous to Puerto Rico and the educational philosophies which mirror that culture.

PART II

PROCEDURE AND FINDINGS

An intensive review of the literature was made to determine current definitions of blindness and visual impairment, concepts of blindness and visual impairment in Puerto Rico and Latin America, types of programs for the education of the visually handicapped both in the United States and in Puerto Rico, and cultural factors affecting attitudes toward the blind and visually impaired persons in Puerto Rico and Latin America.

Demographic information was compiled by means of an examination of existing school and health records from the Department of Social Services, Department of Health, and the Division of School Health, Department of Education, Commonwealth of Puerto Rico. Moreover, interviews were arranged with administrators of the agencies to secure their cooperation during the data gathering phase.

The information was analyzed by comparing them to existing United States statistics on blindness and visual impairment, as reported by the National Society for the Prevention of Blindness and the United States Office of Education, Bureau of the Handicapped.

Information was also gathered on available services, programs and the criteria used in identifying the visually handicapped in Puerto Rico, information on the incidence of blindness and visual impairment in the population according to age, sex, and the major causes of blindness was gathered from public health records. Records were also examined to obtain the number of sighted and visually handicapped children being educated in Puerto Rico in public, private schools.

Results of a survey conducted by the special project for teacher preparation at the College of Education, University of Puerto Rico, will be

used as additional support for a data based program. The survey was designed by the staff to obtain a random sample of 3,000 public school students (grades one through twelve) from five geographic regions and thirty towns. Large, medium and small sized towns were selected from north, south, east, west and interior geographic areas in Puerto Rico. This survey was part of the scheduled activities by the special project in order to support the development of educational services for the visually handicapped in public schools.

The second phase of the project was highlighted by the results of attitude surveys including directed interviews of prominent Puerto Ricans, student opinions on blindness and general public stereotypes identifiable through these attitude surveys. (For details see Appendix D-I, II and E).

Significant educational needs were identified by means of structured observations, opinions of professionals and panels of successful blind Puerto Ricans. From these identified educational needs, basic teacher competencies will be recommended as part of a model training program.

This report will conclude with the presentation of an educational program for the visually handicapped which is suited to the cultural and socioeconomic needs of the Puerto Rican visually handicapped population.

Cultural factors in the Puerto Rican Society

As part of the research conducted by the project staff and the original plan to identify specific cultural factors within the Puerto Rican society an analysis of some salient factors was made.

Cultural factors are those characteristics of any educational program that will identify its components with the traditional national ethos. To understand the meaning of the term "cultural factors", as used here in this

study, it will be necessary to examine its two basic components, namely the culture-human factors and culture-complement factors.

Culture-human factors comprise the language, religion, values, traditions, beliefs, and attitudes of a particular social group.

Some of the readily identifiable culture-human factors which might influence educational services for the visually handicapped in Puerto Rico are: duality in the value system; hero-worshipping; regional religious beliefs; the family; and language variables.

If a comparison of these human factors is made between North American and Latin American cultures, it may be assumed that the North American culture is dominantly Anglo-Saxon, Protestant, capitalistic, and pragmatic, while Latin American culture is dominantly Catholic, traditional, semi-feudalistic, and aristocratic in nature.

The North American influence on the Puerto Rican culture has been felt primarily in the areas of economics, politics and education. The main manifestation of this cultural influence can be evaluated by examining an apparent shift in values in Puerto Rico. Economic values, which subordinate all other values in the United States system, conflict with the primacy of aesthetic values within the Spanish culture. Stabb argues that the Latin Americans of Hispanic origin "...distrusted the North American pursuit of success, his worship of progress and his insensitivity to the world of the aesthetic."¹ Sánchez² and Juan Marín³ discuss the problems

¹Martin S. Stabb, In Quest of Identity, University of North Carolina Press, 1967, p. 10.

²Luis A. Sánchez, "On Education in Both Americans", Teachers College Record, 6:1-10, 1963.

³Juan Marín "The OAS and Education", Teachers College Record, Vol. LXV p. 11-16, 1963.

to be encountered in any cross-cultural program dealing with education between both North and South America. They highlight language, race and hierarchies of values as sources of conflict in the meeting of both cultures and point out that in the United States economic values have supremacy and subordinate all other values.

The results of seventy-three years of United States rule must be considered in the rapid economic growth and prosperity of the Island. Are the values of the Puerto Rican system dominated by economic objectives? Are the more aesthetic considerations of the Spanish heritage obliterated by United States influence?

The Spanish heritage of the Puerto Ricans may account for the romanticized version of the handicapped. The expression "Ay bendito!", is prevalent within the Puerto Rican society in reference to the unfortunate position in which blind persons are perceived. "Ay bendito!" combines pity with elements of the Biblical blessing used synonymously for the blind and the dead. No equivalent expressions exists in the English Speaking North American language culture. Originators of new programs may learn much from such key phrases which reflect specific social attitudes towards the blind and blindness.

The prevailing attitudes toward the handicapped are permeated by tradition, pity, generalization and stereotype. Blindness is feared, but public information about the nature and needs of the handicapped may help change attitudes to a more positive outlook as evidenced by pre-and post-attitude surveys conducted by our Project staff. The romanticized version of the handicapped reflects the "aura" or "charisma" enveloping the successful blind person. The polarization of blind genius and invalid blindness is a strong factor which must be considered within a system which

romanticizes personal achievements due to its hero-oriented culture.

In Puerto Rico, religious tradition has followed a similar pattern to that of other parts of Latin America. There is a clear Caribbean influence in the religious beliefs of the Puerto Ricans. The merger of Latin American Roman Catholicism, North American Protestantism, and African and Indian superstitions, creates the unique regional tradition present in Puerto Rican society. "Espiritismo" or spiritism, derived from Caribbean religious influence, is wide-spread throughout Puerto Rico. Many Roman Catholics and Christian denominations have great faith in the power of the dead and their spirits. "Sesiones espiritistas" (spirit rapping seances) attract large segments of the Puerto Rican population. Spirits are the healers, dictators and predictors of the present and future destiny of the believers. A strange mixture of prayer to selected Saints, the Virgin Mary, and "el Señor", a Christ is commonly called, are complemented by herbs, potions and sometimes demonic rituals.

It is common to find meeting places which claim to find famous dead elite such as medical doctors, politicians and others, who by touching through a medium, are able to heal handicapped children and adults.

In personal communication with Health Department personnel it was revealed that in many cases children with eye infections or other conditions were taken by their parents to the town's "espiritista" rather than to the Health Department Clinics. Strange remedies are prescribed by the medium, such as, using a few drops of lime in the eye of child with conjunctivities or drinking cologne mixed with chopped lizard tails and coconut oil to treat a stomach ulcer. Further research is needed in order to determine what proportion of the population in the Caribbean and in Puerto Rico believes in the sub-cultural religious cult known as "espiritismo".

In sum, the handicapped population is affected by the religious traditions as reflected in the expressions of pity (Ay bendito, pobre cieguito, etc.) which have their roots in the Judeo-Christian heritage. Moreover, the handicapped are viewed by many as "afflicted by evil spirits" who can only be liberated, according to "espiritismo" (by the action of the spirits).

The Puerto Rican cultural tradition is composed of unique Caribbean historical elements, Spanish heritage, and North American cultural variables. The lower-middle and lower class members exhibit a strong family situation. The handicapped in this family unit is often over protected and overwhelmed with pity. Often as many as twenty or thirty members of such families (including second, third cousins and "compadres") are responsible for the well-being of the handicapped member.

This set of mixed religious and traditional values in the Puerto Rican society offers a challenge for planners of new educational and social programs. Programs in special education may utilize the incentive of the families when the family is a dynamic force in community relations.

The social structure of the Spanish influenced systems shows lack of community oriented programs. The primary source of neighborhood involvement in a culture influenced by traditions is the family.

According to Shurz:

To all outward appearances, the male is still head of the family, and family solidarity is much stronger than it is with us. Family life is surrounded with a reserve that is unheard of in this country, where Americans are in the habit of keeping open house for a wide circle of acquaintances, and the neighbors may run in without as much as knocking at the door. The Latin American admits only a few intimates to his home, and a foreigner who has done business with a native for many years may never have met his wife or seen the inside of his home.

The complexity of the Puerto Rican family with its duality of value systems both the traditional Spanish-Latin American and the strong influence of the North American way of life, introduces an important variable in the family unit. The rapid change being experienced throughout Puerto Rican society has affected its fundamental structure. The middle and upper class family units tend to identify their life styles with that of the United States. Thus, the stress on material comforts, and the "keeping up with the Joneses" philosophy is greatly evident in the Puerto Rican family today..

But among the lower-middle class group the duality of values and traditions is found. One aspect is a strong family unit with fixed religious and traditional patterns inherited from the Spanish, African and Caribbean cultures. The other results from the effect of North American values on the lower-middle class families regarding material progress, T.V. sets, transistor radios, cars and comforts which must be obtained even if one cannot afford them. There is, however, a strong Hispanic ingredient in the Puerto Rican family, namely "respect". Though diluted by the influence of the North American values system, respect is still strongly in families of the lower classes in the interior of the Island. The modernization of the Puerto Rican family has not reached this large segment of the Puerto Rican society. Hence the value system of the traditional hispanic family, as described by Shurz, Tumin and other social researches can still be found in some Puerto Rican families. The nature of a Roman Catholic family unit as a strong force in deciding or planning the education of the visually handicapped child may play an important role in the development of special educational programs.

Language is another cultural factor which may influence educational services for the visually handicapped in Puerto Rico. Spanish was the official language in Puerto Rico from the time of its settlement by the Spaniards four hundred fifty years ago. For the early 1900's, English was introduced by Americans when the Island was ceded to the United States. English was established as the official language and used throughout the school system during the early United States governments. Later, Spanish was reintroduced as the official language, but many textbooks continued to be used in English.

Many students of the early 40's and 50's are bilingual, because English was the official language in the school system during that period. This duality of language in the school system has created problems in reading and regional language usage. Sub-dialects in the general population reflect Indian, Spanish, as well as English words and phrases that have become part of everyday usage. The fluctuating changes in the official language utilized throughout the school system and the migration to and return of Puerto Ricans from the United States has influenced the Puerto Rican language.

The influence of English on the Puerto Rican language is heard in its most extreme forms through the dialect called "Españglés" or "Spanglish". "Newyoricans" a name given to children of Puerto Rican parents born and raised in New York use this dialect either in Puerto Rico or the United States mainland. Some further examples of "Spanglish" are:

<u>Spanglish</u>	<u>Spanish</u>	<u>English</u>
janguear	colgar	to hang
marqueta	mercado	market place
funitura	mobiliario	furniture

<u>Spanglish</u>	<u>Spanish</u>	<u>English</u>
parquear	estacionar	to park
bloque	cuadra	block
la bosa	la jefe	the boss (female)
el rufo	el techo	the roof
la boila	la caldera	boiler
lonchar	almorzar	to have lunch

An interesting phenomenon has emerged within this social group. Many of the Puerto Ricans who migrated to the mainland in the early fifties are returning home either defeated and impoverished or economically successful. Language problems among these returning citizens become significant factors for their children who have been born in the States. The educational system must cope with the thousands of "Newyoricans" who are constantly moving back and forth seeking better job opportunities, financial stability and communal self identity.

The language factor also affects the handicapped directly. Many handicapped persons resent being called blind or deaf and are humiliated at the sound of these words because of the negative connotations of inferiority, pity and hopelessness. Attempts are being made through orientation campaigns to affect some change in language usage which refers to handicapped persons. For example, "no vidente" is used instead of "blind" and "impedidos", instead of "inválidos" referring to handicapped.

Since attitudes are expressed through language, it is important that careful attention be given to the cultural factors which make up the Puerto Rican language idiosyncrasy. Language is also important in laying the foundation of new programs, since textbooks, braille, and large type material are available through quotas from the American Printing House (U.S.A.), but very little Spanish material is produced by this United States mainland agency.

Although some educational materials are available from Spanish speaking countries, these, too, fail to reflect the uniqueness of the Puerto Rican culture.

Culture-Complement Factors

The culture-complement factors are those components of the general social structure which make the human-culture factors viable and localized. For example, the climate (in the case of Puerto Rico, tropical), the natural resources, the available transportation facilities (which could play important roles in the determination of types of programs to be used), diet, recreational facilities, industry, and government ideology are all complimentary factors synthesized into the whole social milieu.

These factors affect the visually handicapped in various ways. Educational needs in the area of mobility and orientation will be determined by geographic factors, unique to the region. Curriculum variables to be considered in this area are: street layout, type of buildings, nature of traffic and tropical climate. Job opportunities, resources and long range program planning will be influenced directly or indirectly by the human-complement factors identified in this study.

Puerto Rico is located in the Caribbean region which consists of the Greater Antilles (Cuba, Jamaica, Hispaniola, and Puerto Rico), and the series of islands which make up the Lesser Antilles. The entire area is tropical but due to cooling northeast breezes the mean temperatures range between 80 and 82 degrees Farenheide. Most of the region is characterized by volcanic islands (peaks of submerged mountains) which are surrounded by the Atlantic Ocean and of the Caribbean Sea. In general, there is plenty

of sunlight, abundant rainfall, cooling breezes, and warm seas amidst hilly islands with little arable land.

Puerto Rico is an island one hundred miles long and at most thirty five miles wide. Within this territory live two million seven hundred thousand inhabitants a population augmented by over one million Puerto Ricans who live in mainland U.S.A. and migrate between the Island and the large metropolitan areas on the continental United States.

The Puerto Rican economy has evolved from a monoculture dependent on the six month seasonal cultivation of the sugar cane to a more diversified industrial society with an economic growth of eleven percent in 1971.

Agriculture in general has diminished to the point where Puerto Rico depends on imports and foreign suppliers for basic foods such as rice, beans, meats, etc. Today Puerto Rico is the fourth highest importer from the United States of America with a purchasing volume of approximately eight hundred million dollars per year.

It is important to note the influence of geographic location and warm climate on the development of tourism. The Government is investing millions of dollars in promotion campaigns to attract United States and Western European tourists to the Island. This booming industry is providing an increasing number of skilled and service related jobs for the Puerto Ricans.

Housing is suited to the tropics and the Island, but it offers a striking contrast of straw huts and shanty slums on one side and residential ranch style "urbanization" and air conditioned luxury hotels on the other. Many high-rise buildings are being erected throughout the metropolitan areas of Puerto Rico, and apartment buildings are substituting for the

traditional one or two story houses.

There are modern highways and speedways connecting all points of the Island with many still in the process of construction and undergoing improvements. It is expected that by 1973 there will be one million cars in Puerto Rico. Public transportation is quite inadequate in meeting the needs of the population primarily because of the sprawling suburbs which comprise the metropolitan areas and the inadequate planning and financing of such system.

Politically, Puerto Rico is a Commonwealth of the United States. Even though the Puerto Ricans elect their own governor and legislators, the country still is considered a territory of the United States under the direct supervision and control of the United States Congress. Puerto Ricans are United States citizens, but those living on the Island are not represented by voting members in the United States Congress and do not vote for the President. On the other hand, if they reside in the continental U.S.A. they have the right to vote for the President as any other United States citizen and they are represented in Congress. Also, if they reside in Puerto Rico, the Puerto Ricans do not pay Federal Tax; if they move to the mainland they must do so.

Puerto Rican political status has not been clearly defined. Puerto Rico is a nation because of its common racial, traditional, historical, religious, cultural, and linguistic heritage within a clearly marked territory. However, this nation cannot be considered a sovereign country because politically it is a part of the United States. If either statehood or total independence from the United States is selected by the

Puerto Ricans as a suitable alternative to their present political status, the cultural factors discussed here may be re-examined for further change.

In attempting to identify cultural factors which might influence the development of educational services for the visually handicapped in Puerto Rico it was assumed that programs should be ruled by their identification with the social group in which they are intended to exist. Programs can neither be transplanted nor copied if true self identity is to permeate through the objectives of the program. An indigenous program will require knowledge of the literature and types of educational services pertinent to the nature of the visually handicapped. Cultural factors will also be essential ingredients in the creative planning phase of educational services for the visually handicapped in Puerto Rico.

DATA BASED PROGRAM

The purpose of this section is to present the results obtained from a survey of existing demographic data by means of an examination of health and school records, as well as available census data. In addition, the results of a two year study conducted by the Special Project on Teacher Preparation Program for the Visually Handicapped in Puerto Rico and the Virgin Islands will be presented in order to support the need for educational services for the visually handicapped in Puerto Rico. (See App. A)

INVENTORY PHASE

After a thorough examination of census data, school and health records, the findings were put together and are presented here in Tables 1 through 3 with comments on the data collected. In Appendix A a study of blindness and vision problems in the public school age population in Puerto Rico will be presented as additional justification for providing services to this handicapped group.

Tables 1 and 1-A point to a slightly higher incidence of identified visually handicapped individuals in Puerto Rico than in the mainland United States. There are 6,644 legally blind out of a total population of 2,700,000 Puerto Ricans on the Island according to the 1970 census. This incidence is based strictly on the legal definition of blindness (20/200 on the Snellen chart with correction or angle of less than 20 degrees in the visual field).

