APPLIED PSYCHOLOGY AND PROBLEMS OF BRAZIL AS A DEVELOPING COUNTRY *

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The enormous area – more than 8.5 million square kilometers – of Brazil occupies more than half the South American continent, and Brazil is generally called "the continent country." This area is greater than that of the 48 contiguous states of the U.S.A.

Brazil is also known as a land of contrasts because of the geographic, hydrographic, climatic, demographic, economic and social contrasts that characterize it. Its population, which is, according to the 1970 census, more than 93 million inhabitants, is quite irregularly distributed through the several geographic regions into which Brazil is divided. Thus 70% of the population is concentrated in the eastern and southern parts, mainly along the Atlantic coast. The northern, northeastern and central western parts account for the remaining 30%.

Brazil's population derives from four widely different ethnic groups: the Portuguese, who discovered the land and populated it from the 16th century to the beginning of the 19th century, when independence was declared; Negroes, brought from Africa as slaves; Indians, the native owners of the land; and the "Mestizos," the offspring from the intermixing of the three groups already mentioned. To these fundamental types, the immigrants should be added, mainly European: Germans, Italians and Slavs at the beginning; later, Portuguese, Italians and Spaniards; and at a later stage Asians, especially Japanese (cf. Azevedo, 1964).

Brazil's population is one of the fastest-growing in the world. From the start of the century up to 1960, the population quadrupled, and from 1960 to 1970 there was a growth, in absolute figures, of about 25 million. This constitutes an increase on the order of 35%. If this rate of growth is maintained, a population of over 230 million is to be expected for the year 2000.

This growth rate poses a problem to the solution of which psychology can contribute. Even if it is agreed that the population of the country is one of its best resources, and that its demographic density is low and consequently that this population can be increased, one must not forget, on the other hand, that each child born has to be fed and educated, over a

long range of time, before becoming economically productive. This need calls for a coordination of the demographic factor and the economic future. A reduction in the birth rate, though sometimes contested, is viewed by many as the best solution toward alleviating the strain on those who work and, consequently, affording a means of improving the educational conditions and the social progress of the people. No campaign aiming at birth-rate reduction should be too hard-pressed, otherwise it would fail. It is not an easy matter to change the behavior of large segments of the population, especially when it is a result of deep-seated attitudes associated with religious and moral values and with the habits and traditions of the people. As far as it is known, there is not any research programmed to solve this problem (which is not exclusive to Brazil, but is a general one in developing countries). Thus the problem of birth control is a controversial issue in Brazil, and there is no government policy in this direction. There are those who consider this high birth rate a consequence of lack of education, since the lowest strata of the population have the largest number of children. Nation-wide campaigns are no solution to this problem, but the improvement of the people's education would help. This solution is, of course, an indirect one, the effects of which would take long to reveal themselves. Anyway, whether the solution be a short-term attitude change using psychology techniques for immediate results, or a long-term one through the education of the people, psychology may be called on to contribute.

Besides those labels already mentioned — "continent country," "land of contrasts" — we may add that Brazil is a "young nation." In fact, more than 50% of the population is under 20 and only 5% is 60 or older. This fact is promising, mainly if we think in terms of the human resources for the near future. Nevertheless, this youth has to be prepared for productive work, and this training constitutes a great challenge to the country's educational authorities. For this reason, the Brazilian government is ceaselessly working on solving the people's educational problems as a most efficient means to overcome underdevelopment barriers. Illiteracy is still a problem, since 30% to 35% of the population is illiterate. In the age range from 14 to 35, the number of illiterates is estimated to be 15 million and, in the population above 35, this number is even higher: 25 to 30 million. Aiming at the solution of this problem, the Brazilian government started a large campaign in 1970, coordinated by the Office of Education. Its goal is to teach reading skills to the whole illiterate population and, at the same time, to offer some sort of training for jobs that require some skill. This nation-wide

movement, called "Movimento Brasileiro de Alfabetização" (MOBRAL), received, up to the end of 1970, more than 500,000 applications, and served more than two million Brazilians during the year of 1971.

