

EDUCATIONAL TECHNOLOGY AND TELEVISION IN BRAZIL¹

ARRIGO LEONARDO ANGELINI
University of São Paulo, Brazil

Some years ago, a department of Educational Psychology in a university such as ours was a place in which you would usually find people interested in learning research and theory, human development, tests and measurements, and personal and social adjustment. Interest in psychological aspects of education was largely limited to topics such as "how to handle children in the conventional classroom," "the advantages of method X of teaching reading as opposed to method Y," "the measurement of interests by a new standardized test," and the like.

Today it is not surprising that many things which are totally different from our traditional subjects are happening in the Educational Psychology Department. In one class, educational psychologists are discussing the psychology of mass communication. In a room nearby, two or three educational psychologists are hard at work on a programmed instruction project; they are writing, with the help of a specialist in budget planning, frames for a programmed textbook about "how to prepare budgets" which will be used in a training project sponsored by the State Secretary of Finance.² If you go to another room, you will find a charming and intelligent young lady, also an educational psychologist, working on a creativity stimulation study or on a research project related to cultural deprivation in São Paulo slum areas. Go to another room and you will find me busy with the planning of another videotape lesson in a series on the psychology of learning.

Sounds and sights never heard or seen before in the Educational Psychology Department are now familiar to us. Here is a student working with a teaching machine. There, somebody projects 8mm. "single concept" or "repetitive" films. Elsewhere you find a teacher checking results from a cross-cultural study on coping styles of children made in close cooperation between our university and several

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²Office of Finance—State of São Paulo Government—"Orçamento-programa: texto programado" (Programmed instruction specialists: C. Z. Dib, S. Pfromm Netto and N. Rosamilha); 1968.

other universities, including the University of Texas and the University of Mexico. It is a new and powerful educational psychology that is emerging from the important changes that have occurred in the past ten or fifteen years. The roots are deeply seated in the pioneering efforts of men such as Thorndike, Pavlov, Watson and Ebbinghaus. But the branches and the green leaves have the boldness and the intelligence of our satellite age. New territories of knowledge and action are discovered; new perspectives are discussed; new horizons are in our sight.

It would be very presumptuous to attempt to present a complete description of all new developments in the field of Brazilian educational psychology and technology. Still, I can provide you some information about one area in which we have become quite interested: educational television.

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A little more than one year ago there was created in Brazil the Fundação Centro Brasileiro de TV Educative (Brazilian Center of Educational TV Foundation), a nation-wide organization that through the Brazilian Office of Education and Culture, centralizes all the educational television stations in Brazil. Professor Gilson Amado, the Foundation's president and one of the pioneers in Brazilian educational radio and television, is firmly convinced that the Brazilian experience will serve as a definitive test for educational TV in general, in light of Brazil's geographic, social and economic peculiarities.

It is undeniable that there is an ever-increasing gap between educational supply and demand in Brazil, resulting from the explosive demographic growth and the scarcity of resources for a proportional development of the school system. Only with the use of modern media of mass communication—especially TV, radio and printed media—can Brazil adequately increase the available resources for public education. The educational television stations in Brazil are either now being installed or have just begun operation. The above mentioned Brazilian Center of Educational TV Foundation has a priority project for the installation of a wide tele-center in the city of Rio de Janeiro (State of Guanabara). The projected tele-center, in addition to the production and transmission of educational programs and systematic instructional courses by TV, will prepare 16 mm. sound motion picture versions of courses which can be shown in places easily reached by students. With the motion picture courses, the Foundation wants to benefit students of a low economic level, who cannot buy a television set. In addition, the Foundation will make a geo-educational survey all over the country this year with the goal of determining the main weaknesses in our educational system. The results

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of the survey will be used for several purposes, including the orientation of programming in the Brazilian educational TV stations already in operation and in those to be installed in the future.