Table 1

Distribution of visually handicapped population in Puerto Rico according to census conducted by the Department of Social Services 1968-1970.

AGE DISTRIBUTION OF BLIND IN PUERTO RICO

<u>AGES</u>	<u>MALE</u>	<u>FEMALE</u>	<u>COMBINED</u>
0-4	24	17	41
5-9	55	37	92
10-14	91	76	167
15-19	103	86	189
20-24	129	86	215
25-34	190	161	351
35-44	226	181	407
45-54	362	262	624
55-64	576	400	976
65 and up	1,613	1,671	3,284
Unknown	<u>162</u>	<u>136</u>	<u>298</u>
TOTAL	3,531	3,113	6,644

PERCENTAGE DISTRIBUTION WITHIN BLIND POPULATION

<u>AGES</u>	<u>MALE</u>	<u>FEMALE</u>	<u>COMBINED</u>
0-4	1.0	1.0	1.0
5-9	1.7	1.1	1.4
10-14	2.6	2.4	2.5
15-19	2.9	2.8	2.8
20-24	3.7	2.8	3.2
25-34	5.4	5.2	5.0
35-44	6.4	5.8	6.1
45-54	10.3	8.4	9.4
55-64	16.3	12.8	14.7
65 and up	45.7	53.7	49.4
Unknown	5.0	4.0	4.5

The total, 6,644 blind population represents .3 percent of the total population of Puerto Rico.⁶⁷ This figure, as contrasted with that of the reported .1 percent of the total population of the United States, indicates a significant difference in the reported legally blind population for both centuries.

⁶⁷Carlos Albizu, Coping with Blindness, Part One Census, Unpublished, Department of Social Services, Puerto Rico, 1969.

The partially sighted population, as defined in the United States, was not reported in the data, however personal interviews with the researchers showed that many thousands of individuals were omitted because they could not be classified under the legal definition of blindness.

The figures in Table No. 2 reveal that 21,937 children in the public school system were reported to have had problems severe enough to be referred to an ophthalmologist. While only a small percentage of those referred are likely to be classified as visually handicapped, the referral rate of 10% for Puerto Rico may be compared with the 25% referral rate for the United States.

School Health Records, as reported by the Division of School Health, Department of Education, Commonwealth of Puerto Rico in their annual report 1970-71, show the following results:

CHILDREN WITH VISUAL PROBLEMS
REFERRED TO OPHTHALMOLOGISTS:

San Juan School District	4,332
Arecibo School District	973
Mayaguez School District	5,606
Ponce School District	2,530
Humacao School District	3,666
Caguas School District	<u>4,830</u>
TOTAL	21,937

Data from some school districts have not been received.

In a preliminary investigation conducted by the Project staff during 1971 it was disclosed that the majority of the teachers who administered the vision screening test did not know the correct procedures to follow to make such tests effective and reliable. Therefore the project staff conducted a survey on vision problems among the public school population in Puerto Rico during the academic year 1971-72 (reported under Research Phase - Appendix A). Subsequent to this study in 1973-74 research was conducted to determine the adequacy of Vision Testing by public school teachers in Puerto Rico.

In Appendix B the study of adequacy of vision testing reveals that over 50 per cent of the public school teachers in the representative sample administered the Snellen Vision Test incorrectly.

The Department of Health's Crippled Children Program reported the following facts about the legally blind served by their San Juan Metropolitan Area Center during 1970:

LEGALLY BLIND SERVED BY THE SAN JUAN
METROPOLITAN AREA HEALTH CENTER DURING 1969 - 1970:

<u>Age Range</u>	<u>Legally Blind Served</u>
under 1	1
1-4	7
5-9	9
10-14	10
15-17	9
18-20	1

TOTAL: 37

The report does not include data from other health centers since the División of Crippled Children in San Juan is currently being expanded to other regions throughout the Island.

The Department of Health figures (Table No. 3) indicated that one regional center for crippled children served 37 legally blind from the ages 1 to 20. The data also indicate a high number of strabismus cases (2,180) and 469 cases of visual problems due to other eye conditions. The high number of strabismus cases identified at this health center indicates that many additional such cases may occur throughout the general population.

Even though the preliminary data obtained during the initial phase of the project showed the existence of a large visually handicapped population, it was felt that a more scientific survey of the public school population could support and give more specific direction to the development of educational services for the visually handicapped in Puerto Rico.

ATTITUDES AND NEEDS

The demographic data gathered disclosed a considerable population of visually handicapped children and youth in Puerto Rico. These visually handicapped students require special educational services to meet their educational needs.

An examination of existing services for the blind and the visually handicapped in Puerto Rico was conducted concurrently with the data gathering phase of the study. Interviews were arranged and visits were made to government and private agencies following the preliminary identification of these available services.

After surveying the existing facilities (government and private) which offer services to the legally blind in Puerto Rico, a list of these agencies was compiled, (see Appendix C). The list includes four agencies which offer educational services; seven which offer diagnostic and rehabilitation services and four that provide volunteer services. Information relative to: name, address, types of service offered, and administrators is included.

Survey of Attitudes

An educational program reflects the cultural attitudes and traditions of the social group in which it is created. After reviewing pertinent literature on cultural factors, public opinion on blindness and severe visual handicaps was surveyed. A questionnaire was administered to a representative group of administrators, supervisors, and university, vocational and adult evening students. Interviews were made of twenty-five selected leaders in the community. This procedure was undertaken to determine the attitudes of a

group of influential Puerto Ricans holding positions of prestige in the community.

A survey of attitudes toward the blind was made of a representative group of students, teachers, community leaders and adults enrolled in evening junior and senior high-school classes. The predominant attitudes, expressed through this survey, were negative to the psychological well being of the visually handicapped. Pity and stereotyping attitudes (musician, genius, moral impeccability) were among the most prevalent within the attitudes of the general population. A significant result of this study rated blindness second to mental retardation as the most handicapping condition.

The following is a summary table of attitudes of representatives items which point out the need of developing more positive attitudes toward the blind within this cultural group. The complete questionnaire is found in Appendix D-I. For the purpose of this report only items one, three, and seven will be summarized in the following table.

1. What do you feel when you meet a blind person?
Pity - Sympathy - Curiosity - Fear - Describe any other feeling.
3. Do you think that blind persons are compensated by having: more hearing, special musical talent, more intelligence than sighted people, a deeper sense of morality? Indicate others.
7. Do you think that "AY BENDITO" best expresses your feeling upon encountering a blind or visually handicapped person?

Summary Table of Survey of Attitudes

Supervisors and Teachers (35)	University Students (91)	Vocational Students (60)	Adult-Evening Students (15)
Q.1 Pity-43%	Pity-28.8%	Pity-80%	Pity-100%
Q.3 Senses -45%	Senses-38%	Senses-23%	Senses-47.1%
Q.7 Yes-22.5%	Yes-18.6%	Yes-30%	Yes-60%

Note that 100 percent of the Adult-Evening Student group responded yes to pity in answering item one. Eighty percent of the Vocational Students and 43 percent of the Supervisors and Teachers also selected pity. Only 28 percent of the University Students indicated they felt pity upon meeting a blind person.

Even though 47.1 percent of the Adult-Evening Student group indicated that blind persons were compensated by having a greater sensory perception than the sighted, it is interesting to point out that 45 percent of the Supervisors and Teachers who are supposed to have achieved a higher degree of education feel the same way as the Adult-Evening Students. An unexpected result in answering this item was the difference between 38 percent of the University Students believing in the false assumption of sensory compensation due to blindness and the lower percentage (23 percent) registered by the less educated Vocational Students.

The expression, "AY BENDITO", which connotes pity and other negative implications was indicated as an answer to item seven by sixty percent of the Adult-Evening Students. Just 18.6 percent of the University Students indicated that "AY BENDITO" could express their emotions upon encountering a blind person.

After the students were exposed to training which consisted in their participation in Ed. 353 - Introduction to the Education of the Blind and the Visually Handicapped - and other activities.

Directed Interview

A directed interview guide was developed after the examination of the Puerto Rican social structure and some of the cultural factors which might influence the development of educational services for the visually handicapped in Puerto Rico.

Open-ended questions for the interview were designed to reflect the attitudes of an important segment of the community as expressed by some of its influential leaders. Questions were intended to elicit attitudes of educators, administrators, teachers, special teachers, and representative members of the community toward the blind in Puerto Rico. The questions also were intended to assess the attitudes of the above individuals toward the image of the blind person as a student, worker, and contributing member of society.

The results of these interviews were expected to show a range of attitudes influenced by cultural factors in the Puerto Rican social milieu (see Appendix D-II for interview questions).

A selected group of about twenty-five leaders in the Puerto Rican society were interviewed. These leaders were directors of agencies or community groups such as the Board of Health, the Board of Education, civic groups, parochial school systems, and others. One or more of the following criteria were used to determine whether a particular person being interviewed was considered as prominent or elite.

Criteria

1. The individual should be well known by average Puerto Ricans to have excelled in professions of prestige in the Puerto Rican culture.
2. Doctors, lawyers, engineers, professors, bankers, senators, scientists, or industrialists were preferred for the sample since these are considered professions of prestige according to Puerto Ricans.
3. The subjects status should be that of a high administrator or officer in a government or private agency employing over a thousand persons.

In order to prevent bias, since the chief investigator is himself blind, a teacher presently working in the program for the visually handicapped at the University of Puerto Rico was trained to administer the interview to the selected leaders. These interviews lasted from one and a half to two hours each, and were recorded for in-depth analysis with the consent of the person interviewed.

The results of the directed interviews were organized and analyzed under seven major category headings: (see Tables 1 and 7 in Appendix E)

- 1) Feelings and Emotions
- 2) Descriptions of a Blind Person
- 3) Professions, Jobs and Trades for Blind Persons
- 4) Vocational Opportunities
- 5) Education of the Blind
- 6) Personal Relations with a Blind Person
- 7) Expectations of Visually Handicapped Person

The directed interview unfolded a picture of an elite group with considerable influence in the society whose attitudes toward blindness or severe visual impairment were predominantly negative and unrealistic. Even the positive answers given to specific questions (see Table No. 7 Expectations of Visually Handicapped Persons, Appendix E) are suspected to be lacking in sincerity and mandated by social conventions. It is important to note that most of the subjects interviewed expressed doubts about the vocational opportunities for the blind in the Puerto Rican society (see Table No. 4 Vocational Opportunities, Appendix E). In addition, the interview revealed that the elite are uninformed about the real problems of the visually handicapped in the society. This was evidenced by the high percentage of subjects

who acknowledged the stereotypes of compensatory sensory discrimination (super-human) and the predominance of pity inspired by the "sad lot" of the blind. (See Tables 1 Feelings and Emotions and 2 Descriptions of a Blind Person, Appendix E).

The attitudes expressed by the persons interviewed supported the results obtained by means of the questionnaire survey. In both surveys of attitudes, subjects conceived the blind in a manner which is unfavorable to the satisfactory habilitation and/or rehabilitation of the visually handicapped as members of the Puerto Rican society. Recommendations will be presented in Part III to stimulate public information campaigns in order to elicit more positive attitudes toward the visually handicapped from the population at large.

Educational needs

In addition to the basic educational needs for all children, visually handicapped children and youth require special adaptations in methods of teaching and instructional materials. As a supplement to staff research in curriculum adaptations, special directed observations were planned in order to obtain pertinent data from real educational settings.

Twenty students from the College of Education, University of Puerto Rico, were trained in the use of Structured Observation Form to determine educational needs of visually handicapped children in Puerto Rico. The Structured Observation Form was designed by the project staff based on preliminary observation forms developed during the first year of the project. (See Appendix F for Structured Observation Form). The student-trainees visited the residential school for the blind (Instituto Loaiza Cordero) in Santurce

and the Diagnostic and Rehabilitation Center for Adolescent and Adult Blind also in Santurce, Puerto Rico. The project trainees were instructed to observe visually handicapped in both institutions and to note specific observable conduct as indicated in the Structured Observation Form.

Results from structured observations

After two semesters of directed observations carried out by project staff and student interns, the following areas of educational needs of the visually handicapped were identified. The Structured Observation Form was used as a guide to facilitate the data collection process. Priorities were assigned to areas of educational needs, based on a frequency of reported observable situations. Eighty percent or more of the student interns and staff observed and reported these areas of needs which are listed here in order of priority for the visually handicapped in Puerto Rico.

1. Mobility and orientation

The student interns and staff reported no formal instruction in mobility and orientation at any of the educational settings existing in Puerto Rico. Home teachers, working for the Department of Social Services did not include mobility and orientation skills as part of their rehabilitation instructional tasks. Children received no specific orientation beyond that offered by teachers in the residential school classrooms.

Project Achievements

The first step taken by the project staff was to design a mobility and Orientation course, (Ed. 397). (See Part V for course description).

Approximately over 100 students have taken this basic course which includes practice using the cane within the San Juan Metropolitan Area.

Orientation and mobility instruction was introduced as part of the curriculum offerings at the school for the blind in Santurce as the result of our trained graduates performance in their work with the blind children at the school.

2. Communication

It was reported that there was a lack of braille material in Spanish and English. In addition, an extremely limited supply of reading materials and instructional aids for the partially seeing or visually impaired was also reported. Some teacher-made materials were used in educational settings. Research facilities for developing instructional materials for the visually handicapped were found to be extremely limited and in most cases nonexistent. Utilization of other communication media for the visually handicapped such as recordings, talking-books, etc., was scarcely reported.

Project Achievements

The Materials and Production Center (See Part III) was developed to meet the educational needs in the area of communication. The most significant results growing out of the establishment of this Center have been:

- a. The establishment of the first recording library for the blind and the handicapped in Puerto Rico.
- b. The recording of the first Spanish textbook recorded by a noted Puerto Rican actress, Miss Jossie Pérez. The master tape is now available to all Spanish speaking ethnic groups throughout the United States Mainland and can be obtained from the Library of Congress.
- c. The first draft of a Spanish Braille code grade two has been completed based on a word frequency study conducted by the staff to develop the code. This code will be tested during the Academic year 1974-75 under the new Special Education Program at the College of Education, University of Puerto Rico.

- d. The first Library of Congress, Branch for the Blind and Physically Handicapped was opened in January 1975 as a result of our Project efforts and findings.
- e. Ed. 388 (Communication Skills for the Visually Handicapped) was designed to meet the need for trained teachers in this field (See Part III for course description).

3. Daily-living skills

Students reported a lack of organized training sequences in early childhood which would develop daily-living skills such as eating and grooming. There was no organized training in this area for professionals or para-professionals working with the visually handicapped.

Project Achievements

The Project Coordinator and the Project Director served as consultants for the School for the Blind in developing and improving daily living skills for visually handicapped children. Also, some significant progress has been made in developing an early childhood program. Moreover, an independent living skills course was created to meet this need in cooperation with the Home Economics School at the University of Puerto Rico. The Home Economics 355 (see Course description Part III is being adapted during the academic year 1974-75 to meet the needs of other handicapped in the area of independent living skills.

Plans are being made to create additional courses at the Home Economics Department to serve the needs of the handicapped.

4. Curricular area

A dearth of adaptations in didactic materials and course content areas was also reported. An absence of up to date instructional devices such as the abacus was observed.

Project Achievements

The Materials and Productions Research Center was developed as the result of the Project prototype. During academic year 1974-75 MPR Center has become the basic innovation feature of the integrated Special Education Program at the College of Education, University of Puerto Rico.

The data gathered from these interviews and questionnaires were utilized to design course content and training sequences in preparing personnel to serve visually handicapped children in Puerto Rico. The educational needs, as identified during this phase of the study, facilitated the development of specific teacher competencies. In Part III specific recommendations will be presented in the area of curriculum and training of personnel to serve the visually handicapped in Puerto Rico.

Throughout the Special Project for Teacher Preparation, in the area of the Visually Handicapped educational needs and attitudes toward the visually handicapped have been considered as fundamental to the development of educational services. Course content, and educational service sequences have been reevaluated constantly utilizing local attitudes and educational needs as guide lines. The Educational Program for the Visually Handicapped (EPVH) which will be presented in Part III synthesizes the activities, experiences, research data and expectations during the four years of this Special Project.

PART III

RECOMMENDATIONS FOR AN EDUCATIONAL PROGRAM
FOR THE VISUALLY HANDICAPPED IN PUERTO RICO

This special Project has examined demographic data, availability and need of facilities, and pertinent literature on blindness and educational settings in the light of salient cultural factors idiosyncratic of the Puerto Rican society.

One thousand four hundred and eighteen legally blind children and youth of school age were reported in available data on blindness in Puerto Rico, and an estimated 6,265 school age visually impaired children and youth were reported in the study on Blindness and Vision Problems in Puerto Rico conducted by the Special Project. Our Special Project supports the conclusion that there is a visually handicapped population which needs educational services.

After surveying the available education, rehabilitation, and volunteer services, our project staff disclosed that government and private agencies rendering these services are not meeting the needs of visually handicapped children and youth in Puerto Rico. Lack of trained personnel, insufficient funds, and inadequate physical facilities, are the factors hampering these programs. Existing facilities and types of educational programs on the mainland U.S. are either too costly or inoperable in Puerto Rico. Innovative types of programs suited to the cultural and socio-economic needs are required.