The MOBRAL is rooted in local communities, which are motivated to cooperate in this educational work, and is also supported by industrial managers who help financially or by providing room facilities.

Today Brazilian industrial managers are fully aware of the importance of the educational system and of the task of teaching outside this system, since it helps manpower improvement and the dynamization of the developmental process. Consequently, the managers do not avoid this social responsibility and, mainly by means of their class representatives, cooperate in the governmental effort to improve the educational level of the nation.

For such a large scale task a great number of teachers and enough teaching materials are, of course, necessary. In this respect, psychology applied to education, especially in the areas of learning and technology of teaching, is called on to help. As it will be seen later in this paper, work along these lines is going on in Brazil.

Another problem which causes great concern to the educational authorities is the lack of openings in the universities. This problem, however, exists even in more highly developed countries. The demand for university courses on the part of students who finish secondary school has reached extraordinary proportions, and neither the great number of private universities that are being founded each year nor the public universities which are increasing their facilities have been able to provide opportunities for all those who desire a higher education. As a consequence, entrance examinations are more difficult each year. To offer a great number of openings at the universities has been a constant goal in recent years. In the year 1971 there was an increase of 30% in the opportunities at this level compared with 1970, but the goal of the Brazilian government is to increase openings by 80% in the near future.

Secondary education is also developing at a fast rate. Brazilian President Medici has announced an increase of 300 schools of this type in the year of 1971.

Parallel to this quantitative increase, there is a clear tendency to improve qualitatively the level of education by training teaching personnel, introducing new methods based on modern educational technology such as those employing radio and television, improved teaching materials, programmed instruction, etc. Thus Brazilian education is being trans-

formed both quantitatively and qualitatively with the view, on the one hand, to extinguish illiteracy in that part of the population beyond elementary school age level who did not have the opportunity of a formal education; and, on the other hand, to offer the opportunity of secondary and higher education to as many youngsters as possible, since they have now to compete very hard for the very few places in the universities.

Among the problems related to the development of Brazil, the educational problem, although one of the most important, is not the only one of concern to the administrative authorities and the people in general. Other sectors are also calling the attention of those more directly responsible for the destinies of Brazil, such as health, production, transportation, communication, the integration of enormous areas still not inhabited as in the case of the Amazonian region, and the improvement of living conditions in such large cities as São Paulo and Rio de Janeiro, not to mention others.

For the solution of this problem, a new approach that started only recently is the interdisciplinary one. Thus administrators, economists, engineers, sociologists, educators, psychologists, communication experts and many others are being called on to help solve the big educational problems. In this interdisciplinary approach, the psychologist's share is even greater. I will mention a few examples of projects and activities under way which involve, besides other professionals, the work of psychologists.

As I had the opportunity to report in another paper (Angelini, 1970), "unlike what happens in highly developed countries, where educational television works in multiple directions – including its use in schools as a supplementary resource for the teacher in his routine duties – educational television in Brazil is viewed mainly as a substitute medium for schools, as a medium that can overcome the scarcity of schools and reduce the cultural lag of people who had no opportunity to attend formal schools." With this purpose in view, the National Commission for Space Activities (Comissão Nacional de Atividades Espaciais – CNAE) is developing a project called SACI, supported by the Brazilian and the American governments, which aims to provide elementary school education via satellite. This project, which involves a large scale use of modern mass communication media, is receiving the collaboration of psychologists at the University of São Paulo.

These psychologists cooperate in another project that aims at an intensive teaching of sciences renewal program at the Instituto Tecnológico de Aeronáutica, a school that is training aeronautical engineers.

The Brazilian Navy, also concerned with the problems of sailors who

stay for long periods of time on board ships without adequate opportunities for formal schooling, has asked the Institute of Psychology of the University of São Paulo to cooperate in a project that aims at the solution of the problem by means of educational technology and mainly by means of programmed instruction.

