

OSCAR E. PORRATA, Ed. D.

Dean, College of Education, University  
of Puerto Rico.

EDUCATIONAL RESEARCH IN PUERTO RICO  
WITH SPECIAL REFERENCE TO WORK  
ALREADY DONE AND TO PRIORITIES  
FOR THE FUTURE \*

INTRODUCTION

The Commonwealth of Puerto Rico has developed an American system of public education comprehending the principal types of institutions from the elementary schools to the professional schools of the University. This system has grown so rapidly and is now so firmly established that it would not be

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an exaggeration to say that there is no parallel achievement in the history of education in the Western Hemisphere. Yet, research in the field of education in Puerto Rico has not kept pace with this unparalleled development of public education. Educational research has not even kept relative pace with other areas of man's endeavor. Probably this lag in educational research is due, in large measure, to the absence of a graduate school at the University of Puerto Rico; to inadequate financial support; to the nature of education, which like all the social sciences, presents the complexities of human beings and of their organizations and institutions and consequently, requires an acquaintance with a whole series of background disciplines such as philosophy, psychology, sociology, political science, economics, statistics, and architecture; to insufficient reward to researchers; and to the fact that the findings of research done in continental United States have been used in the developments of school organization, school buildings and sites, administrative procedures, teacher training, and curriculum.

However, it is very stimulating to know that during the last decade and especially, during the last five years, a larger body of significant research has been produced. It varies in purpose and in methods, and covers a wide range of topics, from the search for an educational philosophy to the preparation of better text books for the public schools and the study of student academic efficiency at the University of Puerto Rico.

Several factors have contributed to the acceleration of productive research during the last few years. In the first place, a mention should be made of the express mandate given by the Legislature of the Commonwealth of Puerto Rico to the Superior Educational Council of the University of Puerto Rico to survey the educational situation in Puerto Rico and to conduct studies, from time to time, of the educational problems of the Island; secondly, the movement from Operation Lament to Operation Bootstraps which has characterized the whole administrative set up under the present government; and thirdly, the increasing number of students of education who are going to the United States to pursue advanced studies in colleges and universities and

who are required to submit a thesis as partial fulfillment for their doctor's degree.

## A PHILOSOPHY OF EDUCATION

Three recent important studies which have thrown much light and have given pertinent facts and orientation toward the development of a sound philosophy of education for the schools of Puerto Rico are *Culture and Education in Puerto Rico*,<sup>1</sup> *Puerto Rico's Economic Future*,<sup>2</sup> and *Patterns of Living in Puerto Rican Families*.<sup>3</sup> The adequacy of these three research studies is based on the fact that a proper plan of education is both child-centered and culture-and-society centered. It is very important that educators and school administrators be keenly aware of the tensions, conflicts, aspirations, problems, and trends of a people before talking seriously about the orientation of their educational system or the making of the curriculum. These tensions, conflicts, problems, and aspirations constitute the basic challenge to the public school.

*Culture and Education in Puerto Rico* initiates "the investigations which are necessary for the formulation of an educational philosophy for Puerto Rico based on the directions which Puerto Rican culture is taking at present, as a result of cultural interaction." The study presents the four most important movements in Puerto Rican culture and their implications for the development of an educational program. As stated by Mellado,<sup>4</sup>

Puerto Rican society is moving from a state of confusion in political thinking to a more enlightened situation. Everything seems to indicate; 1) that the people desire complete political liberty and a democratic form of government, either as a state of the Union, as a dominion, or as a republic; 2) that they request eco-

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<sup>1</sup> Ramón Mellado, *Culture and Education in Puerto Rico*. San Juan, P. R. Bureau of Publications, Puerto Rico Teachers Association. Educational Monograph No 1, 1948.

<sup>2</sup> Harvey S. Perloff, *Puerto Rico's Economic Future*. Chicago, Illinois, The University of Chicago Press, 1950.

<sup>3</sup> Lydia J. Roberts and Rosa Luisa Stéfani, *Patterns of Living in Puerto Rican Families*. University of Puerto Rico, 1949.