Research findings revealed that Puerto Rico is an evolving society, merging cultural factors from the North American culture (pragmatic, industrialized, etc.) with Hispanic-American cultural factors of individualism, nationalism, language, superstition, religion, and elitist influence. There is a trend toward the North American identity noted by material progress

problems, and anxieties and the agitation of a modern industrialized western society. To this social effervescence we must add some negative attitudes toward blindness which are revealed by the survey of attitudes and the directed interviews.

The Structured Observation Guides developed by our project staff and interns identify educational needs in mobility and orientation, communication, daily-living skills, and curricular areas. Recommended course content and training sequences are designed, utilizing these identified areas of educational need as guides.

The activities planned as part of the Project offer an opportunity to test and evaluate many of the aspects recommended for comprehensive educational services for the visually handicapped in Puerto Rico.

Educational Program for the Visually Handicapped (EPVH)

The main objective of this proposed program is to implement an innovative Education Program for the Visually Handicapped (EPVH) which meets the educational needs of the visually handicapped in Puerto Rico. The EPVH will provide direct services to visually handicapped children, be a resource for training interns in producing instructional and diagnostic materials and start preliminary explorations into objective research related to the education of the visually handicapped. The new model, under the name Educational Program for the Visually Handicapped (EPVH) will consist of three components:

1. The Service Center for the Visually Handicapped (SCVH)
2. The Materials Production and Research Center for the Visually Handicapped (MPCVH)
3. The Manpower Training Program for the Visually Handicapped (MTPVH)

Before proceeding with the description of the EPVH basic components, a suggested definition of the visually handicapped, based on the Project findings, is presented.

Proposed definitions of blindness and visual impairment require flexibility in order to be adopted in Puerto Rico since the legal definitions used here are based exclusively on visual acuity, and therefore exclude many children and youth who are functionally and educationally handicapped. Puerto Rico's tropical climate and the low socio-economic level of many of its inhabitants demand a culturally relative definition of the visually handicapped population. Moreover, such a definition should consider the individual's inability to participate in ordinary social life, pursue the types of work which one can usually perform, find one's way in an unknown place, and learn the fundamentals of instruction in the same manner in which his peers are learning it.

The following educationally functional definition of visually handicapped children and youth is recommended: An individual who is severely visual handicapped is totally blind, or so severely visually impaired after correction, that in order to read he must use braille, recordings or sighted readers. A moderately visually handicapped individual is one who is still visually impaired after correction, but has enough functional vision to allow him to read the printed word, with some adaptations. (Examples of these adaptations are special lenses, enlargement of print, use of magnifiers, and special lighting.)

The Service Center for the Visually Handicapped (SCVH)

A comparison between the cultural and economic differences between Puerto Rico and the United States indicates that unique and indigenous programs of professional preparation and of direct educational services are necessary to serve the visually handicapped population of Puerto Rico.

After a careful study of available educational systems in the United States and the existing services on the Island, the establishment of an educational facility which will meet this group needs is recommended. This will consist of several units with materials and professional resources to provide direct services to visually handicapped students at the local school level.

The students will attend regular classes, but will receive special services at or through the center. One special teacher will be in charge of each local unit and will be available to students, teachers, and parents during school hours. Another special teacher will operate on an itinerant basis carrying on diagnostic, teaching and simple research functions. These special teachers will offer some counseling and diagnostic services to the visually handicapped children, their teachers and their parents in rural areas and neighborhood schools. The SCVH staff will be assisted by project interns and personnel from the MPR component. The local units of EPVH will be established on the basis of community and/or regional needs. Basic services that the center will provide are: functional visual assessment, orientation of parents, teachers, the community in general, individual counseling and instruction, educational diagnosis and prescription, and specialized educational services.

Materials Production and Research Center (MPRC)

Due to the precarious budget problems encountered by government agencies at this time, especially in the field of public education, instructional materials are required to be of low cost. Research projects are minimal especially in the development of instructional materials for the low vision

and the partially seeing children with functional visual impairment.

This component of the EPVH has been designed to provide opportunities for the development of instructional materials, curricular adaptations and research. It will also serve as a training center for project interns and supervisory personnel. The MPR Center will be the main connection link between the other two components, from which it will get permanent feedback.

The center will seek to be a setting for intensive laboratory experiences for all project interns, students and EPVH staff. It will survey instructional materials and equipment available in the market for the visually handicapped in Puerto Rico. The adaptation of such materials and equipment to the educational needs of the educational settings will be stressed.

In addition, it will develop, evaluate, and distribute instructional materials and low vision aids to all direct educational services components for the visually handicapped and the residential school for the blind in Puerto Rico.

Spanish Braille materials will be produced for the severe visually handicapped population. It is expected that this center will become a resource of Spanish Braille textbooks and materials for areas of high concentration of Spanish speaking minority groups throughout the U.S. mainland such as, Miami, Florida, New York City, Pennsylvania, New Jersey, Chicago, Illinois, Southern California and Texas. In conjunction with the State Department of Education the MPR Center will produce braille books, workbooks, optical and non-optical aids to serve the visually handicapped in Puerto Rico.

Manpower Training Program (MTP)

This unit of the EPVH concept has advanced significantly and will be

evaluated as part of the total Special Education Program at the College of Education, University of Puerto Rico. The course content sequences and pre-practicum and practicum experiences have been the result of two-and-a-half years of constant and continued evaluation. The input presented here reflects the educational needs of the visually handicapped in Puerto Rico and the necessary competencies which special teachers ought to have.

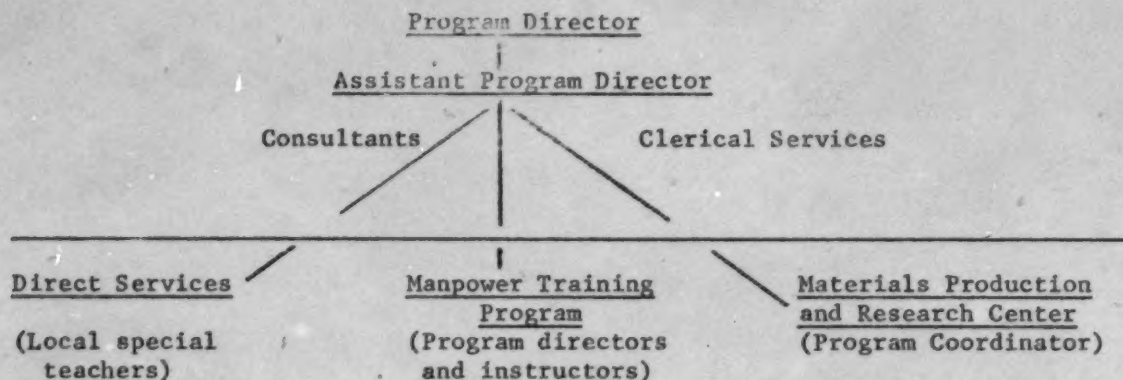
Duration of Training for the MTP

The College of Education has developed a program in Special Education leading to a B.A. degree as part of their general Teacher Preparation Program, (pending University of Puerto Rico Academic Senate official approval). Students will major in Special Education with emphasis in areas of mental retardation, behavioral disorders or visual disabilities. Our prototype is flexible enough to be incorporated into this program. Within it we are proposing a two year, or four semester, preparation sequence for the area of the visually handicapped. During this training period, students are expected to take 12 credit hours plus structured observation, pre-practicum laboratory and tutorial experiences. Six credit hours of formal practicum in one or both of the educational settings will complete the required training sequence. In addition, the students are directed to take three to six elective credit hours in areas of special interest such as: Home Economics, Physical Education, Industrial Arts, etc.

The MTP will make a special priority group of the in-service personnel now working with the visually handicapped at the Institute for the Blind and/or other agencies serving the blind. To serve the pressing need for retraining of such personnel, summer and Saturday sections will be offered to cover the two year training sequence. Practicum arrangements will be made

according to individual needs and previous teaching experience, for those involved in this in-service training phase.

The following organizational chart for EPVH shows the basic arrangement of the program:



MTP Curricular Offering

Candidates for admission to this program should meet the general admission requirements to the University of Puerto Rico and have a 2.0 average as required by the College of Education, for internships. In addition the candidate is required to be in his junior or senior year. Faculty approval on the basis of an interview completes the necessary requirements for admission to the program.

In-service teachers are required to meet the University of Puerto Rico's general admission requirements. If not classified as active students they must apply for readmission to the University. Recommendation by the Supervisor of the Board of Education or other agency is advisable. In addition, faculty approval will be necessary after the applicant is interviewed.

Course sequence

The following courses have been designed by the project staff, intern students, and consultants after two years of testing and evaluating to see that their content and procedural techniques are in accordance with the need components. By the academic year 1973-1974 students interested in becoming specialists in the area of the visually handicapped had to take the required courses for teachers in special education. These courses will emphasize an introduction to all exceptional children, tests and measurements for such children, and the social environment in which they live. It is expected that all students seeking a B.A. in Special Education select an area of emphasis.

Required courses

(1) Introductory Course on the Nature and Needs of the Visually Handicapped

Education 353 3 credit hours

This course gives an introduction to the psychological, educational, and sociological problems of the Puerto Rican visually handicapped as related to the cultural heritage and national ethos. The nature and needs of the visually impaired will be stressed through practical "structured observations" of these children in the available educational setting. Other highlights of the course include visits to diagnostic and instructional materials centers and introduction to the techniques (formal and informal) used in the detection of visual impairment.

(2) Curriculum in the Education of the Visually Handicapped (Education 354)

3 credit hours

The course deals with the fundamental principles of the methodology of teaching the visually handicapped, and techniques in the adaptation of current curriculum materials to the needs of the visually handicapped in the Puerto Rican socio-economic and cultural settings. Curriculum areas of instruction, as well as specific orientation and mobility skills adapted to the specific geographic conditions of Puerto Rico, early childhood, industrial arts and vocational education for the visually handicapped will also be stressed. Students will have an early exposure to the visually handicapped through pre-practicum experiences such as tutorial situations, and short internships at the Instructional Materials Center. Survey of commercial materials and adaptation and design of didactic aids to meet the educational needs of the visually handicapped Puerto Rican children will also be part of this course.

(3) Communication Skills for the Visually Handicapped

(Education 388) 3 credit hours

This course will stress the mastery of Spanish Braille and techniques utilized in reading and writing the Braille system. Educational aids for the partially seeing will be introduced and evaluated by students in the course. Extensive laboratory sessions will be conducted to apply the Braille skills in transcribing instructional materials not available for the visually handicapped children in Puerto Rico.

(4) Educational Implications of Sensory Disfunction (Education 377)

3 credit hours

The course consists of a sensorium approach to general medical information inferences, and case study analysis which will offer a practical presentation of clinical conditions, causes and diseases of sensory impairment and the educational implications of such disorders, in the learning process of children and youth. The traditional anatomy of the eye course has been replaced by a broader approach stressing visual and other sensory perceptual problems and utilizing ophthalmologists, neurologists, hearing and speech specialists, speech therapists and other professionals who may present their respective disciplines to the special and, or regular teacher interested in the educational implications of sensory disfunctions. U.P.R. Medical School clinical facilities will be used for observation and laboratory experiences,

(5) Pre-Practicum Experiences-Interns Work (Education 241) 2 credit hours

This course was planned to provide pre-practicum experiences prior to formal practicum. The interns are engaged in "directed observations" at selected educational, rehabilitation and clinical settings. In addition, the interns work as teacher aides, perform tutorial tasks with the visually handicapped children, and are involved in research and instructional materials production through the MPR Center of the EPVH.

(6) Practicum (Education 231) 5 credit hours

Elective Courses:

- (1) Mobility and Orientation (Education 397) 3 credit hours

The course deals with psychological aspects, skills and techniques in orientation and mobility of the severely visually impaired. Cane travel techniques suited to the geographical problems involved in the orientation and mobility of the visually handicapped in the Puerto Rican setting (identified as needs by the project) will be taught. It is expected that this course will evolve into a detailed study of gross motor development and the problems of sensory disorders in the child's orientation to his environment.

- (2) Communication Skills for the Visually Handicapped, Part II

(to be assigned) 3 credit hours

This course will supply necessary experiences to develop communication skills in mathematics, by means of mastery of the abacus. It will also offer laboratory experiences through the Instructional Materials Center for the Visually Handicapped in adaptation and design of materials, as well as use and operation of recording and reproduction equipment.

- (3) Techniques of Home Economics in Special Education (Home Ec. 335)

3 credit hours

This course was planned to provide special education teachers with the opportunity to gain insight into the problems encountered by the exceptional in homemaking and related areas and to obtain some experience in the techniques for teaching their pupils. It is expected that at the end of the course the students will be able to guide their pupils in the development of daily living skills related to the following home economics areas:

record observations. This form will be used to register the observations made by the intern students during their visits, which will be preceded by an orientation on the specific situations or strategies to be observed. Each observation is related to a teacher competency that is going to be fully developed through the total training system.

Laboratory experience sequence

The total laboratory sequence, which lasts four semesters, is initiated by systematic structured observations.

Students are instructed to observe specific settings, situations, teacher strategies and behaviors. First, sighted children are observed in regular classrooms. Then experiences are provided with children with physical and mental handicaps in the available educational settings.

Guided experiences are provided at the MPR Center in identification, operation, adaptation, and evaluation of instructional materials. Work as teacher aids is also prescribed as part of the guided laboratory training sequence. Opportunities are also provided for analysis and preparation of the child's observation record.

Tutorial work culminates this training sequence and gradually leads the student to a more formal practicum situation. The culmination of the practicum occurs in the real classroom environment. Here the student-teacher applies teaching procedures, and strategies under the guidance of the college supervisor and the cooperating teacher. Practicum is given in classrooms with exceptional children during the first semester of the senior year. During the second semester, the student is evaluated on the basis of acquired competencies in teaching the visually handicapped (see Appendix G-I) for basic teacher

competencies utilized in the evaluation). Students will attend a three hour seminar every two weeks to discuss, with the practicum supervisor, problems dealing with the practicum, and ways to cope with them in an effective and practical manner.

EVALUATION

Prior to the initiation of the first phase of our Teacher Training Program for the Visually Handicapped at the University of Puerto Rico, there was no college level program in the field of the visually handicapped in Puerto Rico. During the academic year 1970-71, two senior level courses were offered through our project. This was exploratory work. Four sections of these two courses, combined to provide opportunity for a total of 95 students during the academic year. During the second year (Academic year 1971-1972) the formal prototype planning began, and four additional courses were added to the previous two. A total of 235 students were registered in the ten sections opened for the six combined courses. During the first semester of the current academic year there are 126 students in the program. The grand total of 683 students provided by our project during the three and a half years of operation have involved 170 students. Among them, approximately 80 are now engaged in some type of work within the field of Special Education; 28 of them specifically in the area of the visually handicapped.

Among the students that have attended one or more of the courses offered, there have been a significant proportion of in-service teachers. The Department of Public Instruction of Puerto Rico, and the State Department of Social Services have offered scholarships to some interested teachers in order to facilitate their earliest training.

Another very important achievement of the project has been the survey of a sample of the public school population to estimate the incidence of blind and partially sighted students. This project has been completed for Puerto Rico (see Appendix A). The preliminary estimates of visually impairment

for Puerto Rico obtained from that survey, provide approximate figures that can be used as a basis for personnel training projections. A total estimate of 6,300 visually impaired was obtained from the survey; among them an estimated 900 severely visually impaired children.

In addition, a preliminary study of the needs of the visually handicapped population has served as a guide for curriculum modification in the teacher training program.

All the achievements mentioned in the earlier section are of a short range nature. Another type of information that can be obtained on a short range basis is the competency level, by content area, among the participants. That information was not obtained directly. The professors' evaluation of the students' course-work was taken as basic evidence of the level of competency. A checklist of competencies was administered to students upon entering the training system. At the conclusion of each level of competency training sequence, a post-test was administered. Individual course evaluations stressed mastery of competencies by using instruments which indicate whether or not a particular competency has been initiated, is in progress or has been mastered.

The effectiveness of the training program will be determined as part of the on-the-job phase of the evaluation plan. Check-lists of competencies will be distributed to regional supervisors and other employers for verification and feedback. One particularly important aspect that requires direct checks as part of the short range evaluation of the EPVH will be the level of integration, interrelation and feedback between its three components.

Future evaluations will include (in addition to the basic short-range data pertinent to each program component) direct information from the graduates concerning the usefulness of the different components of their training

program. For that phase of evaluation, the graduates will be interviewed with the use of a questionnaire specifically designed for that purpose, while attending a short workshop to be conducted early in the Spring. A similar interview will be conducted with the graduates' supervisory personnel.

The interview will include a section for the participants to rank, in order of practical importance, the different courses, special activities and specific areas of course content and methodology. It will also include a section for them to express which areas or aspects, based on their work experience, should be given special consideration in the program. Some instruments to be produced as a result of the workshop will be used for further evaluation through the mail as a regular feedback for improvement of the program. (See Appendix G-II for completed evaluation check-list).

