USING RADIO FOR INFORMATION GATHERING IN PANAMA:
A METHODOLOGICAL ANALYSIS

By
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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Master of Arts in Communication

May, 1988
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A METHODOLOGICAL ANALYSIS

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ABSTRACT

This thesis is a methodological analysis of the first known use of radio as a means for collecting information from the general populace of a country. The Pilot Study was conducted in Panama. This evaluation was the first part of an ongoing project of the College of Social Communication to increase the usability of its radio station.

On June 8, 1986 the project was initiated with a Pilot Study using a new survey method. The purpose of this study was to test the usefulness of radio in combination with a questionnaire as an effective data gathering method. The sample for this study was 1,444 families from six cities. Radio was used to broadcast the questionnaire and elementary school children distributed and collected the answer forms. The results of this study showed that of the 1,444 answer forms distributed 1,383 were returned. That is a 96% response rate.

The research question for this thesis was, is radio an appropriate vehicle for collecting information?
The evaluation of the Pilot Study was done on the basis of the main points developed in a model for survey research, including identification of the population, sample selection, creating the questionnaire, gathering the data, evaluating reliability and validity, response and nonresponse, and analysis of the data. Positive and negative points were identified for each aspect evaluated.

The results of the evaluation showed problems only with the selection of the sample, and the validity of the answers. Results indicate that the attempt to use radio to gather survey data was successful. On the basis of these results and the comparison made between radio survey and the four methods for collecting data suggested in the model for survey research—telephone, mail, personal interview, and group administration—a model for radio survey methods is presented. This will allow radio stations to use it in the future to collect information for any type of research project. In order to justify the radio survey method, it might be necessary in the future to make a study comparing the radio survey method with mail survey, telephone survey, personal interview, and group administration methods.
CHAPTER 1. THE RESEARCH PROBLEM

This thesis is a methodological analysis of the first known use of radio as a means for collecting information from the general populace of a country (Gonzalez and Burgess, 1986). The country where the pilot study was conducted is Panama. A brief introduction to the use of Radio in Latin America will serve as a foundation for an historical review of the development of Radio in Panama. A model for survey research will then be presented against which the experimental use of radio for survey research will be evaluated. This evaluation will lead to a model for radio surveys that will allow rigorous data collection throughout a country. The model will be discussed in terms of its use in distance education and general information gathering.

The use of radio to gather information is an historical event. Hitherto, radio, as with media in general, has been used to disseminate information. Thanks to the products of industrialization and modernization, mass media have become part of the development of today's societies. It is
now possible for populations in the most remote areas of the world to read magazines, books, and newspapers, to listen to the radio, or watch television. In this way the media, as information disseminators, have become a part of our lives.

1.1 Radio in Latin America

Mass media have not only increased in the developed countries, but they have also advanced in the Third World countries. The introduction of television to Asia, Africa, the Caribbean, and Latin America has had a great impact. However, of all the media, radio has played the major role in Third World development over the last three decades. With the independence movements in Asia and Africa, and continuing through the post-colonial era of political, social and economic development, only radio could be utilized as a way to reach large groups of people in these areas (Sweeney, 1982).

In spite of the attractiveness of television, radio remains the main source of information and the most popular medium in Latin American countries. The ease with which it can transmit information to rural areas has enhanced its image.

The common method of radio communication in the Third World has been the transmission of one-way messages from urban centers to rural areas, from
elites to the masses. The use of development communications, with few exceptions, has consisted of directing information to target audiences, rather than promoting an exchange of messages (Gwyn, 1985, p. 79).

1.2 Radio and Rural Development

There were several reasons for the increased interest in the use of radio as an instrument for developing different kinds of projects in the rural areas of developing nations.

Rural broadcasting should be recognized as a most important and effective tool for rural development and the improvement of the standard of living of the rural communities in developing countries. The national radio station in the developing world should pay more attention to rural broadcasting, because it is needed to develop the rural areas. The existence of the transistor has made possible a large potential and accessible audience (Pickstock, 1971, p. 3).

Many studies show that radio is the only medium with significant penetration into rural areas. (Diaz, 1976).

Radio has been used in some Latin America countries in education, health, nutrition, family planning, and agricultural programs. According to Diaz (1976) some of the pioneering studies involving a number of communities receiving different media treatments in Latin America include:

1. The influence of radio and supporting media in the adoption of farm and health practices. This project was done in Ecuador by Torres and Spector (1964).
2. Two methods (radio and reading forums) were compared in regard to their ability to effect change in the level of knowledge, attitude, and adoption of innovations in agriculture, health, and social education by UNESCO in Costa Rica (1969).