<sup>4</sup> Mellado, *op. cit.*, pp. 13-14.

conomic security together with political liberty; and 3) that they are inclined to closer and closer relations with the United States of America, but on a plane of good will and mutual cooperation.

Puerto Rican society is moving from traditional individualism to socialization.

Puerto Rican society is moving from religious intolerance to religious freedom and from a conservative to a liberal interpretation of the religious experience.

Puerto Rican society is moving from idealism to experimentalism.

At the end of the study the author gives a series of educational aims which he considers as derivatives of these four cultural trends.

“If Puerto Rican society is moving from a state of confusion in political aspiration to a more enlightened position characterized by a strong desire for complete political liberty and for a democratic form of government with economic security, and a tendency toward closer and closer relations with the United States of America on a plane of good will and mutual cooperation, it is necessary:

- a. To develop a feeling of membership in a common culture;
- b. To develop a strong desire for political liberty with economic security;
- c. To develop close and cordial relations with the countries of the Americas, especially with the United States; and
- d. To develop a social discipline, indispensable for the rapid progress of the country.

If Puerto Rican society is moving from traditional individualism to socialization, it is necessary:

- a. To prepare skilled producers and consumers; the limited resources of the island and its rapidly growing population demand the utmost efficiency in production and consumption.
- b. To create in the Puerto Rican people a spirit of public service which will lead them to respect public property as their own, to share the benefits of property and production, and to work unceasingly in order to leave to their descendants a country with better standards of living.

If Puerto Rican society is moving from religious intolerance to

religious freedom and from a conservative to a liberal interpretation of the religious experience, the only aim that the schools can foster concerning religious instruction is:

- a. To teach the basic principles of Christian ethics.

If Puerto Rican society is moving from idealism to experimentalism, it is necessary:

- a. To develop an attitude of self-reliance among the people of the Island; and
- b. To develop the experimental temper in so far as that is possible.”<sup>5</sup>

*Puerto Rico's Economic Future* “appraises the nature, accomplishments, limitations, failings, and possibilities” of the Puerto Rican situation and of the measures and programs which have been tried out or are under way to foster production, efficiency, and democracy. It presents a clear and objective picture of the Puerto Rican economy, its characteristics and trends; of the population problem, with suggestions to its control; and of the principles and programs of planned economic development. The study is supplemented with a series of well selected appendixes and is illustrated with 20 charts and a list of 99 tables.

Perloff's study constitutes the best over-all-portrait of contemporary Puerto Rico and should be the basis for the orientation and preparation of both the elementary and the secondary school curriculum, if the school is to become “the place where learning and living converged.”

In the discussion of the “Problems and Techniques of Population Control,” chapter 13, pages 212-217, the author refers specifically to education as an effective means in the solution of the problem of population and gives to the development of a thorough going long-term education program a position of priority in the island's efforts toward self-improvement. His recommendations are quoted hereunder.<sup>6</sup>

Heroic efforts will be required to meet the educational needs. The development of a thoughgoing long-term education program

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<sup>5</sup> Mellado, *op. cit.*

<sup>6</sup> Perloff, *op. cit.*, pp. 215-217.

would seem to be the necessary first step. In broad outline such a program might include some of the following elements:

An increase in the appropriations for education. Such an increase can come, in the first instance, from (long-overdue) improvements in the tax system but will also require a reduction in appropriations for other public purposes. The latter is largely a question of social priorities; under the existing circumstances, education must be considered to have first call on social service moneys.

The institution of a system of priorities within the educational system itself. The needs are great at all levels, but the most urgent need of all is for a primary education for all children. This would require an adjustment not only in school expenditures but also in teacher training, salaries and status, and in school administration generally.

The adoption of an all-out campaign to give every child in Puerto Rico at least six to eight years of schooling. The obstacles to the fulfilment of such a program are certainly formidable, but the benefits to be derived are of such inestimable proportions that the finest efforts of which the island is capable are called for.

The problem of children's earnings and help on the farm must be met squarely. Certainly, in rural areas where children are required to do farm work, the school year and the school day should be adjusted to these needs. The experiences of the Scandinavian folk school are worthy of careful study in this connection, as well as for the other valuable lessons they offer.