All the information to be collected from the graduates and their supervisors will be weighted on the basis of each participant's specific work area, to determine the final importance that should be given to each aspect in the future development of the program.

The Project Impact

The Special Project for the Preparation of Personnel in the area of the Visually Handicapped has already been evaluated on the strength of its general impact on the College of Education. During academic year 1973-74 the EPVH offered orientation through its interns to approximately 365 regular College of Education student-teachers. This orientation was given during practicum seminars by our trainees and has stimulated course content revision especially in the area of diagnostic procedures.

A significant achievement of the special project can be seen in the

integration of the prototype model into the Special Education Program at the College of Education during academic year 1974-75. The three basic components derived from our project namely Manpower Training Unit, Materials Production and Research Unit, and Direct Education Services Component are now the basic fundamental elements of the Special Education Program at the College of Education, University of Puerto Rico.

For project interns accountability see Appendix H.

PART IV

SUMMARY AND RECOMMENDATIONS

The special Project has attempted to determine the feasibility of establishing educational services for the visually handicapped in Puerto Rico, that would be suited to the cultural and socio-economic milieu.

It was assumed that programs must be developed not transplanted if they were to meet the local needs. Pertinent literature in the field of blindness and vision problems, educational settings and cultural factors in the Puerto Rican society were surveyed. Significant factors related to language tradition, religion, geography, and politics were examined to determine how these might influence the education of the visually handicapped in the social group studied.

Demographic data were examined and a study of visual problems in the public school population was made. An inventory phase was conducted in which medical, school health, rehabilitation and demographic data was compiled. An estimate of 7,000 legally blind individuals was obtained from this data. Approximately 23,000 school age children were identified as having some vision problems and in need of referral to ophthalmologists. However, in order to obtain a more scientific picture of the extent of vision problems throughout the school age population in Puerto Rico, a research phase was conducted. A representative sample of 3,000 public school students in grades 1 through 12 was selected. The Snellen illiterate E test was administered considering the functional vision of the student at the time of screening. An estimated 6,300 school age children were projected for the public school population as having visual problems from 20/70 or less.

In general, data showed that the incidence of severe visually handicapping conditions is higher in Puerto Rico than in the United States. It was also disclosed that there is a potentially high population of severely visually impaired children probably needing special educational services as evidenced by the school health data gathered and the results of the study in vision problems among the public school population.

In addition, project findings disclosed that predominantly negative attitudes were expressed through the attitudes surveys that were conducted. The necessity of eliciting more positiveness and the visually handicapped by means of a public information campaign reaching not only the leaders and influential Puerto Ricans, but also the general public was evidenced.

Existing educational, rehabilitation, and volunteer agencies were surveyed to determine the availability of facilities which provide services to the visually handicapped in Puerto Rico. It was determined that the existing facilities are minimal and lack sufficient personnel, trained according to the latest principles and methods in Special Education.

In order to fill the void in educational services for the visually handicapped in Puerto Rico, and to meet the educational needs identified for this population a prototype Educational Program for the Visually Handicapped (EPVH) was proposed. The EPVH recommended in this study will provide direct services to visually handicapped children through educational service centers. The program will contain a Manpower Training Program (MTP) which will provide the necessary personnel to meet the needs of the visually handicapped. It will also contain a Materials Production and Research Center (MPRC) which will be a resource for producing instructional and diagnostic materials and initiate preliminary explorations into objective research related to the education of

the visually handicapped in Puerto Rico.

One of the most significant achievements of the Special Project can be seen in the integration of the Teacher Preparation Program for the Visually Handicapped into the general Special Education Program at the College of Education. The new Special Education Program is based on the model tested during the prototype phase of the Special Project.

PART V - VIRGIN ISLANDS PHASE

The following is a summary of the highlights dealing with the Virgin Islands phase of the Special Project for the Teacher Preparation Program in Puerto Rico and the Virgin Islands. The main objective of this part of the Project was achieved - Namely Stimulation and Encouragement of State Education Officials to develop training program and educational services for the Visually Handicapped in St. Thomas, St. John, and St. Croix.

Over a number of years there has been concern expressed about children in the Virgin Islands who might have visual impairments severe enough to interfere with schooling. The Health Department of the Virgin Islands had on file a number of cases indicating visual problems, and occasional surveys from the Federal Government seemed to indicate that there might be an even higher incidence than previously suspected. Until 1972, there did not exist an organized program combining the best modern techniques for identifying these children or the variety of fully professional services needed to provide education for them.

A Study conducted by the Teacher Preparation Program for the Visually Handicapped in Puerto Rico and the Virgin Islands during 1972-73 revealed the prevalence of considerable visual impairment among the public school population

in the United States Virgin Islands.

The sample consisted of 326 subjects from grades K through 12 (see Table 1). The Snellen E chart test was administered by trained examiners to groups selected by random sampling according to grades. Each subject was examined for visual acuity in both eyes, right eye and left eye. The examiners competency in administering the Snellen E test was validated by Dr. Charles Lee (Chairman of the Medical Advisory Committee of the Puerto Rico Chapter, National Society for the Prevention of Blindness), Professor of Ophthalmology at the School of Medicine, University of Puerto Rico.

Of the 326 subjects 1.21 percent had visual acuity of 20/100 or less. If this percentage is applied to the enrollment at the elementary level (13,509), an estimate of 167 subjects with severe visual impairment will be obtained.

The findings for intermediate and high school levels were not utilized, because of sample contamination. On the basis of these data, only assumptions could be made for the total population, since more research would be necessary for the upper grade level.

After some adjustments a rough estimate was made of the total visually impaired school age population from the Virgin Islands from grades K through 12. Based on these adjustments, it may be assumed that from an estimate of 260 subjects a projection may be to indicate considerable prevalence of visual impairment in the school age population for the Virgin Islands.

Background to the Study:

Aware of the needs of the school age population and the lack of available services in the Virgin Islands, the College of Education, University of

Puerto Rico, decided to establish pioneer services in this area. Because the University of Puerto Rico provides bilingual instruction, it was uniquely qualified to deal with the varied ethnic and language groups in the area. In 1967 the Department of Education, U.S. Virgin Islands contracted the services of Prof. Robert A. Bowers from Teachers College, Columbia University to conduct a rough survey of the visually handicapped school age population in the Virgin Islands. As a result of Dr. Bowers report, one of his doctoral students submitted a proposal for the development of a pilot project to provide services for the visually handicapped in Puerto Rico and the Virgin Islands. The proposal was submitted in November 1969 to the United States Office of Education, Bureau of the Handicapped.

In June 1970 the Special Project was funded to start a Teacher Preparation Program for the Visually Handicapped in Puerto Rico and the Virgin Islands at the College of Education, University of Puerto Rico. Miss Josephine Taylor, Project Officer in the Bureau for the Education of the Handicapped, United States Office of Education, was greatly supportive throughout the project and contributed valuable practical suggestions for developing services for visually handicapped children and youth in the region. The Puerto Rico phase of the project began in July 1970 while the Virgin Islands phase started a month later. During the planning phase of the project in the Virgin Islands the staff conducted an inventory to determine the prevalence of visually handicapped in St. Thomas, St. John, and St. Croix. School and health records, provided by the Department of Health, Education and Social Services of the Virgin Islands were utilized as sources of information for its inventory.

The results of this inventory show that there were 67 children with visual

handicaps severe enough to need special education services. In addition 112 children were identified as having visual problems which required follow up.

During the first year of the project seminars were conducted in St. Thomas and St. Croix. These seminars provided a "readiness" period through orientation on the education of the visually handicapped. Supervisors, principals, teachers and other personnel from the Department of Education, Health and Social Services participated in these seminars. Coverage by local news media aided greatly in the public education regarding the project.

After determining the existence of a considerably large number of visually impaired and the potentially large number of visually handicapped in the population, a training program was designed for the Virgin Islands personnel. During the summer 1972 an intensive two-week workshop was conducted under the direction of Dr. Robert Bowers and Mrs. Lisa Stokes from Teachers College, Columbia University, New York. Five students were selected for this initial training sequence representing St. Thomas and St. Croix. During the summer 1973 the Special Project and the Division of Special Education, Department of Education Virgin Islands continued these workshop programs. The number of participants was increased to 10 including a teacher from St. John. During the past summer session the workshop lasted for one month and the trainees were given theoretical and practical instruction in areas such as methodology, orientation and mobility, daily living skills and communication skills (Braille-Grade II). Prof. Eladia R. de Hernández headed of the staff of three professors from the College of Education, University of Puerto Rico.

During 1973-74 the Teacher Preparation Program for the Visually Handicapped in Puerto Rico and the Virgin Islands, will conduct a follow up study to determine the trainees' role in the Virgin Islands education system. It will also continue

offering special training sessions either through the Division of Special Education under the direction of Mr. Robert Rogers, Department of Education at the Virgin Islands or at the project setting at the University of Puerto Rico.

It is expected that a subsequent study of visual problems with the alien population in the Virgin Islands will be conducted as a sub-sample of the initial study. The project will still have to design appropriate educational settings to meet specific cultural, geographic and educational needs of the area. The Puerto Rico phase of the project will continue to serve as a resource to the Virgin Islands through its staff and facilities. The special education services will provide much needed assistance to the visually handicapped population in the United States Virgin Islands.

TABLE I

Subjects in the sample, by visual acuity level

Virgin Islands

Visual acuity level	Both eyes	Right eye	Left Eye
20/20	276	257	249
20/30	36	43	53
20/40	8	11	13
20/50	2	4	6
20/70	2	6	1
20/100	-	2	3
20/200	2	3	1
Total	236	326	326

Appendix A

Teacher Preparation Program for the Visually
Handicapped in Puerto Rico and Virgin Islands
University of Puerto Rico
College of Education
Rfo Piedras Campus
Rfo Piedras, Puerto Rico

VISUAL IMPAIRMENT AMONG PUERTO RICAN PUBLIC SCHOOLS
(REVISED)

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1973

VISUAL IMPAIRMENT AMONG PUERTO RICAN PUBLIC SCHOOLS

Introduction

Programs to provide educational services to blind and visually impaired children have been traditionally based on the individual efforts of dedicated citizens who have been inspired by religious or humanistic reasons. In affluent societies funds are more readily available to provide educational service for low-incidence groups, such as the blind and the visually handicapped. However, in developing regions such as Puerto Rico and the Virgin Islands, the situation is much more complex, since priorities are set based on austerity policies. Thus, establishment of any new program for serving low-incidence groups will require more than convincing arguments based on objective data and outside technical and financial assistance.

The political situation of Puerto Rico and the Virgin Islands make them eligible to receive United States federal assistance for a variety of programs in Health, Education and Welfare, including programs offering services to handicapped children and youth. Based on this eligibility, a proposal was submitted to the United States Office of Education in 1969 to investigate the possibility of developing services for the visually handicapped in Puerto Rico and the Virgin Islands.

In 1970 the Special Project Division, Bureau of the Handicapped, United States Office of Education, began sponsoring this Special Project. The main objective of the initial phase of the Project was to determine the feasibility of establishing a Teacher Preparation Program for the Visually Handicapped in Puerto Rico and the Virgin Islands. The first phase of the Project (planning phase) culminated in the identification of a visually handicapped population to be served in the region. It was also concluded that the complexity of the problems encountered necessitate more refined research to produce objective data on which service programs would be based.

This study was implemented during the second year of the Project to provide such data and to stimulate interest and obtain support from private, government and community leaders, as well as from the public in general.

The Project has continued its development after this study was conducted. Specific educational needs have been identified and a special curriculum has been designed to meet those specific needs. Teachers are being trained in Puerto Rico and the Virgin Islands to serve special group needs in their local communities. A new prototype is being tested during this academic year, which consists of three components, namely, a) man-power training, b) materials, production and research, and c) direct educational services.

The facts presented here are just seeds for future research, not only in the field of the visually handicapped, but also in other handicapped areas, such as mental retardation, deafness, and emotional disturbance.

For the purpose of this paper, only the Puerto Rico of the research will be presented. A separate report has been prepared for the Virgin Islands and will be published at a later date.

Our special appreciation goes to Miss Josephine Taylor, Project Officer, United States Office of Education, Washington, D.C., for her valuable support and advice. It also goes for the many government officials and private citizens who have assisted us throughout the many hours of trials and tribulations for the worthy cause of serving the visually handicapped children in Puerto Rico and the Virgin Islands.

The problem

The problem at issue is a lack of adequately trained personnel and insufficient facilities to meet the educational needs of blind and visually impaired and youth. The visually impaired children, those with much usable vision, are basically untouched in respect to special educational provisions for their unique needs. Instructional materials, vision screening equipment, methods and techniques, and instructional aids for the low vision child are non-existent, and when available are inadequately utilized by the hard working but untrained personnel serving this exceptional school age population.

Estimates of the visually handicapped population have been traditionally based on the application of United States mainland percentage figures to the Puerto Rican population. The Special Project at the College of Education, University of Puerto Rico, set out to obtain more accurate estimates of our visually handicapped population among our public school children.

During the first year of the project, research material and health and school records were examined to determine whether or not there was a visually handicapped population to be served. From information compiled by Carlos Albizu for the Department of Social Services, Commonwealth of Puerto Rico, an estimate of 6,644 legally blind persons in Puerto Rico had been obtained. From health and school records, as well as personal interviews, it was concluded that the chances of a significant number of students in the school population to be undetected-visually-handicapped subjects, were very high.

The project staff proposed a further refinement of the data collected from health and school records during the first year of the project. During the academic year 1971-72 a survey was conducted to estimate the visually handicapped population in public schools in Puerto Rico and the Virgin Islands. Visual acuity tests were done on a sample of the school age population. Medical records were also examined. The research consultant, the project director and the project coordinator were responsible for this phase of the general project, which extended from September 1971 to April 1972. As part of a pre-project readiness activity, the research consultant and the project director participated in a seminar on the Strategy of Evaluation Design held from August 8-15 at Park City, Utah. The project design and evaluation plan were improved as a result of that experience. After a series of staff meetings, the final implementation of the study was outlined and went on as scheduled.

Sample

The representative sample to estimate the prevalence of visually handicapped children in Puerto Rico was selected as follow: The island of Puerto Rico with a school age population (K-12) of 687,877 students attending day classes, was divided into five geographical regions: Northern, Southern, Eastern, Western, and Central. A group of three town was selected from each region. Selection was made in the basis of town size and pupil enrollment. A large town was defined as having 15,000 or more students, a medium size town was defined as one with an enrollment between 10,000 and 14,999 students and a small town as one with less than 10,000 students. This phase of the project was completed during the months of August and September, 1971. Tables 3 and 4 show some basic statistics on the sample.

Table 3

School district* in Puerto Rico selected on the basis of size, and number of groups sampled by geographical region and zone.

Geographical region	Size	Town	Sample (groups)	Zone	
				Urban	Rural
Northern	19,167	Carolina	11	10	1
	13,201	Toa Baja	6	3	3
	5,454	Barceloneta	3	1	2
Southern	39,642	Ponce	21	17	4
	10,207	Juan Díaz	5	2	3
	3,655	Guánica	2	2	-
Western	18,762	Mayaguez	11	7	4
	10,882	Aguadilla	4	2	2
	7,897	Isabela	4	2	2
Eastern**	10,145	Yabucoa	5	2	3
	6,146	Fajardo	3	3	-
	4,490	Naguabo	3	2	1
	2,231	Vieques	2	1	1
Central	26,495	Caguas	13	9	4
	10,281	Utuado	5	4	1
	7,253	Barranquitas	4	2	2

*In this sample each schooldistrict correspond to a town.

**In this region there was only one medium size town and no large one. For this reason three small towns were selected.

Table 4

Subjects in the sample for Puerto Rico
by grade and sex

<u>Grade</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
K	29	35	64
1	139	129	268
2	90	93	183
3	121	109	230
4	153	92	245
5	87	68	155
6	150	125	275
7	215	221	436
8	145	141	286
9	121	142	263
10	83	84	167
11	101	97	198
12	19	57	76
Special groups	42	16	58
Total	1495	1409	2904

Training of field personnel

The examiners receive one week of training in the administration of visual acuity screening tests and the use of other material utilized in the selection of the sample. They were trained in the administration of the Snellen test. Illiterate E chart was utilized, using a light meter to measure illumination, measuring tape to measure distance from chart, and occluders to cover eye not examined, all as prescribed by the National Society for the Prevention of Blindness.*

Once the training was completed, the examiners had a two day practice period in a public school setting, supervised by the project coordinator, to evaluate their performance as to accuracy and effectiveness in accordance to the pre-practice training instructions.

While the examiners were getting their training, arrangements were made with the Department of Education to authorize the use of the public schools for the examination of the students. Local arrangements were made with school superintendents and school directors, health officials, and teachers to explain objectives and procedures of the research study.

When the examiners were considered ready to work on their own, a schedule of visits was prepared. Examiners visited the different schools, administered the visual acuity tests and collected the data for the sample. Examiners worked all the time in teams of at least two persons.