In another project, just finished, psychologists of the Institute, in collaboration with economists and administrators of the Office of Finance (State of São Paulo government) prepared a program of techniques on how to prepare government budgets. With the help of specialists in budget planning, they wrote frames for a programmed textbook which is now in use throughout public bureaus in the State of São Paulo (Dib et al., 1968).

The lack of qualified teachers at the university level is one of the biggest problems to be overcome if there are to be more openings in the universities, and this is one of the main points of the educational reorganization in the country as was mentioned earlier. The training and/or the improvement of a great number of teachers with the utilization of modern educational resources, such as programmed instruction and closed-circuit TV, has been suggested even by the Council of Rectors of Brazilian Universities which prepared "The First National Conference on Educational Technology" in the first semester of 1971. As is well-known, the preparation of a program requires careful analysis of behavior and a check on the efficiency of the chosen program by means of tests administered to representative samples of the population for whom the program is destined. In other words, in the preparation of programmed texts, the collaboration of psychologists is essential, mainly of those who are trained in behavior technology and learning techniques. This is the reason why one of the issues of the above-mentioned conference was exactly the training of specialists in educational technology, mainly in programmed instruction. The first effort directed to the production of Brazilian programmed instruction according to scientific principles of analysis of behavior was a "Pilot Project of the Teaching of Physics" developed at the University of São Paulo, under the auspices of UNESCO in 1963-1964, with the collaboration of several national and international entities. After this project – from which there resulted the first published Brazilian programmed text, *Physics of the Light*, in six volumes with 8mm films, a 16mm sound film and some experimental material – it was felt that the introduction and development of programmed instruction in the country should not stop. As a consequence, in 1964, a group called MATETICA, composed of some professors of the University of São Paulo, was created. This group began to produce original

programmed texts and to teach programmed instruction in Brazil and in some other countries, mainly in South America. From 1965 to 1970 this group produced more than 30,000 frames, which correspond approximately to 600 hours of self-instruction on a wide variety of subjects, from elementary texts in chemistry to programmed manuals for executives.

This group produced, in 1969, a programmed textbook entitled "How to Utilize Textbooks," employing a linear approach, with 725 frames, at the request of the Federal Office of Education. This textbook is being used throughout the country in order to improve the work of about 500,000 elementary school teachers (Pfromm Netto et al., 1969).

In addition, the more advanced educational centers are using closed-circuit television for teaching purposes. In 1969 I carried out the pioneering effort in this area at the University of São Paulo through the production and transmission of a course on educational psychology to about 2,000 students who were receiving training in order to be secondary school teachers. This experiment was repeated in 1970, 1971 and 1972. The telelessons are registered on videotapes and make use of a large variety of audiovisual materials, dramatizations and other resources.

The planning and recording of each lesson took, on the average, from 40 to 50 hours. The course consists of lessons on videotape (one a week) associated with a reading assignment, a group discussion and an achievement test after each lesson.

Results were fairly favorable regarding both the achievement of students and their attitude toward the course. It should be mentioned that, since the lessons are recorded on videotape, it is possible to teach the same course to a large number of students according to different schedules.

Many other examples could be mentioned which, like the previous ones, demonstrate rather clearly that in Brazil there is an encouraging climate which favors direct or indirect contributions from psychology and from other branches of knowledge to the solution of educational problems, thus contributing to the development of the country.

Industrial psychology is another area of application of great importance in Brazil. Large and average industrial enterprises are already convinced that installing their own psychometric services is an excellent investment in the areas of selection, guidance, rehabilitation, promotion, training on the job, human relations in the work, market research, advertising, and many others. Public institutions and the armed forces count also on the collaboration of psychologists, mainly in selection, classification, teaching and promotion of personnel.

In this context a recent law of the National Council of Traffic should be mentioned, which requires drivers to pass a psychological examination which comprises several tests on aptitude, personality and perception. This psychological examination has to be taken every four years.