In the urban section as well, the educational program must be tied to the needs of the wage-earning families. Children from families whose income rarely exceeds several hundred dollars a year cannot be expected to maintain a sustained interest in education unless their schooling is tied closely and at a fairly early age to the pressing need for earning a living. This is not to imply, of course, that training for citizenship and for the enjoyment of the finer things in life and of the world's culture should be starved in the school curriculum. Such training, in fact, must be at the very heart of the school program if education is to contribute to a solution of the urgent population problems of the island. But, at the same time, the educational program can be successful only if children can *afford* to stay in school until they have acquired at least six years of schooling.

An expansion of the scope of the education program and the broadening of educational techniques. If a sense of responsibility for the welfare of children, desire for the achievement of higher living levels, and the other attitudes which bring about a desire for smaller families are to be inculcated in the masses of the people, education in Puerto Rico will have to be greatly expanded in scope. Adult education, extension courses, conferences and fairs, traveling theaters, and traveling exhibits should increasingly become an integral part of the educational system. Sound trucks could be employed to bring news and entertainment as well as some useful instruction to outlying rural areas. In every way possible, education should go out to the people, and the school should become a center of community life. It is probable that adult education, carried out through unions, farm groups, civic and church groups, would make a significant contribution. The insular government is currently making a concerted effort to expand the program of adult education. This is an effort which certainly deserves every encouragement.

The value of an extensive educational program goes far beyond its possible contribution to the solution of the problem of population pressure. Conceived in terms of extending the development of an integrated culture on the island, of furthering the democratic goal of permitting every member of the community to develop his potentialities to the full, and of inculcating in the people a desire for social contribution, such a program becomes the foundation stone of all progress. It is because education can serve such ends and, at the same time, be an integral part of a program of population control that its value cannot be overestimated.

*Patterns of Living in Puerto Rican Families* uses the conditions of living in Puerto Rican families as a basis for education and action programs directed toward the improvement of family living.

A sample of 1044 families was so selected as to be representative of the Island and trained investigators visited the homes and through interviews and observations secured information on all major physical factors of family life: the house with its equipment and furnishings; facilities for obtaining water, and disposal of waste; foods available, types of meals,

and dietary customs; conditions for eating, sleeping, bathing; care of mother during pregnancy and of mother and baby after birth, and other significant items. These factors were related to the size and make-up of the family, the occupation and income, and to urban and rural zones.

The findings are presented in 230 tables with accompanying text and with numerous charts and illustrations. The volume is now being used by all Island agencies as a guide in programs concerned with family living problems. It constitutes a very reliable source for the preparation of courses of study in family living in Puerto Rico.

#### ORGANIZATION AND ADMINISTRATION OF PUBLIC EDUCATION

The organization and administration of public education in Puerto Rico has been a problem of some concern to researchers on the Island. In *A Suggested Policy for the Administration and Control of Public Education in Puerto Rico*,<sup>7</sup> Dr. Oscar E. Porrata presents an analysis of the authority granted by the Organic Act of Puerto Rico to the Commissioner of Education and to the Insular Legislature on matters related to the administration and control of public education. In this study the author suggests a new policy for the administration and control of the public schools on the basis of sound, democratic principles of public school administration with the intention of pointing a way to the U. S. Congress of changing the method of administering public education in Puerto Rico that is consistent with the best educational practice in the United States.

With the approval by the U. S. Congress of the Butler-Crawford Reform Act, on August 5, 1947, and with the adoption of the Constitution of the Commonwealth of Puerto Rico in July, 1952, action was taken with reference to many of the recommendations made in this study.

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<sup>7</sup> Oscar E. Porrata, *A Suggested Policy for the Administration and Control of Public Education in Puerto Rico*, Rio Piedras, P. R., Bureau of Publications, Puerto Rico Teachers Association, Educational Monograph N° 2, 1949.



In *Retardation in the Elementary Urban Schools of Puerto Rico*<sup>8</sup> the author gathered data to determine the nature and extent of retardation in the elementary urban schools of the Island, and to discover the factors which have influenced retardation in these schools and the remedial measures employed to lower it.