The following information was collected from each student: name, school district, grade, age, sex, father's occupation and highest level of schooling, mother's occupation and highest level of schooling, zone (rural, urban), and visual acuity in both eyes, tested separately and together. **

Statistical analysis

All field data collected were edited by the Assistant to the Project Director and coded for the use of electronic computer facilities. After that, some unpredicted circumstances related to the movement of the University Computation Center delayed the statistical work. As a result, these computations had to be done mostly by hand.

FINDINGS

Sex of the subjects in the sample

For the sample the subjects were almost evenly divided according to sex. As can be seen on Table 4, 1495 out of the total of 2904 subjects in the sample were males. That is only slightly higher than the number of females (1409).

*National Society for the Prevention of Blindness, "A Guide for Eye Inspection and Testing Visual Acuity of School Age Children, A Screening Process"

**Children wearing glasses were tested with and without them. Functional vision for each children wearing glasses was recorded.

Academic level of the father

In order to have an idea on the economic status of the families represented in the sample, some information concerning the academic level and the type of occupation of the parents was obtained.* The number of school years completed by the fathers of the subjects in the sample are shown on Table 5.

As can be seen from that distribution, approximately one third of the subjects from Puerto Rico did not provide information on the number of school years completed by the father.

Table 5
Subjects in the sample by number of school years
completed by the father

<u>School years completed by the father</u>	<u>Number of subject</u>
0	70
1	63
2	65
3	162
4	184
5	101
6	241
7	88
8	100
9	145
10	58
11	53
12	488
13	66
14	105
15	11
Unknown	904
Totals	2,904

*Information is reported here only for the father due to the fact that a large proportion of the students did not inform on these matters, which limits the usefulness of the data.

Even though there is no objective evidence to establish a particular group in terms of father's schooling, the students who did not provide information or stated that they did not know their father's school level may constitute a particular group in future research. The chance that a student would provide information of this nature are apparently less when his father's school level is low.

From among the students who provided information, approximately one sixth of the fathers may be classified as functional illiterates since they have not completed four years of school.* For the total distribution reporting, the median for the number of school years completed is approximately eight years. One third of the subjects indicated that their fathers had completed twelve or more years of school.

Occupation of the father

Table 6 shows the basic data on the type of occupation of the fathers. Out of the total of 2904 subjects, 275 did not provide information, and 42 subjects stated that their fathers were dead, leaving a balance of 2593. From this total, approximately one sixth of the fathers were unemployed. Although no information was obtained from this group on the type of work their father used to do when employed it is likely that they belong mainly in the lower level groups, i.e., skilled, and especially, unskilled workers.

The employed group (2167 fathers) consisted mostly of skilled workers (approximately fifty percent of that group) and unskilled workers (one third). That left approximately one sixth of the fathers in the professional and blue collar categories.

Table 6
Subjects in the sample by occupation of father

Occupation	Number of fathers
Professional	106
Blue collar	282
Skilled worker	1053
Unskilled worker	726
Unemployed	420
Deceased father	42
Unknown	275
Total	2904

*Based on the official definition for literacy used by the UNESCO. Within this group there are 70 natural illiterates; i.e., persons with no schooling at all.

Visual acuity the subjects

Visual acuity, based on the results of the Snellen screening test, was measured on each eye separately and on both eyes simultaneously with and without glasses. As can be seen from the distribution, the subjects, in general, tended to show some improvement in their visual acuity, when examined for both eyes simultaneously, as compared to their visual acuity for any one eye.

The general pattern of the distributions (Table 7) show a definite consistency in the results obtained. The frequency of cases decreases as the level of impairment increases. The consistency of this pattern is important, since the lower ends of the distributions, which include very small proportions of cases, are to be used as the basis for estimates concerning the total school population in order to determine real needs in a teacher preparation program for the visually handicapped.

THE ESTIMATES

Preliminary explorations

Since the immediate goal in this project was to obtain estimates of the visually handicapped population within the school population, the details on the specific procedures followed in obtaining the estimates were left to be presented here instead of including them with the general procedures in the first part of the report. Presenting the details at this moment will, it is hoped, clarify the exposition.

Before getting to the estimates, some details on the findings will be presented. When a relatively small sample is used to base inferences about a very large population, it is important that the basic information be correct in its details. The sample for this project was selected with specific concern for the pertinent variables. The testing, and the processing of the data were carefully done in order to assure correctness. Nevertheless, some checks for consistency of the final results were also made.

The distributions of subjects by level of visual acuity were carefully examined. These distributions are presented in Table 7.

The data show a clear regular pattern. In each one of the distributions the number of subjects decreases consistently as the level of visual acuity goes down.

Table 7

Subjects in the sample, by visual acuity level*

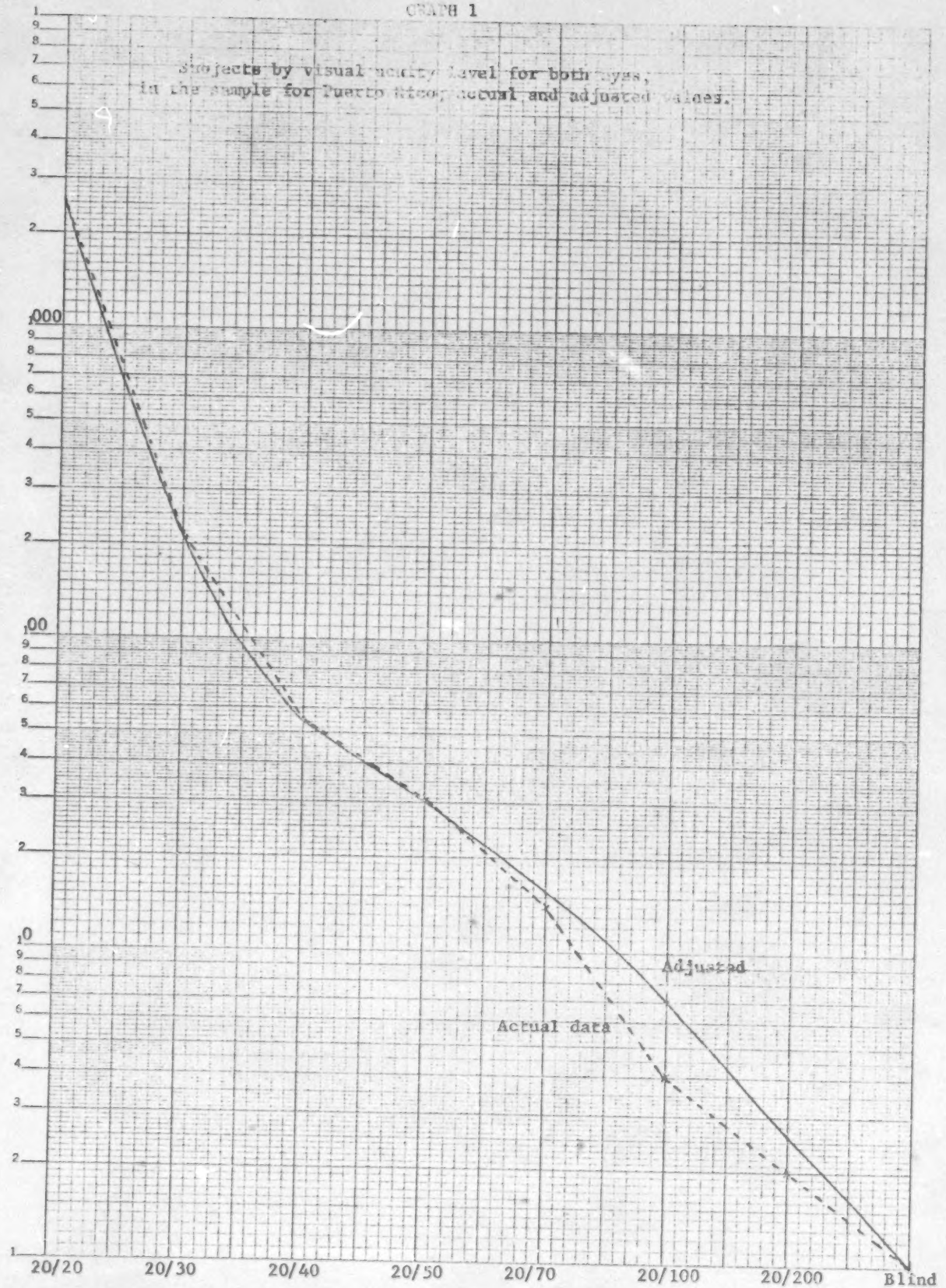
Visual acuity level	Both eyes	Right eye	Left eye
20/20	2574	2363	2308
20/30	218	330	347
20/40	55	96	123
20/50	31	44	49
20/70	19	33	36
20/100	4	17	15
20/200	2	16	19
Blind	1	5	7
Total	2904	2904	2904

*The student is referred to a doctor for possible correction at any point where he fails screening or where behavior indicates that referral might be appropriate. After correction, if the child sees no better than 20/70 in the better eye after the best possible correction, he may be considered as visually handicapped. For the purpose of this study student were screened with glasses. This showed their functional vision at the time of the random sampling.

To reduce chance variations for the both-eye distributions, hand adjusted curves were produced. From the hand adjusted curve, new values were read, which reduced the chance variations (see Graph 1). In adjusting the curve, the accumulated values for the visually handicapped (20/70 to totally blind) were kept constant. Also the pooled total for 20/40 and 20/50 was kept, as well as the individual values for 20/30 and 20/20.

BVP

GRAPH 1



Basic rates

The proportion of legally blind subject, is usually quite small. Out of the relatively small sample in this study, only a small number of such cases could be expected. Such a small number of subjects had to be used later for the expansions into the total regular school population. In order to reduce the chances of gross errors in the expansions, some checks were made before expanding the data. Even though individual grades were subsampled for this study, for the sake of representativeness, the incidence of visual impairment by individual grade would have been too small to be a sound basis for any estimates. In the estimates of the legally blind population, clusters of three grades each were used instead of using individual grades.

The estimated number of visually impaired for both eyes,* by grade cluster in Puerto Rico was as follows:

Grade cluster	Subjects in sample	Cases identified (both eyes)	
		Numer	Percent
1st to 3rd	681	4	.5874
4 to 6	675	8	1.1852
7 to 9	985	8	.8128
10 to 12	441	6	1.3378
Total	2,782	26**	

These ratios were used as the first reference for the estimates.

As can be seen, the ratio of the visually handicapped to the corresponding school population by grade clusters, shows an increasing trend that is interrupted at the junior high level (grades 7-9). That shift in trend might be a random variation of the sample, since the incidence of cases is relatively small in all levels. To help clarify the trend, a check was done in the distribution for the rest of the sample. The following was the distribution for the rest of the sample.

Grade cluster	Level of visual acuity				Total
	20/20	20/30	20/40	20/50	
1-3	637	41	3	---	681
4-6	611	39	17	8	675
7-9	904	58	15	8	985
10-12	402	32	6	1	441
Total	2,554	170	41	17	2,782

*The estimates presented here indicate prevalence of visual impairment from 20/70 or less in both eyes with correction.

**Cases for the grades 1 through 12 only.

If the normal cases (20/20) are left aside, the accumulated cases for the other levels show a pattern, by grade cluster, somewhat different to that shown by the visually handicapped (see Table 8). Also if only the 20/40 and 20/50 levels are considered, the percentages vary. With such evidence, the pattern shown for the distribution of the visually handicapped should be used with great caution. Therefore, the expansions of the data for the visually handicapped (20/70 - blind) from the sample to the school population, will be made by grade cluster, using the specific percentages obtained for the group, but as other data become available, the necessary adjustments will be made. Such adjustments will probably help in the estimates by grade cluster even though the total estimate is not expected to change significantly.

Table 8

Percentage of the subjects with minor visual impairment* in Puerto Rico, by grade cluster

Grade cluster	Accumulated total for 20/30, 20/40 and 20/50			Accumulated total for 20/40 and 20/50	
	Total	Number	Percent of the total for the grade cluster	Number	Percent of the total for the grade cluster
1-3	681	44	6.4022	3	.4405
4-6	675	64	9.4848	25	3.7037
7-9	985	81	8.2233	23	2.3333
10-12	441	39	8.8435	9	2.0484

*The Department of Education Commonwealth of Puerto Rico considers any child with 20/40 as a visual impairment case. These students are referred to ophthalmologists when identified during preliminary screenings.

The estimates

The enrollment in the Puerto Rico public day schools, for the grade clusters used in this project, was as follows:

<u>Level</u>	<u>Enrollment</u>	<u>Level</u>	<u>Enrollment</u>
1-3	215,728	7-9	155,577
4-6	199,204	10-12	102,554

Based on that enrollment, the estimates for the total number of students with levels of impairment in the critical area (20/70 to totally blind) were as follows:

<u>Grade Cluster</u>	<u>Enrollment</u>	<u>Percent of severe visual impairment cases in the sample</u>	<u>Estimate of severe visual impairment cases in the total day school population</u>
1-3	215,728	.5874	1,267
4-6	199,204	1.1852	2,361
7-9	155,577	.0128	1,265
10-12	102,554	1.3378	1,265
Total	673,063		6,265

This first estimate for the potentially handicapped population in the regular school population, will be subdivided by level of impairment. The subdivision will be done on the basis of the readings from the adjusted curve for both eyes. The lower end of the curve (please see readings on Page 57) includes the 20/70 and lower vision cases. The percentage participation of each impairment level among the 26 cases was the following:

<u>Visual acuity level</u>	<u>Number of cases (readings from the curve)</u>	
	<u>Number</u>	<u>Percent</u>
20/70	15.4	59.23
20/100	7.0	26.92
20/200	2.6	10.00
Totally blind*	1.0	3.85
Total	26.0	100.00

*In spite of the regularity of the distributions in the data throughout the project this "component estimate" needs more careful consideration. As part of a sample extension to be done during the spring semester this group will be particularly observed. The other figures seem reasonable.

Based on the obtained percentages, the estimates of the number of subjects in each level of impairment in the regular school population were:

<u>Visual acuity level</u>	<u>Number of subjects</u>
20/70	3,710
20/100	1,687
20/200	627
Totally blind*	241
Total	6,265

*In spite of the regularity of the distributions in the data throughout the project this "component estimate" needs more careful consideration. As part of a sample extension to be done during the spring semester this group will be particularly observed. The other figures seem reasonable.

CONCLUSIONS AND RECOMMENDATIONS

The absence of reliable data on the prevalence of blindness and vision problems in Puerto Rico has kept formal action to help this needed group far below an adequate level. In terms of educational efforts, it was not until two years ago, through this Project, that course work specifically aimed at this population was initiated at the University of Puerto Rico.

Our modest effort to start the development of a program based on objective data was aimed, as a first step, at the regular public school population. Even for this population, our Project could only start with a Snellen test. Nevertheless, our preliminary findings seem very promising.

The prevalence of blindness and vision problems in Puerto Rico spreads over the grades, with a higher concentration in the secondary level. The rates for grade clusters (1st grade to 3rd, 4th to 6th, 7th to 9th, and 10th to 12th) fluctuated between .59 in the first cluster to 1.34 in the last. Even though the specific rates would very likely vary for different samples, it is reasonable to expect the secondary level to contain a higher rate.

Based on the rates obtained, an estimate of 6,265 positive cases (20/70 or less in better eye after correction) is considered to be enrolled in grades 1 through 12 of the regular day public schools in Puerto Rico.

The above figures relate only to what the Snellen test can detect, i.e., central visual acuity. The many other types of visual impairments (hyperopia, daltonism, glaucoma, retinitis, fusion problems, etc.) have not yet been considered. These figures from the Snellen test do not include the prevalence of minor vision problems, because they are not covered by the sponsoring program. In terms of our educational system, students performing at the level of 20/40 and 20/50 in their better eye after correction, pose an important problem. We don't really know what net effect such a condition is having on our students. So, in addition to our need to complete and refine the data on the more critical cases, we have to develop experimental ways to know more about such students.

It is important to be aware of the various ways in which varied vision problem restrict our students capabilities and to objectively establish the prevalence rates for each type and level of impairment. That should be done for students at all levels and in all types of programs. It is hoped that our work with the school population will widen our understanding of similar problems in the out-of school population.

For the moment the direct experience with this project has widened our basic orientation. It has also provided some guidance to other interested groups. In terms of our work new ideas have started to turn into specific activities. Two small new extensions of our project for the estimation of the visually handicapped are under way, one in Puerto Rico and the other in the Virgin Islands. The data to be collected will help clarify some aspects of the findings.

Some specific areas of concern for future research derived from this study are: a) the relationship between the results obtained through the Snellen Test and the more detailed information obtained through the Titmus Vision Screening; and b) relationship

between visual level with and without classes for the subjects with prescribed ones. For the near future some assistance may be available from the Puerto Rico Department of Education in exploring a little more deeply the characteristic and problems of the visually handicapped population.

Appendix B

STUDY TO DETERMINE THE ADEQUACY OF THE SNELLEN E SCREENING TEST
AS IT IS ADMINISTERED BY TEACHERS IN THE
ELEMENTARY SCHOOLS IN THE PUERTO RICO SCHOOL SYSTEM

This study was conducted by the Teacher Preparation Program for the Visually Handicapped, College of Education, University of Puerto Rico, Río Piedras Campus, during academic year 1973-74 sponsored by the United States Office of Education, Bureau of the Handicapped.