As you probably know, the State of São Paulo is the center of the economic life of Brazil. With an urban population that greatly exceeds the rural population, and with greater indices of social, economic and educational development than most other states, São Paulo's wealth contrasts sharply with the very poor conditions of life which prevail in most other regions of Brazil. It may be predicted that São Paulo will be the largest educational TV producing and transmission center in Brazil. The new TV-Cultura—a tremendous enterprise for which planning began in 1967 when the state government purchased the channel, installations and equipment of one of our very high frequency (VHF) commercial TV stations (channel 2) and one radio station—will be the center of educational TV in São Paulo. It was necessary to replace some obsolete equipment, and many innovations in installations and equipment were needed. In 1967-1968 the TV station was completely modernized, the cost amounting to more than twelve hundred thousand dollars. Equipped with the most advanced types of cameras, transmission systems, videotapes and kinescope (for reproduction of programs in 16 mm. motion pictures), São Paulo's TV Cultura possesses facilities and equipment superior to those we find in Brazilian commercial TV stations.

An interesting note concerns the station's name. During the planning of educational television in São Paulo, several field studies were conducted in order to provide information needed for adequate programming. Research results indicated the inadequacy of the expression "Televisão Educativa" (Educational TV). It was found that people are negatively predisposed to such an expression. A better name was then created—TV Cultura (Cultural TV). The state government law that created TV Cultura defines its legal status as a Foundation. The Foundation-type of organization was intended to prevent political interference in the station's administration and operation. The location of TV Cultura is the city of São Paulo. It reaches a radius of 120 km., including all the neighboring areas of the city—areas that form what is called Greater São Paulo—and several populous communities in out-state São Paulo. It also reaches certain regions in neighboring states, such as Minas Gerais and Paraná. The estimated potential audience in the area that can be reached by its transmissions is ten to twelve million persons. It is expected that this audience will increase very soon with the installation of repeater transmitters in out-state São Paulo. Videotapes and kinescopes made by TV Cultura in São Paulo will also probably be circulated in all parts of Brazil in the near future.

In addition to São Paulo's educational television station, several other educational TV stations have recently begun to operate or are in the process of organization and preliminary testing in other states. For example, in the state of Pernambuco, the Federal University of Pernambuco last year started the experimental transmissions of the University TV, Channel 11. In the state of Rio Grande do Sul, Channel 7 and Channel 8 are assigned to educational television and are under the direction of the State Secretary of Education and Federal University of Santa Maria, respectively. In the states of Amazonas, Goias, Bahia, Brasília and Guanabara, other stations are being installed or have already begun to operate. One of the latest reports published by the Federal Commission of Television (CONTEL) says that 131 TV channels are already reserved for educational television in Brazil. 56 channels belong to the very high frequency (VHF) system, and 75 are in the ultra high frequency system (UHF). It should be noted, however, that the common TV sets produced and sold in Brazil are not equipped for UHF reception.

Lack of specialized personnel is one of the great problems in the adequate operation of educational television in Brazil. Technical personnel come from commercial TV stations, and as a rule they lack good professional training. They begin to work in television with practically no previous knowledge or training, and they learn on-the-job. Although they are quite limited, they constitute the only technical personnel currently available in the country, and it is not easy for educational television stations to compete for their services because commercial television stations always offer better conditions of work and more attractive salaries.

Mention should also be made of another development in Brazilian educational television, namely, the widespread use of closed circuit television. Several schools in the city of São Paulo and other cities are using closed circuit television in teaching. Some of them use no more than one camera and one receiver set. But, we have the beginnings of large closed circuit systems, including microwave transmitters, videotape facilities, expensive equipment, and the like. For example, the University of São Paulo operates, in the School of Communication Building, a closed circuit system with a large professional studio, several cameras, portable and professional videotapes and other facilities. It provides practice for the communication students, and it is producing the first university television courses. We are conducting one of them, a course in educational psychology—psychology of learning—in twelve lessons that are transmitted to a little less than 2,000 students. The tele-lessons are registered on videotape and make use of a large variety of audiovisual materials, dramatizations, and other resources. A course in psychology of adolescences

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will be produced and transmitted in the same way, in the second semester, and preliminary contacts have been made for other courses in the areas of physics, chemistry, student teaching, school administration and history. Because they are made on videotape, it will be possible to transmit the same courses via educational or commercial television stations in the future.