It was found that about 39.0 per cent of the pupils enrolled were retarded. The percentage of retarded pupils was very far above that of accelerated pupils, a condition which revealed that the movement of children through the grades was not in accordance with current educational practices.

The percentage of retardation was lowest in the first grade, and highest in the fifth grade. The percentage of retardation increased from the first to fifth grade, and then decreased gradually up to the eighth grade. This was due to the cumulative tendency of retardation, and the reduction in the upper grades was partly a result of elimination.

The main reason for retardation was the large number of failures resulting from poor promotional practices and courses of study unsuited to the needs and capacities of the Puerto Rican children. The adoption of differentiated curricula, provision for individual adjustments, the formulation of progress policies, and the employment of well-trained teachers were among the recommendations given by the author to lower the retardation of children.

*Problems of Education in Puerto Rico*<sup>9</sup> presents a general panorama of the main educational problems of Puerto Rico with the aim of studying each one separately and of offering suggestions for their solution. The study has two parts. The first part analyzes several of our school problems: illiteracy, double enrollment in the schools, school mortality, retardation, failures, inadequate preparation of teachers, limited physical plant, in-

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<sup>8</sup> Oscar E. Porrata, *Retardation in the Elementary Urban Schools of Puerto Rico*. San Juan, P. R., the University of Puerto Rico Bulletin, Series X, N° 1, Bureau of Supplies, Printing and Transportation, 1940.

<sup>9</sup> Ismael Rodríguez Bou et al., *Problems of Education in Puerto Rico*, 287 p. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1947.

adequate library facilities, and insufficient educational budgets. The second part is devoted to an evaluation of the reading material in the schools of the Island. The facts revealed by the study of these problems give a clear picture of the school situation with special mention of the weak spots that demand urgent administrative action.

## THE CURRICULUM

According to Rugg,<sup>10</sup> a profound concept for curriculum-building is obtained from "the combined contribution of the child-centered, the society-centered, and the social-heritage-centered schools taken together." "All that we have discovered about the new sociology, psychology, esthetics, and ethics," he says, "comes to our service at this moment." The acceptance of this point of view probably was the main motive for the numerous studies on the curriculum which have been undertaken by the Superior Educational Council of the University of Puerto Rico, under the able direction of its Secretary, Dr. Ismael Rodríguez Bou. The subject has attracted the attention of another recent researcher, Dr. Efraín Sánchez Hidalgo. As may be judged by the information given hereunder of the various studies which are reported, recent educational research in Puerto Rico has considered the three main problems of curriculum-development: the problem of philosophy, the first problem of subject-matter — its selection, and the second problem of subject matter — its organization. The problem of philosophy was treated in the research done by Mellado,<sup>11</sup> Perloff,<sup>12</sup> and Roberts.<sup>13</sup> Their findings are related also to the problem of subject-matter, and together with the studies reported hereunder, offer valuable data and recommendations relative to the selection and organization of subject-matter in curriculum development.

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<sup>10</sup> Harold Rugg, *Foundations for American Education*, New York, World Book Company, 1947.

<sup>11</sup> Mellado, *op. cit.*

<sup>12</sup> Perloff, *op. cit.*

<sup>13</sup> Roberts and Stéfani, *op. cit.*

*The University of Puerto Rico Spanish Word Count*<sup>14</sup> has manifold purposes. Witness,

“to prepare a Spanish word count based on frequency of use.”

“to have vocabulary lists based on frequency of count available for various uses in the elementary school.”

“to provide an instrument to facilitate the teaching of vocabulary to those who study Spanish as a second language.”

“to help in the establishment of vocabulary norms for the writing of school readers adapted to the needs of Spanish speaking children, in general, and of Puerto Rican children in particular.”

This word count used 7,066,637 words from ten different sources. The count is published in two volumes. Volume I contains the most frequent lexical and inflectional units in order of rank and frequency. They also appear in additional lists alphabetically arranged. Volume II includes the weighted frequencies of all lexical and inflectional units in the ten different sources used. Furthermore, it shows the frequencies of the vocabulary of recognition, expression, and of the reading texts used in the elementary schools of the Island.