For the purpose of this report a summary of objectives, procedures, findings, conclusions and recommendations will be presented here. The complete study will be published at a later date.

Objective

The objective of the study is to determine if the Snellen E Screening Test used in the screening of visual deficiencies in the public schools of Puerto Rico is being adequately administered by the teachers of the elementary school level, as it is compared with the same test administered by trainees of the Teacher Preparation Program for the Visually Handicapped.

Procedure

The coordinator of the Materials Production and Research Center for the Visually Handicapped supervised the data collection phase of this research study assisted by three technicians trained to administer the Snellen E Screening Test.

Students selected in the sample were previously screened by their teachers. A second screening was administered by the technicians and the

results of both tests, were recorded as data. The visual acuity finding screening by the teacher and that obtained by a technician were compared to find discrepancies between them.

Subjects were selected in a stratified aleatom sample using tables from a Million Random Digits to select them.

The subjects were stratified aleatorily be Educational Regions according to grade and zone (urban and rural). Table 1 represents this distribution.

Table 1

DISTRIBUTION OF STUDENTS SAMPLE OF 800 SUBJECTS

		Urban Grade							Rural Grade								
Región	Distrito	1	2	3	4	5	6	T	1	2	3	4	5	6	T		
Arecibo	Arecibo	6	6	6	8	6	8	40									
	Hatillo								10	6	6	6	6	6	38		
	Orocovis								6	3	8	6	6	6	40		
Caguas	Caguas	6	6	8	8	8	8	44									
	Cayey								3	8	6	6	6	6	40		
	Maricao								6	6	6	4	2	2	30		
Humacao	Fajardo	6	4	6	4	6	4	30	4	4	4	0	4	0	16		
	Mounabo								8	8	6	10	4	8	44		
Mayaguez	Lajas								6	4	4	6	6	4	30		
	Aguada								8	8	6	6	6	6	40		
	Mayaguez	6	6	8	6	8	8	42									
Ponce	Guánica	4	4	4	0	6	4	22									
	Juana Díaz								8	8	8	6	6	6	42		
	Ponce	6	6	6	10	6	6	40									
	Villalba								8	6	6	8	6	6	40		
San Juan	B. Norte	6	4	4	6	6	6	32									
	Carolina	0	8	0	8	0	8	24	6	0	6	0	8	0	20		
	Corozal								4	10	4	10	0	0	34		
	R. Piedras A	6	0	8	6	6	6	32									
	R. Piedras C	8	8	8	8	8	0	40									
	San Juan B	8	8	8	0	8	8	40									
		62	60	66	64	68	66	386	82	76	70	68	62	56	414		
		Urban							U	Rural							R
									Total	800							

Table 2 to 2-U shows the distribution of the sample grade, zone and school districts according to the Puerto Rico Department of Public Instruction.

Table 2

<u>Sample Distribution</u>			
District: Aguada	<u>School: Atalaya Arriba</u>		
Zone: Rural			
<u>Grade</u>	<u>Grupe</u>	<u>Number of Subjects</u>	<u>Enrollment</u>
1 ^{ro}	01	3	19
		4	
		5	
		6	
		7	
		8	
		9	
		17	
2 ^{do}	01	3	20
		5	
		6	
		7	
		8	
		9	
<u>School: Cruces Abajo</u>			
2 ^{do}	01	3	27
		4	
		5	
		6	
		7	
		9	
		16	
		19	
3 ^{ro}	01	3	38
		5	
		7	
		8	
		9	
		34	
5 ^{to}	01	3	35
		5	
		6	
		9	
		10	
		35	
6 ^{to}	01	5	37
		6	
		8	
		11	
		26	
		35	

83
REGION ARECIBO

DISTRITO: ARECIBO

Table 2-A

ZONA: URBANA

ESCUELA: J.W.HARRIS

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	06	3	31
		4	
		5	
		7	
		8	
2 ^{do}	01	9	38
		3	
		6	
		9	
		22	
3 ^{ro}	03	26	37
		38	
		5	
		8	
		20	
4 ^{to}	05	31	37
		33	
		34	
		3	
		4	
5 ^{to}	03	5	41
		6	
		9	
		11	
		14	
6 ^{to}	04	33	36
		5	
		7	
		8	
		9	
		27	
		36	
		2	
		3	
		4	
		5	
		8	
		9	
		13	
		34	

REGION SAN JUAN

DISTRITO: BAYAMON NORTE

Table 2-B

ZONA: URBANA

ESCUELA: JOSE DAVILA SEMPRI

(SIERRA BAYAMON I ELEMENTAL)

Grado	Grupo	# de estudiantes	Matrícula
1 ^{ro}	03	3 7 8 9 19 25	36
2 ^{do}	02	4 5 7 28	39
3 ^{ro}	01	1 5 8 9	38
4 ^{to}	01	4 7 12 24 33 38	38
5 ^{to}	01	3 5 6 8 9 27	36
6 ^{to}	04	2 4 5 6 9 24	25

85
REGION CAGUAS

Table 2-C

DISTRITO: CAGUAS

ZONA: URBANA

ESCUELA: TURABO GARDENS
(CONCEPCION MENDEZ CANO)

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	04	3	29
		7	
		12	
		15	
		20	
2 ^{do}	04	26	32
		3	
		4	
		5	
		7	
3 ^{ro}	03	8	38
		9	
		4	
		6	
		8	
4 ^{to}	04	9	28
		14	
		22	
		24	
		31	
5 ^{to}	02	3	37
		4	
		5	
		6	
		9	
6 ^{to}	01	10	34
		11	
		27	
		3	
		8	
		9	
		13	
		17	
		19	
		20	
		26	
		4	
		6	
		7	
		13	
		23	
		26	
		27	
		31	
		31	

DISTRITO: CAROLINA

Table 2-D

ZONA: RURAL

ESCUELA: AMALIA EXPOSITO (HOYO MULAS)

Grado	Grupo	#de Estudiantes	Matrícula
1 ^{ro}	03	2	26
		4	
		5	
		9	
		10	
		13	
2 ^{do}	01	4	41
		7	
		18	
		19	
		20	
		38	
4 ^{to}	No se examinaron estudiantes.		
5 ^{to}	01	4	38
		6	
		9	
		14	
		21	
		26	
6 ^{to}		30	
		31	
	No se examinaron estudiantes.		

DISTRITO: CAROLINA

Table 2-E

ZONA: URBANA

ESCUELA: JOSE S. QUINONES

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	No se examinaron estudiantes.		
2 ^{do}	02	4 5 6 7 8 16 27 32	36
3 ^{ro}	No se examinaron estudiantes.		
4 ^{to}	05	2 3 5 6 7 8 9 19	32
5 ^{to}	No se examinaron estudiantes.		
6 ^{to}	06	2 4 6 7 8 9 21 26	34

DISTRITO: CAYEY

Table 2-F

ZONA: RURAL

ESCUELA: ALEJANDRO TAPIA
(VEGAS # 1)

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	3 4 5 7 8 10 15 26	27

ESCUELA: GAUTIER BENITEZ (Rincón Morrillo)

2 ^{do}	01	3 4 5 6 7 9 13 20	17
-----------------	----	--	----

3 ^{ro}	01	2 3 7 8 9 11	17
-----------------	----	-----------------------------	----

4 ^{to}	01	3 4 5 6 7 9	9
-----------------	----	----------------------------	---

ESCUELA: JULIO VIZCARRONDO (MATON ABAJO)

5 ^{to}	01	2 6 9 10 23 24	33
-----------------	----	-------------------------------	----

6 ^{to}	01	3 4 5 8 9 26	26
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DISTRITO: COROZAL

Table 2-G

ZONA: RURAL

ESCUELA: CIBUCO

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	No se examinaron estudiantes.		
2 ^{do}	01	2 3 5 6 7 9 9 10 15 18 21	24
3 ^{ro}	03	5 7 9 17 1 3 4 5 6 7 8 9 10 16	22
5 ^{to}	No se examinaron estudiantes.		
6 ^{to}	01	4 5 7 8 9 13	21

DISTRITO: FAJARDO

Table 2-H

ZONA: RURAL

ESCUELA: QUEBRADAS HUERTAS

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	5 8 16 26	26
2 ^{do}	02	4 5 6 26	32
3 ^{ro}	01	8 9 10 11	37
4 ^{to}	No se examinaron estudiantes.		
5 ^{to}	01	3 4 5 9	36
6 ^{to}	No se examinaron estudiantes.		

DISTRITO: FAJARDO

ZONA: URBANA

Table 2-1

ESCUELA: CASERIO VEE CALZADA

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	3 4 5 6 7 11	27
2 ^{do}	02	2 4 8 9	24
3 ^{ro}	02	3 4 5 6 14 22	28
4 ^{to}	01	8 9 19 26	34
5 ^{to}	01	3 5 6 9 16 23	32
6 ^{to}	01	5 6 18 30	42

DISTRITO: GUANICA

Table 2-J

ZONA: URBANA

ESCUELA: ELEMENTAL JAMES A. GARFIELD

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	8 9 21 34	37
2 ^{do}	02	6 8 13 28	34
3 ^{ro}	02	8 11 27 34	37

4^{to} No se examinaron estudiantes.

ESCUELA: JOSE RODRIGUEZ SOTO

5 ^{to}	03	4 8 9 24 25 33	35
6 ^{to}	02	6 8 12 27	34

DISTRITO: HATILLO

Table 2-K

ZONA: RURAL

ESCUELA: S.U. BAYANEY

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	02	4	43
		5	
		6	
		7	
		8	
		9	
		26	
		27	
		29	
		38	
2 ^{do}	02	2	28
		4	
		5	
		7	
		8	
		9	
3 ^{ro}	02	2	30
		3	
		7	
		8	
		9	
		27	
4 ^{to}	01	2	27
		3	
		6	
		8	
		9	
		24	
5 ^{to}	01	3	41
		4	
		7	
		8	
		9	
		17	
6 ^{to}	02	4	37
		5	
		7	
		8	
		9	
		20	

DISTRITO: JUANA DIAZ

Table 2-L

ZONA: PURAL

ESCUELA: CARMEN FLORES

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	2	22
		3	
		4	
		6	
		7	
		9	
		10	
		19	
2 ^{do}	01	3	21
		5	
		6	
		7	
		8	
		12	
		13	
		14	
3 ^{ro}	02	3	21
		4	
		5	
		6	
		7	
		9	
		13	
		18	
4 ^{to}	01	4	41
		5	
		7	
		8	
		9	
		29	
5 ^{to}	01	4	37
		6	
		7	
		8	
		9	
		30	
6 ^{to}	01	5	36
		6	
		7	
		14	
		33	
		35	
		102	

DISTRITO: LAJAS

Table 2-M

ZONA: RURAL

ESCUELA: S.V. PALMAREJO

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	4 5 6 10 21 29	38
2 ^{do}	02	8 16 17 23	39
3 ^{ro}	02	8 9 23 27	33
4 ^{to}	02	4 5 7 9 20 26	36
5 ^{to}	01	5 7 8 9 16 25	26
6 ^{to}	01	3 4 12 34	36

DISTRITO: MAUNABO

Table 2-N

ZONA: RURAL

ESCUELA: TUMBAO

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	4 1 7 9 12 14 22 16	22
2 ^{do}	01	3 4 5 6 7 13 17 19	21
4 ^{to}	01	1 2 10 4 5 6 7 9 12	19

ESCUELA: BORDALEZA

3 ^{ro}	01	2 3 4 7 8 20	22
5 ^{to}	01	2 4 7 12	26
6 ^{to}	02	4 7 6 9 12 2 25 28	28

REGION MAYAGUEZ

DISTRITO: MAYAGUEZ

Table 2-0

ZONA: URBANA

ESCUELA: FRANCISCO VINCENTY

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	3	35
		5	
		7	
		8	
		17	
		29	
2 ^{do}	03	3	33
		4	
		5	
		6	
		7	
		23	

ESCUELA: FARRAGUT

3 ^{ro}	02	4	31
		6	
		7	
		8	
		9	
		10	
4 ^{to}	02	14	39
		20	
		1	
		3	
		7	
		8	
5 ^{to}	01	9	40
		37	
		4	
		6	
		7	
		8	
6 ^{to}	01	13	40
		20	
		21	
		34	
		4	
		5	
		6	
		7	
		12	
		16	
		31	
		2	

DISTRITO: NARANJITO

Table 2-P

ZONA: RURAL

ESCUELA: LOMAS JAGUAS

Grado	Grupo	# de estudiantes	Matrícula
1 ^{ro}	01	2 3 5 7 8 9	15
2 ^{do}	01	2 3 4 9 10 12	16
3 ^{ro}	01	2 4 5 6 7 9	18
4 ^{to}	01	1 4 5 6	9
5 ^{to}	01	4 5 8 9	12
6 ^{to}	01	2 3 4 9	14

DISTRITO: PONCE

ZONA: URBANA

Tabla 2-Q

ESCUELA: JUAN MORELL CAMPOS

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	02	3 5 6 10 23 33	35
2 ^{do}	02	5 7 8 9 19 32	36
3 ^{ro}	01	2 5 6 7 9 17	28
4 ^{to}	02	3 5 7 8 9 16 25 26 28 6	31
5 ^{to}	01	5 7 13 17 19 23	24
6 ^{to}	01	4 6 8 9 13 23	27

Table 2-R

DISTRITO: RIO PIEDRAS "A"

ZONA: URBANA

ESCUELA: RAFAEL HERNANDEZ
(SUMMIT HILLS)

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	2 4 5 6 8 9	33
2 ^{do}	No se examinaron estudiantes.		
3 ^{ro}	02	3 4 5 6 9 10 11 15	27
5 ^{to}	02	4 5 8 10 15 21	28
4 ^{to}	01	4 6 7 9 12 24	28
6 ^{to}	02	3 4 5 7 9 19	30

DISTRITO: RIO PIEDRAS "C"

Table 2-S

ZONA: URBANA

ESCUELA: L. PEREIRA LEAL
(BO. BUEN CONSEJO NUEVO)

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	03	3 4 6 7 19 21 23 29	30
2 ^{do}	03	3 4 5 7 8 9 20 22	30
3 ^{ro}	01	4 5 6 7 8 9 12 35	38
4 ^{to}	03	4 5 6 12 14 16 19 26	30
5 ^{to}	02	2 4 5 6 7 8 15 22	32
6 ^{to}		No se examinaron estudiantes.	

DISTRITO: SAN JUAN "B"

ZONA: URBANA

Tabla 2-T

ESCUELA: GAUTIER BENITEZ

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	2 3 4 5 6 8 22 29	32
2 ^{do}	02	1 2 4 5 6 7 8 9	17
3 ^{ro}	02	4 5 7 10 11 13 15 16	16
4 ^{to}	No se examinaron estudiantes.		
5 ^{to}	02	3 4 5 6 7 15 20 24	31
6 ^{to}	01	4 5 7 14 16 23 26 30	32

DISTRITO: VILLALBA

Table 2-U

ZONA: RURAL

ESCUELA: SEMIL IV

Grado	Grupo	# de Estudiantes	Matrícula
1 ^{ro}	01	1 3 4 5 7 8 9 14	14
2 ^{do}	01	4 6 9 10 11 14	15
3 ^{ro}	01	1 3 5 7 8 20	23
4 ^{to}	01	3 4 5 6 7 9 13 16	16
5 ^{to}	01	2 3 8 9 19 21	21
6 ^{to}	01	2 4 7 8 9 16	17

Findings

A comparative study of results was done after of the data collection phase was completed. Differences of five or greater than five in the denominator of the Snellen ratio for visual acuity between first and second screening were reported and defined as "lack of adequacy" in the administration of the test by the teachers.

Tables by grade and school district were prepared to show differences encountered.

See Table 3 to 3-U.

Table 3 to 3-U summarize preliminary analysis of degree, of adequacy in teacher screening as compared to technician screening.