The clinical psychology area is also developing rapidly in Brazil, especially in big cities, where, besides clinical psychological services of official institutions and hospitals, there is an ever-increasing number of private practice offices for psychological diagnosis, counseling and psychotherapy. The more diversified theoretical orientations coexist in these psychologists' practical work. It can reasonably be assumed that if on the one hand the mental health of a people is a major condition for progress, on the other hand, the more developed, industrialized and complex a community is, the greater is the number of maladjusted persons in need of psychological assistance. There should be, therefore, a high and positive correlation between the development of a country and its clinical psychological services.

After this brief survey of the multiple possibilities of application of psychology to the solution of the national problems, one may ask how the psychologist in Brazil is trained and what his professional status is.

There exists today in Brazil 59 universities, some of them being installed now. They are unevenly distributed throughout Brazil, a greater number being present in the southern and central states. Forty-one of these universities are public, that is, are maintained by public funds. Out of the eighteen private universities, ten are catholic and eight, lay universities. Just recently, the Council of Rectors of Brazilian Universities was created; it meets periodically to debate university problems and establish common policies of action toward improving higher education in the country.

Not all universities have courses intended to prepare psychologists. On the other hand, there are institutions not belonging to universities, but of the same level of teaching, which give those courses. There are twenty-two institutions either in universities or outside, most of them in São Paulo and Guanabara states, which are accredited to prepare psychologists.

The legislation existing in Brazil regarding the psychological profession is one of the most advanced when compared with other countries. In fact, as a result of joint work of two national societies of psychology (the Brazilian Psychological Association and the Brazilian Applied Psychology Association, with the support of many regional associations, mainly the Society of Psychology of São Paulo), a law was promulgated by the Congress in August 1962, regulating the courses of psychology and the psycholo-

gist's profession throughout the country. According to this law, only those who finish a five-year university level curriculum are able legally to practice the profession of psychologist. There are also dispositions in the law regarding the minimum amount of courses to be taken, together with a requirement of at least 500 hours of internship, during which students practice under their teacher's supervision. This law also defines clearly the psychologist's prerogatives, which are the following:

1. To use methods and techniques of psychological examination for the purpose of psychological diagnosis, vocational guidance and selection, school guidance, and solution of adjustment problems;
2. To supervise psychological services in public and private institutions;
3. To teach psychology at all teaching levels;
4. To supervise theoretical and practical activities in psychology;
5. To do consulting work;
6. To investigate and give expert reports in legal cases.

According to this law, the psychology graduate has to register in the Federal Office in order to work as a professional in psychology. This matter will be in the near future the responsibility of a Regional Council of Psychology, coordinated by a Federal Council of Psychology, official institutions which will supervise the psychologist's professional work and his compliance to a code of ethics. These two official institutions were to be created by the Congress at the time this paper was being prepared.

There are around 2,000 registered psychologists in Brazil, which means that there is one psychologist for each 46,500 inhabitants. Nevertheless, this number tends to increase rapidly, due to the great expansion of opportunities of work and, consequently, of the greater demand for psychology courses on the part of youngsters who enter the university.

As a matter of fact, the psychology curriculum is among those which are attracting the greatest number of candidates in recent years, according to the ratio between candidates and the number of openings offered by the universities. At the University of São Paulo, for instance, where, aiming at better training, only 60 openings are offered annually, 2,000 candidates wish to enter. As a consequence the entrance examination is extremely difficult and, therefore, highly selective. Graduate programs leading to the Master or Ph.D. degrees in psychology are being offered in some universities with greater tradition in the teaching of this specialty. Such are the cases of the University of São Paulo, the Catholic University of São Paulo and the Catholic University of Rio de Janiero. At the University of São Paulo, for instance, there are thirty openings each year for the graduate

programs in psychology in two concentration areas: experimental psychology and educational psychology. According to a recent law of the Federal Council of Education, the requirements for the functioning of graduate programs in the Brazilian universities were altered. More strict regulations were set regarding the courses leading to the Master and Ph.D. degrees. This is why many universities are making efforts toward the fulfillment of those conditions which will enable them to obtain the government authorization for the functioning of these courses. Besides the three universities already mentioned, only a very few will be able to get this authorization to offer graduate courses in psychology.