All variations in the form of the words were counted separately. All words were counted except those that were illegible and those invented by the students. The lists contain mainly Spanish words, although regional words and neologisms appear, indicated as such.

The first source of vocabulary of expression was the oral conversation of children, heretofore not included in vocabulary lists, or included in limited amounts, because of the difficulties involved in obtaining it. Samples were obtained in the classrooms, in playgrounds, in corridors, and in school lunchrooms.

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<sup>14</sup> Ismael Rodríguez Bou *et al.*, *Recuento de vocabulario español*. Trabajo de investigación auspiciado por el Consejo Superior de Enseñanza, Universidad de Puerto Rico, Río Piedras, P. R., Vol. I, 1952.

The total of running words from the oral speech amounted to 1,073,245. From written vocabulary 926,404 words were obtained.

The book is of great value to those who teach Spanish as a second language, as well as to those who teach it as the vernacular. The lists are usable in the preparation of basic readers; in the teaching of vocabulary; in the preparation of reading materials for people of different ability and culture, for translation purposes, and in the preparation of radio scripts.

*Written Composition in the Elementary School.*<sup>15</sup> The purpose of this study was to find out the main interests of elementary school children and to enumerate, compare and analyse their most frequent errors in written expression. It also aimed to give some suggestion to the elementary school teachers of Puerto Rico with reference to the improvement of written composition in Spanish the material used for this study was obtained during the school years 1945-46 and 1947-48. It consisted of compositions written by students of elementary schools on topics of their own choice. The sample represented the entire Island.

The authors present a series of recommendations to eradicate the errors committed by children and to stimulate originality and creativeness in written composition. The study, if properly used by classroom teachers and supervisors of Spanish, is a very valuable asset for the improvement of language expression in the elementary school program.

*Oral Expression in the Elementary School.*<sup>16</sup> This study consists of two parts. The first deals with students' interest as revealed through their spontaneous selection of themes. The second part deals with errors in oral language. The study complements the findings of the study on written composition which was undertaken previously by the Superior Educational Council.

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<sup>15</sup> Ismael Rodríguez Bou *et al.*, *La composición escrita en la lengua elemental*. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1949.

<sup>16</sup> Ismael Rodríguez Bou *et al.*, *La lengua hablada en la escuela elemental*. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1952.

The findings of this study are very revealing. Some of them are enumerated hereunder:

- a) The analysis of oral conversation among elementary school children is a good means to discover interest and preferences.
- b) Children in primary grades show preferences for themes that bear relation to family life. In the upper grades the themes are related to personal experiences, occupations, amusements, holidays, and organized sports.
- c) Children in urban schools reveal a wider variety of interests than those in rural schools.
- d) Errors of syntax are more numerous than errors of morphology.
- e) Morphological errors diminish as the students advance in school; syntactical errors fluctuate.
- f) No error is typical of any grade or zone.

The study includes a series of recommendations to improve oral expression in the elementary grades.

*A Study of the Chromatic and Illustrative Preferences of Elementary School Children in Puerto Rico.*<sup>17</sup> The purposes of this study were: 1) To ascertain the color preferences of elementary school children for book covers and pictures; 2) to discover preferences for types of illustrations, and 3) to find out on what part of the page children prefer the illustrations to appear.

A representative sample of 2,496 elementary school children was obtained. It included boys and girls in more or less equal numbers of grades III, IV and VI from both the urban and the rural zones of eight small and seven big towns in the north, south, east, and west sides of the Island.

Children were requested to select the color they liked best from a display of primary and secondary color cards. These cards were removed and five shades of the color chosen were

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<sup>17</sup> Ismael Rodríguez Bou *et al.*, *Estudio sobre preferencias cromáticas y tipos de ilustraciones*. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1950.

shown, among the following: very light, light, normal, dark, and very dark. Children chose their favorite two-color and three-color combinations, and their favorite type of illustration. Answers were recorded accordingly.