Table 3

Analysis of Degree of Adequacy in Teacher Screening
As Compared to Technician Screening

Educational Region: Ponce

School District: Villalba

Zone: Rural

School: Semil

Grades	Number of subjects examined	Number of students re-examined who's screening showed a significant difference to be classified inaccurate
Primero	8	4
Segundo	6	4
Tercero	6	3
Cuarto	8	2
Quinto	6	1
Sexto	6	1
TOTAL	40	15

Table 3-A

Distrito Escolar: Ponce

Zona: Urbana

Escuela: Juan Morell Campos

Grados	Número de Estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	3
Segundo	6	3
Tercero	6	5
Cuarto	10	7
Quinto	6	2
Sexto	6	2
TOTAL	40	22

Table 3-B

Distrito Escolar: Juana Díaz

Zona: Rural

Escuela: Carmen Flores

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	8	4
Segundo	8	4
Tercero	8	2
Cuarto	6	0
Quinto	6	1
Sexto	6	2
TOTAL	42	13

Table 3-C

Distrito Escolar: GuánicaZona: Urbana

Escuela:

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	4	3
Segundo	4	2
Tercero	4	2
Cuarto	0	0
Quinto	6	4
Sexto	4	1
TOTAL	22	12

Table 3-D

Región Educativa: CaguasDistrito Escolar: CaguasZona: UrbanaEscuela: Turabo Gardens (Concepción Méndez)

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	4
Segundo	6	3
Tercero	8	5
Cuarto	8	2
Quinto	8	5
Sexto	8	2
TOTAL	44	21

Table 3-E

Distrito Escolar: CaveyZona: RuralEscuela: Alejandro Tapia

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	8	5
<u>Escuela: Gautier Benítez</u>		
Segundo	8	5
Tercero	6	2
Cuarto	6	5
<u>Escuela: Julio Vizcarrondo</u>		
Quinto	6	5
Sexto	6	2
TOTAL	32	19

Table 3-F

Distrito Escolar: NaranjitoZona: RuralEscuela: Lomas Jaguas

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	4
Segundo	6	5
Tercero	6	6
Cuarto	4	4
Quinto	4	4
Sexto	4	0
TOTAL	30	23

Table 3-G

Región Educativa: Mayaguez
 Distrito Escolar: Mayaguez
 Zona: Urbana
 Escuela: Francisco Vincenty

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
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Primero	6	3
Segundo	6	1

Escuela: Farragut

Tercero	8	5
Cuarto	6	4
Quinto	8	5
Sexto	8	0

TOTAL	42	18
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Table 3-H

Distrito Escolar: LajasZona: Rural

Escuela:

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	2
Segundo	4	0
Tercero	4	3
Cuarto	6	5
Quinto	6	5
Sexto	4	3
TOTAL	30	18

Table 3-1

Distrito Escolar: Azuada

Zona: Rural

Escuela:

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	8	6
Segundo	8	7
Tercero	6	2
Cuarto	6	4
Quinto	6	4
Sexto	6	4
TOTAL	40	27

Table 3-J

Región Educativa: San Juan
 Distrito Escolar: Bayamón Norte
 Zona: Urbana
 Escuela: José Dávila Sempritt

Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada	
Grados	Número de estudiantes examinados
Primero	3
Segundo	2
Tercero	1
Cuarto	4
Quinto	4
Sexto	5
TOTAL	19

Table 3-K

Distrito Escolar: San Juan 8

Zona: Urbana

Escuela: José Gautier Benítez

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	8	3
Segundo	8	3
Tercero	8	5
Quinto	8	6
Sexto	8	4
TOTAL	40	21

Table 3-L

Distrito Escolar: Coronel

Escuela:

Zona: Rural

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	4	3
Segundo	10	7
Tercero	4	4
Cuarto	10	9
Sexto	6	5
TOTAL	34	28

Table 3-M

Distrito Escolar: CarolinaZona: RuralEscuela: Amalia Expósito (Hoyo Malas)

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	6
Tercero	6	3
Quinto	8	2
TOTAL	20	11

Escuela: José Severo Quiñones

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Segundo	8	8
Cuarto	8	3
Sexto	8	2
TOTAL	24	13

Table 3-N

Distrito Escolar: Río Piedras C

Zona: Urbana

Escuela: Luis Pereira Leal (Bo. Buen Consejo Nuevo)

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	8	8
Segundo	8	7
Tercero	8	6
Cuarto	8	7
Quinto	8	3
TOTAL	40	31

Table 3-0

Distrito Escolar: Río Piedras A

Zona: Urbana

Escuela: Summit Hills

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	3
Segundo	0	0
Tercero	8	4
Cuarto	6	2
Quinto	6	4
Sexto	6	1
TOTAL	32	14

Table 3-P

Región Educativa: HumacaoDistrito Escolar: FajardoEscuela: Cacerío Veve ClazadaZona: Urbana

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	1
Segundo	4	3
Tercero	6	2
Cuarto	4	2
Quinto	6	0
Sexto	4	0
TOTAL	30	8

Table 3-Q

Zona: RuralEscuela: Quebrada Huertas

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	4	2
Segundo	4	1
Tercero	4	1
Quinto	4	1
TOTAL	16	5

Table 3-R

Distrito Escolar: Maunabo

Zona: Rural

Escuela: Tumbao

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	8	4
Segundo	8	8
Tercero	6	4
Cuarto	10	2
<u>Escuela: Bordaliza</u>		
Quinto	4	1
Sexto	8	1
TOTAL	44	20

Table 3-S

Región Educativa: AreciboDistrito Escolar: AreciboZona: Urbana

Escuela:

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	6	4
Segundo	6	0
Tercero	6	2
Cuarto	8	2
Quinto	6	3
Sexto	8	5
TOTAL	40	16

Table 3-T

Distrito Escolar: Orocovis

Zona: Rural

Escuela: Salto Cabras

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparadas, la hace inadecuada
Primero	6	3
Segundo	8	2
Tercero	8	5
Cuarto	6	2
Quinto	6	3
Sexto	6	2
TOTAL	40	17

Table 3-U

Distrito Escolar: HatilloZona: Rural

Escuela:

Grados	Número de estudiantes examinados	Número de estudiantes reexaminados en cuyas pruebas existe una diferencia, que al ser comparada, la hace inadecuada
Primero	10	7
Segundo	6	4
Tercero	6	4
Cuarto	6	2
Quinto	6	5
Sexto	4	4
TOTAL	38	26

Table 4 presents a summary of preliminary findings for the educational regions in Puerto Rico.

Table 4

Summary of Preliminary Findings for
The Educational Regions in Puerto Rico

Educational Region	Subjects examined 1 to 6 grade	Inaccurate screening	Per cent of inaccurate screening from sample screened
Mayaguez	112	63	56
Humacao	90	30	33.3
San Juan	222	137	61
Caguas	114	66	58
Arecibo	118	60	50
Ponce	114	63	43

Table 5 summarizes the results of the study Island-wide.

Table 5

Summary of Preliminary Findings Island-wide

Subjects screened in the 6 Educational Regions	Inaccurate screening	Per cent of inaccurate screenings from sample screened
800	419	52.37

Conclusions and Recommendations

From the analysis of the data compiled in the study and the results obtained when comparing teacher screening to technicians' screening, it can be safely assumed that:

1. More than 50% of the teachers in the Puerto Rico Department of Public Instruction have not exhibited mastery of the minimum skills necessary for the administration of the Snellen E. Chart Screening Test. Due to this lack of skills in the administration of the test, the teacher-tests-results lack validity and do not offer adequate diagnosis of student visual acuity.

2. The findings obtained are sufficiently significant to warrant a study of teacher training procedures (pre-service and in-service) to determine the competency of teachers in administering the Snellen E. Chart.

It is evident that the role of the teacher in the area of diagnosis has not been proven adequate by the results of this study. If visual impairments in children are not identified at an early stage, their performance in school activities and tasks will be adversely affected. It is important to point out that the Snellen E. Chart Screening Test is just one diagnostic tool provided to the teacher. It just measures central visual acuity. If teachers cannot identify even one element of functional vision, the variety of other conditions which must be observed by the trained teacher will also be missed.

The project staff recommends an intensive evaluation of teacher competencies in the area of diagnostic procedures. It proposes the development of in-service workshops for the training of teachers in skills and methods necessary for student assessment. The convincing results of this study should stimulate Department of Public Instruction officials and College of Education administrators to provide means for teacher training in the area of vision screening.

Appendix C

I. Government and Private Agencies serving the blind in Puerto Rico.

Loaiza Cordero Institute for Blind Children

Fernández Juncos, Stop 19 1/2

Santurce, Puerto Rico

Tel. 724-0893

Miss Celsa Alonso, Director

Services offered: residential school for blind children

Faculty: 14

Current enrollment: 95 legally blind children

Due to the demand for educational services the Institute is expanding its physical facilities to accomodate 150 children.

Special Education Division

Department of Education

Hato Rey, Puerto Rico

Tel. 765-1475

Miss Ligia Rivera Valentín, Director

Services offered: special educational services in public schools for exceptional children. These include special clases for the mentally retarded, the emotionally disturbed, the deaf, and the visually handicapped. It also sponsors in-service Teacher Preparation Programs in Special Education and offers scholarships to special teachers.

Home Teachers for the Blind

Department of Social Services

Edificio Segarra, Stop 24 1/2

Santurce, Puerto Rico

Tel. 723-8010 Ext. 396

Miss Amparo Montalvo, Director

Services offered: thirteen blind home teachers serving the adult blind throughout Puerto Rico. They instruct the recently blinded in techniques of daily living, braille, handwriting, arts and crafts at the home of the blinded individual. Currently serving approximately 360 blind adults.

Visually Handicapped Student Center

University of Puerto Rico

Río Piedras, Puerto Rico

Tel. 764-0000 Ext. 541 or 671

Mr. R. Delgado, Supervisor

Services offered: reading and studying facilities for blind university students.

Library of Congress, Branch for the Blind and Physically Handicapped

Mrs. Leida I. Torres, Director

Ponce de León, Stop 8 1/2

Puerta de Tierra

San Juan, Puerto Rico Tel. 723-2519

2. Diagnostic and Rehabilitation Services

Diagnostic and Evaluation Center
Division of Vocational Rehabilitation Service
Palma Street, Stop 20
Santurce, Puerto Rico
Tel. 724-2497

Mr. Pedro Sálamó, Director
Services offered: rehabilitation services for blind adults,
which include: counseling, occupational therapy, mobility
instruction, braille, home economics, arts and crafts, etc.

Division of Vocational Rehabilitation Service
Edificio Segarra, Stop 24 1/2
Santurce, Puerto Rico
Tel. 725-1792

Mr. L. Serrano, Director
Mr. Pedro Sálamó, Coordinator for the blind
Services offered: counseling and occupational placement
for the blind.

Talleres Protegidos (Sheltered Workshop for the Blind)
Division of Vocational Rehabilitation Service
Palma Street, Stop 20
Santurce, Puerto Rico
Mr. L. del Valle, Director
Services offered: industry for the blind in sheltered workshop.
Mops and brooms are the predominant products of this shop.

School Health Program
Department of Education
Hato Rey, Puerto Rico
Tel. 765-3403
Mrs. Lágrima Marín de Márquez, Director
Services offered: processing vision screening from school
records referring cases to ophthalmologists (free services).

División of Crippled Children
Department of Health
Ponce de León, Stop 20
Santurce, Puerto Rico
Dr. Germán Oliver Padilla, Director
Services offered: strabismus clinic, pre-natal care and orientation,
clinical and educational services for severely blind and
multiple handicapped children.

Mother and Child Clinic
Department of Health
Ponce de León, Stop 20
Santurce, Puerto Rico
Tel. 722-2959
Dr. Germán Oliver Padilla, Director
Services offered: research and prevention services from birth to
six years old. Diagnostic research and prevention from birth to
six years (pre-school).

Soledad Rodríguez Pastor Home for the Blind
 Ponce, Puerto Rico
 Mr. Rafael Alfonso, Director
 Services offered: rehabilitation and nursing care for aged
 blind.

3. Volunteer Services

Puerto Rican Society for the Prevention of Blindness
 611 Fernández Juncos Avenue
 Santurce, Puerto Rico 00907
 Tel. 725-3471
 Mrs. Isolina Díaz
 Services offered: orientation and information about prevention
 of blindness, concentrating on pre-school children and industrial
 eye safety.

Sociedad Amigos de los Ciegos
 Apartado 9917
 Santurce, Puerto Rico 00908
 Mrs. Mercedes Gaztambide, President
 Services offered: volunteer services for the blind, specially to
 the children at the Loaiza Cordero Institute. Now opening chapters
 in the interior of Puerto Rico to serve the blind adult population.

Eye Bank of Puerto Rico
 699 Condado Avenue
 Santurce, Puerto Rico 00907
 Tel. 724-3013, 723-1746
 Mrs. Jane Nicole de Mariand, President
 Services offered: cornea transplant; prevention of blindness;
 free glasses (free services).

Lions Club International
 Ponce de León 610, 2º Piso
 Hato Rey, Puerto Rico
 Tel. 767-2256
 Mr. Ramón Piccini, District Governor
 The Lions Chapters in Puerto Rico follow the same norms as
 those in the States. This civic organization is extremely interested
 in serving the blind population of the Island.

Appendix D-I

Please answer the following questions with complete honesty. No signature is necessary.

1. What do you feel when you meet a blind person?

Pity - Sympathy - Curiosity - Fear that it could happen to you - Describe any other feeling.

2. Have you ever known a blind person? Yes or No.

3. Do you think that blind persons are compensated by having: more hearing, special musical talent, more intelligence sighted people, a deeper sense of morality? Indicate others.

4. Where do you think a blind child should be taught?

At home - in special schools for blind - list others.

5. Do you know any agencies in the Virgin Islands where you could refer a blind person for services? If yes, could you name them?

6. Sex: M _____ F _____

Would you marry a blind person? Yes _____ No _____

Would you object to your son or daughter marrying a blind person?

7. Which of the following handicaps do you consider more of a hardship to a human being? Rate them accordingly from most (1) to least (4).

Mental Retardation	Blindness	Deafness	Emotional
			Disturbance

Appendix D-II

Directed Interview

The questions were prepared for the directed interviews after a careful consideration of cultural factors such as: language usage, previous knowledge of terms, pre-tested stereotypes frequency, values of the social group, socio-economic conditions of a developing nation and cultural heritage.

Questions were designed after a through analysis of the results of a survey of attitudes toward blindness which was conducted by the Teacher Preparation Program in Puerto Rico and the Virgin Islands during 1970-1971. Interviews were conducted at the interviewed persons' offices or homes. The interviewer was instructed to note unusual reactions to the questions during the interview.

Directed Interview Questions

- I. Feelings and Emotions upon encountering a blind or severely visually handicapped person.
 - A. What do you feel when you encounter a blind person?
 - B. What do you feel when you encounter a severely visually handicapped person?
 - C. Which of the following terms describe emotions you have experienced at one time or another when encountering a blind person?

Directed Interview Questions

1. Pity
2. Sadness
3. Admiration
4. Guilt
5. Worry

6. An uncomfortable feeling
7. Curiosity
8. A little frightened
9. Would prefer not to encounter
10. Anxious
11. Others

D. Could you indicate why you feel this way?

II. Description of a blind person.

A. Which of the following conditions do you think better describe a blind person:

1. Unusual music talents
2. Greater concentration power
3. More spiritual insight
4. Greater tactual sensitivity
5. Better hearing
6. Lack of facial expression
7. Dependency on others
8. Need a dog, or cane
9. Must wear dark glasses
10. Moral impeccability

III. Professions, jobs and trades for blind persons

A. What jobs do you think a blind or severely visually handicapped can perform?

B. Do you think a blind person can perform any of the following jobs:

Doctor - general practitioner

Gynecologist

Surgeon

Orthopedist
Scientist
Laboratory Technician
Lawyer
Engineer
Architect
Sculptor
Economist
Professor
Elementary School Teacher
Secondary School Teacher
Administrator and Supervisor
Social Worker
Writer
Musician
Orchestra Director
Theater Director
Movie Director
Ballet Director
Piano player
Piano tuner
Any other instrument
Switch Board operator
Typist
Electronic operator
Electrician

Auto mechanic

Printer

Chauffeur

Work in manual trades: ceramics, caning

Broom and mop maker

Others

C. Vocational opportunities

1. What vocational opportunities do you see for blind persons in Puerto Rico?
2. Would you have any objections for a blind person to work under your supervision?
3. Have you ever worked with a blind person?
4. What sources of funds could you suggest in order to provide vocational opportunities for the visually handicapped in Puerto Rico?

IV. Education of the blind

- A. Which group of blind children would you educate if you had a choice of priority?
 1. Gifted blind children
 2. Average blind children
 3. Partially blind children
 4. Mentally retarded or multiple handicapped blind children
- B. Would you prefer that blind children be educated in special schools for the blind or in regular classes with the sighted?
- C. Why?

V. Personal relations with a blind person

A. Marriage

1. Would you marry a blind person?
2. Would you let your son or daughter marry a blind person?
3. Would you give him or her any kind of advice about marrying a blind mate?

- B. Do you have any blind relatives?
- C. Do you have any blind friend?
- D. Do you know any blind person?
- E. Have you ever had any blind student?
- F. Could you describe the most effective blind or severely visually handicapped adult you have encountered? What do you think made him effective?
- G. Could you describe the least effective? What made him ineffective?

VI. Expectations of visually handicapped persons

- A. Do you think a blind person can get married?
- B. Do you think he or she could have a home of his own?
- C. Do you think he could support a family?

I. Feelings and Emotions Upon Encountering a Blind or Severely Visually Handicapped Person

Percentage out of sample of 25 to the nearest whole percent. Percentage distribution of subjects according to sex: Male subject interviewed - 80 percent, Female subject - 20 percent.

A. What do you feel when you encounter a blind person?

Pity	70%
Need help	30%

In accordance with the interpretation of the interviewer these feelings appear to be influenced by the religious and cultural heritage of the Puerto Ricans.

B. What do you feel when you encounter a severely visually handicapped person?

Pity	70%
Need help	30%

C. Which of the following terms describe emotions you have experienced at one time or another when encountering a blind person?