PRIORITIES FOR EDUCATIONAL TELEVISION

One of the first problems attacked by people connected with educational television in Brazil was the establishment of priorities for the objectives. This was the subject of a study on the part of the already mentioned Brazilian Center of Educational Television, which concluded that the following objectives should be met in the order of priority listed:

1. Literacy for all age levels
2. Remedial teaching at the elementary school level
3. Cursos de madureza—short and intensive courses that are work-oriented
4. Training of unskilled workers
5. Training of artisans in large urban centers
6. Improvement of teachers on all levels of teaching

The illiteracy problem is one of the most important in Brazilian education. Educational television can help to solve it. Brazil has millions of people beyond school age who did not have the benefit of any formal instruction or who dropped out of elementary school. Now they feel the need of education to improve their condition of life or, in the most extreme cases, for mere survival. In many communities, particularly in the great urban centers, deep changes in economic life occurred in less than one generation. The agricultural society of our past is very rapidly changing into an industrial society. Such a change means that only educated people will have an opportunity for individual progress.

At the same time, in Brazil there is an acute shortage of trained workers. People better prepared for production, sales, clerical work and other types of jobs are in constant demand in centers such as São Paulo, and the booming industrialization in the Northeast is also lacking skilled workers. Educational television can perform a crucial role in the improvement of Brazilian manpower. 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.

Appropriate here is a review of some data about São Paulo, a Brazilian state where the illiteracy problem is less acute than in other states. The latest figures about São Paulo's population state that it now has approximately seventeen million inhabitants. More than one-fifth of its population—or, more exactly, 22.3 per cent—is illiterate. In Greater São Paulo, with a population of 7,766,000 people, 18.6 per cent are illiterate. In the city of São Paulo with a little more than 5,600,000 inhabitants, 16.9 per cent of its population have not completed elementary school. In Greater São Paulo, of 80 per cent of those who enter elementary school, only 16 per cent enter secondary school and only 4 per cent enter colleges and universities. It is necessary to emphasize that the data above correspond to the Brazilian region that has the best index of economic development.³

The school drop-out rate in Brazil is alarming. In the case of secondary school, this index is as high or higher than the one we have for elementary school. In the period between 1957 and 1963, only 52 out of every 100 students who entered secondary schools completed the regular four years of the first cycle of secondary studies or "ginásio," as we say in Brazil. Only 37 per cent completed the seven years of studies that constitute the total duration of secondary school studies, in its two cycles, "ginásio" and "colégio." Data such as these persuaded people in charge of São Paulo's TV Cultura that the educational TV station must devote a large amount of time to elementary and secondary school teaching, for children, and for adults who have not had the benefit of formal schooling.

The improvement of teachers is another area of concern for state and federal governments. The Brazilian Office of Education is particularly interested in efforts directed at the training and improvement of elementary school teachers, using modern and effective techniques. In the past few months, one of those techniques—programmed instruction—was used by some of our collaborators in the Department of Educational Psychology at the University of São Paulo. They produced and tested a programmed textbook, using the linear approach, with 725 frames, at the request of the Federal Office of Education. The programmed textbook is being used throughout the country, involving 150,000 elementary school teachers in the first phase of a project that aims toward better teaching techniques in

³Figures mentioned are from Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics); the newspapers "O Estado de São Paulo" e "Folha de São Paulo"; and the magazine "Realidade."

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elementary schools.⁴ Educational television is also being considered as a powerful medium for teacher training in Brazil. It is interesting to note that about 43 per cent of all elementary school teachers in Brazil do not have proper professional qualifications for their work. The percentage cited includes a large number of people who have not more than an elementary school diploma. The solution to such problems calls for techniques of mass teaching, such as programmed instruction and educational television.