As a result of this study the authors recommend that the covers for primary grades text books should display a rich tone of blue or red. In the upper grades the covers may be blue, green or yellow. Bichromatic covers in blue and red, blue and violet, blue and yellow, as well as three-colored covers in blue, orange, yellow; blue, red, yellow; or blue, red, green meet the approval of children in the elementary school.

Illustrations should be as life-like as possible and in the children's favorite colors. They may be of a full page size, or may be presented on the upper half of the page. Illustrations should never divide the printed part of the page.

*A Study of the Symbiotic Relationship Between Friends*<sup>18</sup> has as its objectives:

1. To explore the roles of behavior and needs in friendship formation.
2. To explore the possibility of psychological complementation as the basis for explaining friendship, instead of the oft-given factors.
3. To explore sex differences with regard to the friendship phenomenon.
4. To determine the educational and psychological implications of the friendship phenomenon.

Puerto Rican subjects within the ages of 16 to 25 years were used in the study. Twenty mutual male pairs and twenty mutual female pairs of friends were selected from a list of 120 reported mutual friendships. The association has existed for not less than one year. At least one member in each pair was a

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<sup>18</sup> Efraín Sánchez Hidalgo, *A Study of the Symbiotic Relationships Between Friends*. Ph. D. Dissertation, Faculty of Philosophy, Columbia University, New York, c1951. A microfilmed copy can be obtained from University Microfilms, Ann Arbor, Michigan. A copy of the microfilm is deposited in the General Library, University of Puerto Rico.

student at the College of Education of the University of Puerto Rico. All subjects were residents of the so called Metropolitan Area of San Juan, Puerto Rico.

The author formulates a theory of friendship comprising the following aspects:

- a) Friendship as a psychological symbiosis.
- b) The dynamic nature of friendship.
- c) How cultural factors foster or impinge friendship formation.
- d) The integrative nature of mutual friendship.
- e) The imperfect nature of mutual friendship.
- f) Needs satisfied by friendship.
- g) Sex differences in friendship.
- h) Mutual best-friendship as a reliable index of social and emotional immaturity.

The study is very interesting and throws much light in the interpretation of the conduct of adolescents, both at home and in the schools. The schools need to understand better the friendship phenomenon in order to be of help to the students in establishing and maintaining friendly relations with a plurality of individuals. Inasmuch as adolescents in secondary schools need more orientation in the area of friendly association with peers, the study should be well known by teachers and principals of secondary schools.

## ADULT EDUCATION

Adult education constitutes one of the important phases of the Puerto Rican public education program, and has been receiving considerable attention through various government agencies, such as the Agricultural Extension Service, the Vocational Education Division, the Rehabilitation Office of the Vocational Education Division, Workers Education, the Recreation and

Sports Office, the Health Program of the Department of Health, the University Extension Service, Public Libraries, and others. Aware of this important service the Superior Educational Council of the University of Puerto Rico undertook two research studies on adult education on the Island. The first study, *Analysis of Publications for Adults*,<sup>19</sup> aims to analyze all types of publications intended for adult education with a view to their improvement. The second study<sup>20</sup> is a survey of the adult education programs under way in Puerto Rico and its main purpose is to help the institutions sponsoring such programs to improve them. Both studies are intimately related.

In the first study over 250 pamphlets, bulletins, leaflets, periodicals, and circular letters were examined. They were mostly from the Agricultural Extension Service the Experimental Station of the University of Puerto Rico, the Department of Agriculture and Commerce, the Department of Health, and the Department of Labor. Both the good and weak points of the publications are pointed out. The evaluation is made in terms of subject treated, degree of difficulty of material used, vocabulary, length of sentences and paragraphs, general tone of expression, and appearance and length of publications. The authors conclude that publications intended for fundamental education should evince, among others, the following characteristics:

- a) They should be brief and clear in their exposition. Sentences and paragraphs should be short.
- b) The exposition should be abundantly illustrated with clear and adequate illustrations.
- c) Material should be presented in various ways: through dialogues, interviews, questions and answers, and other forms that may stimulate the reader's interest.
- d) Touches of humor should be inserted with relative frequency. Riddles, short humorous poems, brief anecdotes, cartoons, il-

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<sup>19</sup> Ismael Rodríguez Bou *et al.*, *Análisis de publicaciones para adultos*. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1947.