Pity	70%
Sadness	80%
Admiration	90%

These feelings appear to be influenced by the religious and cultural heritage of the Puerto Ricans. Some admitted the admiration was conditioned by their previous encounters with blind persons.

D. Could you indicate why do you feel this way?

Guilt	0%
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None of the 25 subjects admitted to feel any guilt upon encountering blind persons.

Worry	80%	Twenty percent of the subjects qualified their answers by expressing concern about communication with the blind person or the nature of the circumstances involved in their relationship.
An uncomfortable feeling	30%	While 70 percent did not feel uncomfortable.
Curiosity	50%	Most of the interviewed were lacking in previous experiences (social and work) with blind persons.
A little frightened	10%	Female subjects pointed out they feared to become blind.
Would prefer not to encounter	50%	Did not want to be exposed to the misery of the handicap, in other words, to deal with them.
Anxious	20%	Female subjects experienced anxiety at the sight of a blind person.
Others	0%	The subjects interviewed concurred in that most feelings and emotions had been considered, and offered no other suggestions besides the ones mentioned.

Interviewer's observations: Most of these prominent Puerto Ricans interviewed exhibited negative attitudes toward blindness, but there was evidence during our conversation, that there is a trend toward and a receptivity to change.

II. Description of a blind person

Percentage out of a sample of 25
To the nearest whole percent

Observations

A. Which of the following conditions do you think better describe a blind person?

Unusual music talents	50%	Yes	50%	No			
Greater concentration power	50%	Yes	20%	No	30%	Cond.	Majority were convinced they are gifted with a superior power of concentration.
More spiritual insight	40%	Yes	30%	No	30%	Cond.	Most believe they are irreproachable.
Greater tactual sensitivity	90%	Yes	10%	No			
Better hearing	70%	Yes	30%	No			
Lack of facial expressions	0%	Yes	100%	No			
Dependency on others	25%	Yes	50%	No	25%	Cond.	
Need a dog or cane	70%	Yes	30%	No			One of the educators (female) went to extremes; she thinks the blind need no help, even from dogs or cane.
Must wear dark glasses	20%	Yes	80%	No			The majority accepted the blind need no glasses.
Moral impeccability	0%	Yes	100%	No			The majority felt they were not impeccable, however, two of the interviewed expressed blind were morally superior.

*Conditioned (Cond.) means the interviewed qualified or justified their answers.

III. Professions, jobs and trades for blind persons

Percentage out of a sample of 25
To the nearest whole percent

A. What jobs do you think a blind or severely visually handicapped can perform?

B. Do you think a blind person can perform any of the following jobs?

Doctor - general practitioner	70%
Gynecologist	10%
Surgeon	20%
Orthopedist	10%
Scientist	0%
Laboratory Technician	10%
Lawyer	90%
Engineer	50%
Architect	10%
Sculptor	10%
Economist	10%
Professor	90%
School teacher (secondary and elementary)	90%
Administrator and supervisor	20%
Social Worker	10%

Writer 10%

Musician 20%

There is a marked discrepancy between those who pointed out that the blind are gifted with an unusual musical talent and their willingness to accept the blind as a working musician.

Orchestra director 50%

Theater director 20%

Others subjects pointed out it could be done, but with sighted help.

Movie director 40%

Ballet director 10%

Piano player 10%

Piano tuner 20%

Any other musical instrument 10%

Switch board operator 10%

Typist 20%

Electronic operator 10%

Electrician 10%

Auto mechanic 10%

Printer 10%

Chauffeur 10%

(Interesting)

Working manual trades; caning, ceramics
broom and mop maker

40%

Greater tactual sensitivity.
Marked discrepancy between the
90% that pointed out and the 40%
that are willing to accept them
as a working class in manual jobs.

Interviewer's observations:

All these occupations were suggested by the interviewed subjects and were mentioned
at least once.

The answers were rated according to percentage of frequency during interview.

IV. Vocational opportunities

General opinion of interviewed subjects
About 80% agreement

1. What vocational opportunities do you see for blind persons in Puerto Rico?
2. Would you have any objections for a blind person to work under your supervision?
3. Have you ever worked with a blind person?
4. What sources of funds could you suggest in order to provide vocational opportunities for the visually handicapped in Puerto Rico?

Very few.

None. Few pointed out that blind persons must fulfill all requirements demanded of a sighted, in performing the same job.

Only the educators have had blind students.

U.S. Government, Puerto Rican Government, Private Agencies, and Civic Clubs. (Lions)

Interviewer's observations:

The interviewed subjects expressed that the problem of the blind is a serious one as far as vocational opportunities and place in society. They acknowledged the dearth of vocational opportunities in Puerto Rico but encouraged the development of new vocational opportunities for the visually handicapped in the community.

V. Education of the Blind

General Opinion

Observations

A. Which group of blind children would you educate, if you had a choice or priority?

Gifted blind children	100%
Average blind children	0%
Partially seeing children	0%
Mentally retarded or	0%
Multiple handicapped blind children	0%

The elite shows a tendency to perpetuate the elite on a society of their kind even if the gifted are handicapped. One of the educators qualified his answer by suggesting a high priority for educating the "normal or average" blind child, since this child would have less problems in adjusting to a regular or normal group.

B. Would you prefer that blind children be educated in special schools for the blind or in regular classes with the sighted?

Special schools

90%

The educators, nevertheless, accepted they could be integrated in regular schools.

C. Why?

Most of the interviewed subjects agreed that the blind children should be placed together and be educated by special teachers.

VI. Personal relations with a blind person

Percentage

A. Marriage

- | | |
|--|----------------|
| 1. Would you marry a blind person? | 80% Yes 20% No |
| 2. Would you let your son or daughter marry a blind person | 50% Yes 50% No |
| 3. Would you give him or her any kind of advice about marrying a blind mate? | 80% Yes 20% No |

B. Do you have any blind relatives?

Most of them said no.
There is a tendency to deny handicaps in our culture.

C. Do you have any blind friends?

Most of them said no.

D. Do you know any blind person?

Most of them said no.
There is still a tendency in the Puerto Rican culture to segregate the handicapped from the normal population, as evidenced by comments made during the interview, which show the general desire to build a city for the blind.

E. Have you ever had a blind person as a student?

Most of the educators have had blind students in their college classes. One of the educators just recalled his experiences with the most intelligent blind students.
Another educator recalled his experience with both, intelligent and incompetent blind students.

- F. Could you describe the most effective blind or severely visually handicapped adult you have encountered? What do you think made him effective?

The subjects admitted that the blind who are very intelligent had a great desire to succeed in life and overcome their handicap.

Those who had been in contact with successful blind students attributed their effectiveness to: intelligence, ability, talent, and high moral values.

- G. Could you describe the least effective? What made him ineffective?

Most subjects expressed that bitterness, stupidity, and ill feelings toward self and the sighted world contributed to the apparent failure of blind persons they have known. An apparent lack of acceptance of the handicap was also given as a reason for failure.

VII. Expectations of visually handicapped persons

Outlook on future of blind person as perceived by some of the interviewed	Percentage
A. Do you think a blind person can get married?	100% Yes
B. Do you think he or she could have a home of his own?	100% Yes
C. Do you think he could support a family?	100% Yes

The unusually optimistic and positive response to these questions offer an interesting contrast, to previous reactions to items in the vocational opportunities section, and the feelings and emotions sections of the interview.

The interviewer interprets these reactions to be socially acceptable for people belonging to an elite group. Gestures and facial expressions were detected indicating uneasiness when these positive answers were given.

Appendix F

Structured Observation Guides

Subsequent to one year of attempts to develop, test, and evaluate an instrument which would make it possible to facilitate in a practical and expedient manner the identification of areas of educational needs for the visually handicapped in Puerto Rico, the following Observation Guides were designed. This was made possible by the combined efforts of project staff, student interns, research consultants, and a panel of successfully employed visually handicapped Puerto Ricans who approved of the contents of these four guides as adequate instruments for the identification of educational needs.

STRUCTURED OBSERVATION GUIDE I

Note the following aspects to be observed carefully during your visits

	GOOD	FAIR	DEFICIENT	NOT OBSERVED
I. FACILITIES				
A. Physical				
1. classroom				
2. illumination				
3. ventilation				
4. appearance				
5. arrangement of desks and other furniture				
B. Recreational				
1. gym				
2. pool				
3. playroom				
4. music room				
5. outside play equipment				
C. Library - Please note the following while observing in the library				
	MANY	SOME	NONE	NOT OBSERVED
1. students using:				
a. braille books				
b. talking books				
c. tape recordings				
d. large type books				
e. sighted readers				

STRUCTURED OBSERVATION GUIDE II

A. DIDACTIC MATERIALS	ENOUGH	FEW	NONE	NOT OBSERVED
1. Braille books				
2. Large type books				
3. Writing equipment				
a. slate				
b. stylus				
c. sight saving pencils				
d. braille paper				
e. sight saving paper				
4. Reading equipment				
a. braille writers				
b. regular typewriters				
c. large typewriters				
d. magnifiers				
e. special reading lamps				
f. recorders				
g. talking books				
h. abacus				
i. Taylor slates				
j. other math aids				

STRUCTURED OBSERVATION GUIDE III

EXCELLENT GOOD SATISFACTORY DEFICIENT POOR

A. Class observation

1. Motivation
2. Student participation
3. Individual tasks
(when needed)

ALL ALMOST ALL SOME A FEW NONE

B. Students in classroom

1. Listening attentively
2. Participating spontaneously
3. Initiative in contributing unrequested ideas, materials, articles, and comments
4. Are interested in school work

STRUCTURED OBSERVATION GUIDE IV

Skills in Orientation and Mobility

EXCELLENT GOOD REGULAR DEFICIENT

1. Classroom organization to facilitate mobility.
2. Student orientation to
 - a. office
 - b. lunch room
 - c. music room
 - d. bathrooms
 - e. recreation area
 - f. other classrooms
 - g. dormitories
3. Mobility in the classroom
4. Mobility outside the classroom but in the school setting.

ENOUGH FEW NONE NOT-OBSERVED

5. Other instructional aids
 - a. relief maps
 - b. puzzle maps
 - c. globes
 - d. large type maps
 - e. special teacher

Appendix G-I

Minimum Competencies for Teachers of the Visually Handicapped

The teacher of the visually handicapped should indicate by his performance in the teaching situation that he has acquired the following competencies:

A. Diagnostic Competencies

1. Knowledge of:

- a. formal evaluation tools and standard tests
- b. informal evaluation
- c. medical and anecdotal records
- d. functional visual assessment

2. Skills in:

- a. administering standard tests and instruments
- b. skills in administering informal tests
- c. reading and interpreting
- d. administering and interpreting functional visual assessment

B. Planning implementation competencies

1. Knowledge of:

- a. flexible lesson planning
- b. modules
- c. prototype
- d. curricular adaptation
- e. special instructional materials

2. Skills in:

1. implementing a lesson modules
2. preparing and utilizing modules
3. bringing reality through lesson using "soft and hard ware"
4. using curricular adaptation
5. selecting and using a special instructional materials

C. Evaluation competencies

1. Knowledge of:

- a. formal evaluation techniques (aptitude, achievement, etc.)
- b. informal evaluation procedures
- c. self evaluation
- d. course evaluation techniques

2. Skills in:

- a. using and interpreting formal evaluation techniques
- b. using and interpreting informal evaluation techniques
- c. interpreting self evaluation check lists
- d. interpreting feedback from course content evaluation

Appendix G-II

Forma (Form) SE - 1.1

CUESTIONARIO DE EGRESADOS
(Graduate Questionnaire)

Nombre (Name) _____

Fecha de Graduación (Date of Graduation) _____

Dirección (Address) _____

Area de especialización en el Colegio de Pedagogía _____
(Specialization in which trained at College of Education)

Grado obtenido (Type of Certificate (s) Held) _____

Especialización en la que trabaja _____
(Specialization in which working)Información sobre Ayuda Económica
(Financial Support Data)¿Recibió ayuda económica del Programa como becado o interno? (Sí) (No)
(Did you receive financial support while at the College?) (Yes) (No)Si la contestación es afirmativa, favor de contestar lo siguiente:
(If the answer is yes, complete the following):

Año (Year) _____

Cantidad de ayuda económica (Amount of Financial Aid) _____

Período de duración (Duration of aid) _____

Plaza o empleo presente
(Current Position Placement)

1. Tipo de plaza o empleo (Position type)

Administrador (Administrator) _____

Supervisor (Supervisor) _____

Prof. Universitario _____

(College University Prof.) _____

Maestro Regular _____

(Regular classroom teacher) _____

Investigador (Investigator) _____

Maestro Itinerante (Itinerant teacher) _____

Maestro salón recurso _____

(Resource classroom teacher) _____

Terapista del Habla (Speech Therapist) _____

Audiólogo (Audiologist) _____

Otros (Other) _____

2. Nivel Educativo (Education Level):

Pre-escolar (Pre-school) _____

Elemental (Elementary) _____

Secundaria (Secondary) _____

Combinado (Combined) _____

3. Lugar de Trabajo (Placement Type):

Clinical/Hospital

(Clinic/Hospital)

Agencia de comunidad

(Community agency)

Colegio/Universidad

(College/university)

Agencia Federal

(Federal agency)

Práctica privada

(Private practice)

Distrito escolar público

(Pub. sch. district)

4. Evalúe la labor que desempeña en su trabajo. Evalúe sus competencias en el trabajo. Indique con marca de cotejo (). (Rate your performance on the job. Indicate with check mark ().

 inadecuado
(inadequate)

 Superior

5. Indique con marca de cotejo la eficiencia con que el Programa de Educación Especial del Colegio de Pedagogía lo preparó para su empleo actual. (Rate how well your Program at the College of Education prepared you for your present position)

 inferior

 superior

6. El Programa en mi especialización en el Colegio de Pedagogía puede ser mejorado si: (The Program in my specialization at College of Education might be strengthened by:)

7. Comentarios: (Comments):

Appendix H

Area of the Visually Handicapped
Project Interns 1973-74

I. Puerto Rico

- | | |
|------------------------|------------------------|
| 1. Aida Delgado | 12. Justina Vázquez |
| 2. Gloria Ortiz | 13. Lydia Usero |
| 3. Glorianne Román | 14. Milagros Hernández |
| 4. Marilú Semidei | 15. Hazel Maymí |
| 5. Carmen Arvelo | 16. Rose Serrano |
| 6. Sonia Ibarra | 17. Roberto Rosa |
| 7. Miguel Ortiz | 18. Linda Ingellis |
| 8. Crucita Morales | 19. Marta Soto |
| 9. Georgina Ortiz | 20. Ivette Martínez |
| 10. Aida Morales | 21. Alexis Fernández |
| 11. Mercedes Guadalupe | |

II. Virgin Islands

1. G. Young Holly
2. Minnetta Mitchell
3. Grace Mc.Intosh
4. Joyce Dunlop
5. Cora Crawford
6. Eleanor Donastorg
7. Yvonne Wells
8. Ronalyn Hite
9. Noel Donastorg

Special Project Staff and Consultants
June 1st, 1970 - June 30, 1974

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 Project Coordinator - Puerto Rico - Eladia R. de Hernández
 Project Coordinator - Virgin Islands - Edwin L. White
 MPR Center Coordinator - Humberto Hernández
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1975 AND BEYONDPost Project thoughts from the Project Director

Many of the activities which were initiated during the four years of the Project are still on going. Significant among these activities is the work on the Spanish Braille Code Grade II. This is the first scientifically contracted braille system in Spanish based on word-frequency studies. Frequencies for more than 10,000 words were obtained and contractions have been assigned according to each word's frequency. It is expected that the braille code will be ready by June 1975.

The Project also initiated programs for the visually handicapped in the public schools system, stimulated the development of a public library for the visually and physically handicapped and provided needed orientation programs to various communities in Puerto Rico and the Virgin Islands. However, the impact of our work has gone beyond the United States territories. It has reached Latin America through workshops, publications and consultantships. Brazil, Colombia, Peru, Ecuador, Argentina, Paraguay, Chile, Venezuela, Costa Rica, and Guatemala have received direct or indirect benefits from our Project.

Future requests for assistance include Trinidad-Tobago and Paraguay, both of which are interested in recommendations for long-range planning of services to visually handicapped children and youth.

Graduates from this Program are presently serving the visually handicapped and the multihandicapped deaf-blind throughout Puerto Rico, the Virgin Islands and the United States mainland. A detailed follow-up

study of the graduates has been conducted as part of the Special Education Program at the College of Education, University of Puerto Rico. This study will provide meaningful data on our graduates and will be available by the end of the academic year 1975-76.

I would like to take this opportunity to express my appreciation to the American tax payers who through their government and especially its Bureau of the Handicapped, United States Office of Education, Department of Health, Education and Welfare, provided funds of more than \$250,000 to carry out this Project.

The "spin-off" effect of such support has been significant and the benefits in trained personnel, research, and services, as well as prestige for the nation, have been immeasurable.

Our special appreciation goes to Dr. John Haskell for his invaluable assistance in editing this final report.

Respectfully submitted,

José R. Santana, Ed.D.