COMMERCIAL TELEVISION IN BRAZIL

Some words about the status of commercial television in Brazil may also be in order. Recent studies indicate that there are about four million television receiver sets in Brazil—a ratio of one set per 20 persons. The total number of television stations in operation is 47—about half of them in the states of São Paulo, Minas Gerais and Guanabara. Commercial TV began in Brazil in 1950, but it is interesting to note that the first experiment of television transmission was made in Brazil by a pioneer in educational radio, professor Roquette Pinto. In 1932 he made experimental transmissions in the city of Rio de Janeiro, using a rudimentary system of perforated disks.

Severe limitations characterize the general level of Brazilian television programs on commercial TV. Critics say that what predominates are “soap operas” (*novelas* in Portuguese), sports and some low quality music programs. One recent study shows that one-third of television hours in São Paulo is devoted to “soap operas” or *novelas*. It is the kind of program that has a very impressive audience, at least in the number of viewers.

Violence is very common on Brazilian commercial television. One of our magazines, *Realidade*, discovered that one hundred outlaws are killed per week on television programs transmitted by São Paulo and Rio stations. Violence comes mainly from United States and British TV series, but we have also some Brazilian series full of violence, and the transmission of “tele-catches”—a sort of sadistic wrestling—commands a very wide audience.

Several studies on television viewing by children were conducted in our Department of Educational Psychology at the University of São Paulo. We found that girls from nine to eighteen years of age see more television than boys. The greatest difference between sexes occurs in adolescent years. The average hours for boys was a little less than ten hours per week; and the average for girls was a little

⁴S. Pfromm Netto, C. Z. Dib and N. Rosamilha. *Como utilizar o livro Didático* (How to utilize books). Rio de Janeiro: COLTED—Ministerio de Educação e Cultura, 1969.

less than twelve hours per week (Angelini & Rosamilha, 1965). Another research study surveyed more than four hundred children between 9 and 16 years of age. 58 per cent of the subjects were living in homes with TV receivers. Their preferences were for "soap operas" in the case of girls and for the western serial "Bonanza" in the case of boys. It was discovered that television was negatively affecting time devoted to study, play, and book reading for boys and girls, and radio listening only for girls. 42 per cent of parents were totally permissive in program selection by their children. More than half of the subjects believed that they learned a great deal from television programs (Pfrom Netto, 1968).

From what we know about commercial television and its public, it is easy to conclude that television is a powerful medium of communication, reaching children and adults of all socio-economic levels. An average of 900,000 persons see television programs each night in the city of São Paulo. 39 per cent of the total expenditures in advertising are used in television advertising. Television began in Brazil as entertainment for the upper classes, but in the past few years its use has expanded to the urban lower classes in cities like São Paulo and Rio de Janeiro. Several critics have denounced the low level of our TV programs claiming this debasement is a consequence of the TV producer's interest in pleasing the tastes of less educated people.

The educational use of commercial television is seen by some specialists as a good way to compensate for the lack of cultural or high quality television programs. Several recommendations in a recent Brazilian Congress of Telecommunications were related to the use of commercial channels for educational and instructional purposes. It can be anticipated that the recent development of satellite communications in Brazil will give strong support to those who maintain that more television time must be given to educational matters—and personally I believe that the Brazilian government has a great interest in this possibility. Television is a wide open medium and education is the best of all causes.

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ABSTRACT

This paper presents some recent developments in educational technology related to educational psychology, emphasizing some significant facts regarding the introduction of educational television in Brazil.

The organization and function of educational TV stations in the

different states of the country are presented as ways in which the government and Brazilian educators are presently contemplating to overcome the ever-widening gap between supply and demand for educational materials. Special mention is made of the Cultural TV of São Paulo, a television station recently inaugurated in that city.

In addition, the more advanced educational centers are using closed-circuit television for teaching purposes. The author carried out the pioneering effort in this area at the University of São Paulo, through the production and transmission of a course in educational psychology to about 2,000 students. On the other hand, priorities for broadcast educational TV in Brazil are devoted principally to supplementary teaching and to in-service training of teachers, according to announcements by the Brazilian Center for Educational TV, and these were the first programs carried by Cultural TV of São Paulo.