3. A study using radio was directed by Herzog in 1968 in Minas Gerais, Brazil; in which several communication strategies were compared as to their efficacy for technological diffusion. These three studies indicated that radio was used in diverse projects to motivate people to act.

Radio has also been used successfully in educational projects, with the results that radio, correctly used, can teach as well as, or in some cases, better than, traditional instruction. The use of radio for instructional purposes has a long history. Chu and Schramm (1967) reported the principal conclusions of their extensive survey of the effectiveness of radio.

1. Given favorable conditions, pupils can learn from any instructional media that are now available.

2. The use of visual images will improve learning of manual tasks as well as other learning where visual images can facilitate the association process. Otherwise, visual images may cause distraction and interfere with learning.
3. Student response is effectively controlled by programmed methods, regardless of the instructional medium (McAnany and Jamison, 1978, p.30).

Their conclusion was that radio can teach as well as the other media. In 1970 Forsythe conducted another study using survey research methods with similar results. His study showed that radio is an effective mode of instruction, as capable as so called "conventional methods" (McAnany and Jamison, 1978).

Sylvia S. de Sotelo of the Center for Educational Studies in Mexico conducted a project using radio as a means of teaching elementary school classes (1971-1975). The project was sponsored by the Catholic Church which has had a mission in Tarahumara (Mexico) since 1900. The project started in 1971 with 46 radio schools, serving 1,081 students throughout the region. Each school had one or two assisting teachers, trained at the Jesuit Mission, who organized and supervised the class, served as guides, and corrected the student's work. Students were divided into classes of 19, to each of which a lesson was transmitted for 15 minutes. On the evaluation of this study, Sotelo found that in arithmetic, geometry, and Spanish, the scores of the fourth graders in her sample with radio lessons were a little higher than those of the traditional students. These
radio lessons were stopped in the 1973-1974 school year, awaiting reevaluation (McAnany and Jamison, 1978).

In 1964, the Dominican Republic began a radiophonic adult program based on the Colombian Radio, Sutatenza, and in the next six years nearly 25,000 adults received literacy certificates. In 1971, Radio Escuela Santa Maria in the Dominican Republic started an extensive adult-education program based on the adult-education program of the Canary Islands (Cepeda, 1976). Afterward Radio Santa Maria moved to the elementary and secondary levels of education. They used a one hour broadcast each day with lesson sheets, and weekly sector meetings with a field teacher. By the 1974-1975 school year, there were about 20,000 students attending the radio lesson classes, and about 2,000 students took the eighth grade exam, with 96% passing.

A comparison was made between students in the second, fourth and sixth grades from the radiophonic school of Santa Maria with 15 students from the official adult-education program in the city of La Vega. The results showed no significant difference in the second grade level scores. Santa Maria's fourth grade level had a mean score of 66, while the conventional students had a mean score of 40, and the sixth grade level radiophonic school students
had a mean score of 69, while conventional students had a mean score of 47 (McAnany and Jamison, 1978). This would indicate that the radiophonic school was doing a very credible job.

In 1975, Barbara Searle and Patrick Suppes, representing the Institute for Mathematical Studies in the Social Sciences of Stanford University and with the sponsorship of the Agency for International Development (AID), began working with their Nicaraguan counterparts in Masaya on a radio program to teach elementary school mathematics. The project began with the first grade level, and after two years moved to the third grade level. The program supplied all the training that the children needed to learn mathematics. It consisted of one radio lesson of 30 minutes, followed by 30 minutes of teacher directed activities every day. The children did not use textbooks, but instead used standardized worksheets for each class.

In the results at the first grade level, the authors found that the children, "who had radio scored about 67% on the end of year test, while students who had no radio scored only about 58%; this difference is statistically significant" (McAnany and Jamison, 1978). The outcome for 1976 showed more success in favor of the radio student than was found in the 1975 results.
As stated earlier, radio has also played an important role in the development of family planning, nutrition, and health programs. In 1969-1972 and 1974, Colombia had a national family planning campaign sponsored for radio by a private association. Advertisements of 15 to 30 seconds were broadcast many times each day during the last six months of each year. The outcome showed that radio was the second most important source of information for new contraceptive accepters attending family planning clinics during periods when radio programs were broadcast, and the third most important source when there were no radio announcements. The prime source was friends, neighbors, and relatives (Sweeney, 1982, p.14).