<sup>20</sup> Ismael Rodríguez Bou *et al.*, *Educación de adultos: orientaciones y técnicas*, Universidad de Puerto Rico, 1952.



lustrated stories, and jokes should alternate with straight narration and exposition.

- e) The type of the letter in all printed material should not be less than 12 points. The pocket size publication should be preferred.

*Educación de adultos* is divided into two parts. The first part presents the philosophical and psychological principles that govern a modern adult education program. A discussion of adult interests included together with a tentative program of teacher education for adults. The second part has to do with the work being done in Puerto Rico in adult education.

Both studies contain valuable material and information relative to the education of adults, and could be advantageously used by those agencies in charge of adult education programs.

#### STUDENT'S PROGRESS

The research done relative to the progress of students throughout their educational experience are entitled *High School Academic Indices as a Criterion for College Admission*<sup>21</sup> and *Study of Students, Academic Efficiency, at the University of Puerto Rico*.<sup>22</sup> Both studies were undertaken by the Superior Educational Council of the University of Puerto Rico.

The method used in the first study was as follows: Grades made in the University of Puerto Rico during the year 1945-1946, by 853 freshmen students from 57 different high schools of Puerto Rico were compared with the grades received in high school by the same students. The University grades received by each student in all completed courses were averaged. Similarly, an average of high school grades was computed for each stud-

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<sup>21</sup> Ismael Rodríguez Bou et al, *Estudio de los índices académicos de escuela superior como criterio de admisión a la Universidad*. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1947.

<sup>22</sup> Ismael Rodríguez Bou et al, *Estudio sobre varios aspectos del aprovechamiento académico en la Universidad de Puerto Rico*. A study undertaken by the Superior Educational Council of the University of Puerto Rico, Río Piedras, P. R., 1948.

ent. High school averages were compared with the University averages and a coefficient of correlation was obtained. A regression equation was worked out in order to predict University grade point average. The predicted grades were then compared directly with the grades actually made by the students at the University. Extreme variations were related to their particular high schools.

The study was extended later on to include 1,747 additional students who enrolled at the University of Puerto Rico, at the College of Agriculture and Mechanic Arts of Mayaguez, Puerto Rico, and at the Polytechnic Institute of Puerto Rico. The findings are very revealing. Witness:

a) There is a positive relationship between high school and college indices but the degree of correlation is so low that high school indices cannot be used for accurately predicting college indices.

b) An *A* or *B* grade in one high school is not necessarily equivalent to the corresponding *A* or *B* in another high school.

c) In general, students from large high schools make higher indices in college than do students from small high schools with the same indices.

d) Students with a *C* average from large high schools make, on the whole, higher grades in college than do *B* students from small high schools.

*The Study of Student Academic Efficiency at the University of Puerto Rico* aims to analyze the factors which conditioned student academic efficiency at the University of Puerto Rico during the years 1943 to 1947. The following aspects were considered in determining academic efficiency: grade index obtained, number of college credits approved, time taken to finish the prescribed curriculum, number of failures by subjects, honors received, and the distribution and interrelation of these factors. The findings were also very revealing. Witness:

a) All colleges at the University of Puerto Rico take about four and a half years to graduate their students.

b) About 136 points are required in the various curricula to grant the degree.

c) The number of students who drop out before graduation is about 50% of the enrollment in some colleges.

These facts deserve careful attention from the part of both high school and university faculties and from school administrators as well, if the education of our youth is to be conducted on a more efficient basis. Unquestionably, the situation demands a revision of the admission policy at the University, a better guidance program for our youth, a revision of curriculum requirements, and better college teaching.