One of the problems confronting educational TV in Brazil is the lack of qualified technical personnel.

Comments are made concerning the quality of programs in comparison with commercial TV, as well as the audience, including children and adolescents. In the latter case, data are presented from some research carried out by the Department of Educational Psychology at the University of São Paulo.

The paper concludes with some comments and suggestions regarding a "satellite university," with the purpose of expanding the educational possibilities of television by utilizing the facilities of communication satellites now in orbit.

RESUMEN

El artículo presenta algunos aspectos del reciente desarrollo de la tecnología educacional relacionada a la psicología educacional, haciendo énfasis en algunos hechos relacionados con la introducción de la televisión en Brasil. Se presenta la organización y función de las estaciones de TV educativas como el medio en el cual el gobierno y los educadores brasileños han tratado de resolver la tremenda distancia existente entre la producción y la demanda en material educacional. Se menciona en especial la TV Cultura de São Paulo, que ha sido inaugurada muy recientemente.

Actualmente, los centros educativos más adelantados utilizan el sistema de circuito cerrado de televisión con propósitos educativos. El autor fué el pionero en este sistema dentro de la Universidad de São Paulo, produciendo y transmitiendo un curso de Psicología Educacional para aproximadamente 2,000 alumnos.

Uno de los problemas a los que se enfrenta la TV educativa en Brasil es la falta de personal técnico adecuado.

Se hacen comentarios tanto en relación a la calidad de los programas en comparación con la TV comercial, como a la audiencia,

incluyendo ésta niños y adolescentes. Se presentan algunos datos en relación a ésto último, tomados de una investigación llevada a cabo por la Universidad de São Paulo.

Con el propósito de extender las posibilidades de la TV Educativa, se termina el trabajo con comentarios y sugerencias en relación a una "Universidad via Satélite", utilizando así las facilidades que representan actualmente los satélites en la comunicación.

RESUMO

Neste trabalho são apresentados os recentes desenvolvimentos da tecnologia da educação relacionados ao campo da Psicologia Educacional, destacando-se alguns fatos significativos a respeito da introdução da Televisão Educativa no Brasil.

A organização e funcionamento de estações de TV Educativa em diferentes estados do país é apresentada como uma das fórmulas que vêm sendo atualmente contempladas pelos governantes e educadores brasileiros para superar a crise educacional caracterizada pelo hiato, que se amplia cada vez mais, entre a oferta e a procura em matéria de educação.

Especial menção é feita à TV Cultura de São Paulo, uma estação de TV Educativa recém-inaugurada nesta cidade.

Além disso, nos centros educacionais mais desenvolvidos do país generaliza-se a utilização do circuito fechado de televisão para fins de ensino. Neste campo, uma experiência pioneira na Universidade de São Paulo vem sendo realizada pelo autor, através da produção e transmissão de um curso de Psicologia Educacional para quase 2,000 alunos.

Por outra lado, as prioridades para a TV Educativa em circuito aberto no Brasil estão voltadas principalmente para o ensino supletivo e para o aperfeiçoamento de professores, a julgar-se pelos pronunciamentos do Centro Brasileiro de TV Educativa e pelos primeiros programas levados ao ar pela TV Cultura de São Paulo.

Uma das dificuldades com que se defronta a TV Educativa no Brasil é a falta de pessoal técnico qualificado.

Relativamente à TV Comercial são feitos comentários sobre a qualidade dos programas, bem como sobre a audiência, inclusive a audiência infantil e juvenil. Neste último caso, são mencionados dados obtidos através de algumas investigações realizadas a respeito, pelo Departamento de Psicologia Educacional de Universidade de São Paulo.

O trabalho é encerrado com alguns comentários e sugestões no sentido da organização de uma "universidade via satélite", com o objetivo de ampliar as possibilidades educativas da televisão pela utilização das facilidades que os satélites artificiais de comunicação já em órbita, podem proporcionar.