As far as research activities are concerned, one has to admit that when compared with the possibilities of application of psychology they are relatively underdeveloped. Consequently, there are only a few journals dedicated to the publication of research reports. Their number in all the country is probably no greater than ten. Not all institutions that offer psychology courses are engaged in research activity. Research generally is done in those universities that offer graduate courses, and only those who intend to take up a university career work on such research activities. However, some research is carried out in centers outside the universities, mainly in large institutions where applied psychology is a significant part of their activities, like the Instituto de Seleção Profissional – ISOP – (Institute of Vocational Selection and Guidance in Rio de Janiero), SENAI (National Service of Industrial Apprenticeship) and SENAC (National Service of Commercial Apprenticeship), especially in the São Paulo and Rio offices.

Funds for research are scarce and those agencies established to support research offer only a small portion of their budget for research work in psychology. Moreover, this science being a comparatively new field, it has not got that tradition which characterizes other areas of human knowledge, such as physics or biology, for instance.

Among the research projects in psychology which are being carried out in Brazil, there is a very important one, in its range, originality and value to the solution of educational problems. Its title is Coping Style and Achievement: A Cross-National Study of School Children. This is a broad cross-national and cross-cultural investigation which, since 1965, is being carried out in seven countries (Brazil, England, Germany, Italy, Japan, Mexico and the United States). We are now at a stage of results interpretation and report writing. A group of investigators under the supervision of Dr. Robert F. Peck (1968) from the University of Texas is in charge

of this research. In each of the seven countries mentioned there is a team, under the guidance of a senior investigator, which carries out this study. This project is financed by the United States Office of Education. The goal of this study is to identify and develop ways of measuring styles of coping with work-related problems among children and adolescents in different cultures and subcultures. Its plan is very extensive and divided into three stages. In the first stage, a diversified assessment was administered to a sample of 800 subjects in each country, stratified according to sex, age and social class, in a 2x2x2 design, with a view toward testing a great number of hypotheses regarding complex interrelations between age, sex, socio-economic class, national culture and factors such as aptitude, vocational aspirations and expectations, study habits and school achievement. Also, in this first stage, the attempt was made to develop a coping theory and to devise and improve projective instruments toward determining operational units of coping behavior.

Stage II was designed to collect information from parents of a subsample of the children tested in Stage I. The data, collected by means of a Parent Interview, describe both parent behavior and child behavior. This interview covered the major areas of interest in the study: coping styles, achievement, and vocational values and interests. Stage II was designed to provide cross-validation of the data collected from children; to rate child coping behavior to parent-child interaction and parental attitudes and values; and to obtain data for cross-cultural comparisons in these areas. The third stage of this project used basically the same logic and the same kind of instruments as the first stage with the purpose of a revalidation of the results of Stage I in equivalent samples of different subjects.

This investigation, once finished, will offer, not only to Brazil but to the other countries where it is being carried out (most of them highly developed), important elements for the educational work, since one expects to know better the behavior of children and adolescents regarding certain aspects which, although always present in the behavior of all students, manifest themselves differently according to different cultures and subcultures.

In spite of the normal limitations which are characteristic of a relatively new science and of a profession which is gradually finding its way, psychology has already mustered a significant amount of facts and experiences – the outcome of scientific research – in order to transmit them to those who in this country, which is undergoing a rapid and effective process of development, are trying to solve the great national problems.

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FOOTNOTE

° Invited address to the Symposium entitled "Psychological Studies of Problems of Developing Countries" at the XVIIth International Congress of Applied Psychology, Liege, Belgium, July 25-30, 1971.