## ILLITERACY

In 1945, the Superior Educational Council of the University of Puerto Rico conducted a study with the purpose of presenting a clear picture of the problem of illiteracy in Puerto Rico.<sup>23</sup> The study presents a practical plan for the eradication of illiteracy on the Island. It also includes an account of the methods employed by various countries in their nation-wide campaigns against illiteracy. The plan suggested in the study is sensible and practical. It has been adopted by the Commonwealth Government, and is now in operation under the leadership of Dr. Ismael Rodríguez Bou.

## TEACHER EDUCATION

Members of the Faculty of Education of the University of Puerto Rico have conducted two recent studies on teacher education. In both studies the descriptive method of research was used. The title of the first study is *Improving In-service Education for Beginning Teachers in Elementary Schools of Puerto*

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<sup>23</sup> Ismael Rodríguez Bou, *El analfabetismo en Puerto Rico*. A study conducted by the Superior Educational Council of the University of Puerto Rico, Río Piedras, Puerto Rico, 1945.

Rico.<sup>24</sup> Its main purpose is to study the needs of beginning teachers in elementary schools and to offer proposals for action in relation to an expanding programs in-service education for them. The needs of teachers in their first year of experience in elementary schools were expressed by the teachers themselves and by their local supervisors through questionnaires and personal interviews. The findings revealed: 1) that while beginning teachers in the elementary schools of Puerto Rico face many problems during their first year of experience, there is very limited recognition of such problems; 2) that there are wide discrepancies between the local supervisors and the teachers with respect to the identification of problems; 3) that agreements between local supervisors and teachers are limited to specific areas in which the State Department of Education has shown particular interest in its supervisory program; and 4) that there is a wide gap between pre-service education and in-service practice.

*The Guidance of the Normal School Student*<sup>25</sup> proposes a program of staff participation in the guidance of the Normal School Student which would foster the total development, personal adjustment, and self-realization of this group of prospective teachers.

Some aspects of the study covered the entire student population (1297 students) enrolled in the Normal Course during the year 1951-52. The questionnaires used were administered to 750 students.

A representative sample of 100 students were interviewed for the purpose of clarifying and expand the answers to questionnaires. Records at the Medical Office, the Health and Financial Department, the Guidance Center and the Registrar's Office were also examined.

The findings show the need of more teacher participation

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<sup>24</sup> Aida A. Vergne, *Improving In-service Education for Beginning Teachers in the Elementary Schools of Puerto Rico*. Ed. D. dissertation, Columbia University, 1951. (Unpublished).

<sup>25</sup> Marion Garcia, *The Guidance of the Normal School Student*. Ed. D. dissertation, Columbia University, New York, 1953. (Unpublished).

in the guidance of students, especially with reference to causes of students' failures, emotionalized attitudes, personality difficulties inherent in academic difficulties, health problems, etc.

It was also found that prospective teachers have not always been motivated into the teaching career by satisfactory experience with children and a genuine spirit of service. Too often economic reasons are given for vocational choice.

It is evident that teachers and faculty advisors need to become more alert in detecting early symptoms of fatigue, maladjustment and under-achievement and need to realize how these conditions affect feeling and status.

The findings of this study are very valuable in the establishment of an effective and well-integrated guidance program for college students.

#### PRIORITIES FOR FUTURE RESEARCH

Puerto Rico needs more research work in the field of education. The educational research done so far is more an incident of the training of teachers and administrators than the product of a research scientist who has specialized in this type of work. Consequently, more people should be trained as research scientists.

Puerto Rico is an over-populated country. There are no adequate school facilities for the total population of legal school age. Schools are organized either under the double enrollment plan or in the interlocking plan. Classrooms are overcrowded. This situation is affecting seriously the effectiveness of the educational program. Puerto Rican researchers, therefore, should study this problem more profoundly with a view to create a new scheme that may help the government in its effort to offer an adequate education to all the children and youth of legal school age.

The greatest frontier for research lies in the analysis of the teaching-learning process. We must do something to im-

prove both teaching and learning, and to know better the child who attends our public schools.

A good deal of research is needed also in the evaluation of instructional material and in the evaluation of the various teaching techniques which are imposed upon teachers by school officers who are superior in rank. There should be a more functional interpretation and use of research in education if the educational environment of children and youth is to improve.