A mixed media family planning campaign was conducted in Honduras in 1968, using radio and other media. The goal of the campaign was to increase the demand for planning services among a low-income urban population. This campaign lasting five weeks, contained daily radio spots, a sound truck, pamphlets, and films. The post-campaign analysis found that clinic attendance grew during and immediately after the campaign. They also found that before the campaign only 6% of those interviewed knew of family planning as a service of the health center, while 29% did so afterwards. Another survey given to the new patients of a family planning clinic showed that radio was considered the prime source of information in comparison with the other media employed (Sweeney, 1982).
As part of a four year project in the Cochabamba Valley of Bolivia, Gwyn (1985) directed a study, using small commercial radio stations for the dissemination of information in a nutrition promotion campaign. From October 1978 to July 1980, this promotion encouraged the direct consumption of soybeans as a low-cost food source. A sequence of one minute advertisements containing information on nutrition and the use of soybeans, were broadcast on three radio stations. The first information collected from surveys showed that radio was not very effective in communicating information about soybeans. The author suggested that this was due to the sample selection, which contained only married women. Another sample was selected containing men and teenagers, and the commercials were rewritten, focusing on the new sample. The results of this survey demonstrated that 80% of the sample could identify the information on soybeans. Radio was also found to be efficient in directing people to the nutrition demonstrations. Thus, radio, as a component of the daily lives of these people, could function as a possible change agent.

During three months in 1978, a study of nutrition education in Mexico compared the effectiveness of mass media techniques (primarily radio) with direct personal methods of education in transmitting concepts of nutrition. The experimental design included three geographic areas with similar characteristics, all in the same
Villagers in one area were taught by radio. In a second area, the method was direct teacher education. Knowledge of nutrition concepts were evaluated immediately after instruction and three months later. One year later, changes in diet were studied. The third area was a control. The evaluation found that nutrition concepts were learned equally well using both mass media and the face to face method of education. Both groups reported a positive transformation in food consumption habits (Sweeney, 1982, p.16).

In Nicaragua (July 1976 to May 1977), a health campaign using radio spots was developed to teach rural mothers about the problems of diarrhea and to instruct them in appropriate methods of treatment, including the preparation and administration of fluid. Almost 65% of the target audience listened and remembered the messages, and a total of 25% of this audience reported that they had subsequently prepared and administered the fluid (Sweeney, 1982).

Radio has also had good results in agricultural projects. From 1973 to 1978, radio and printed materials were used in the experimental project Basic Village Education in Guatemala. The purpose of this study was to change farming practices and increase production through a permanent flow of information. Two rural areas were selected, one in a Spanish speaking area and one in an Indian language area. Two new radio stations broadcast eight hours a day, six days a week in prime time for the farm audience. The
target groups were also visited by fieldworkers and agronomists. The evaluation of the project was based on a baseline survey and annual surveys looking for changes in knowledge, attitudes and practices. The findings showed that in the Spanish-speaking area, which was more advanced in development, radio alone was an adequate source of information. In the less developed area, the mix of radio, fieldworkers and agronomist was the best. However, even in this area radio could introduce new ideas and deal with farmers' fears about innovations (Sweeney, 1982, p.41).

1.3 Summary

The above samples of research findings in the use of the media in Latin American countries show that 1) Mass media, especially the electronic media have advanced in the Third World countries, and 2) in Latin American countries radio remains the most popular medium of information.

It is also clear that radio has been an effective source of information for many purposes, and has played an important role in the development of diverse areas in Latin America. It has been used in research programs such as: education, health, nutrition, family planning and agriculture; as a means of effectively disseminating information to improve listener knowledge. Thus, radio has become one of the primary means of reaching the masses in Latin America.
If it can be used to disseminate information why not use it to gather research information also?

Because no research has been reported in which radio has been the means of collecting information, the present study will be a methodological analysis of the one experimental use of radio as a vehicle for collecting research information. The results of this analysis will indicate whether or not radio is an appropriate vehicle for collecting information. Since there are numerous fields of investigation (social, political or economic) where radio might be a useful tool, this study will not focus on the content area, but rather on the research method used - that of survey research. Since the pilot study of the use of radio for collecting information was done in Panama (Gonzalez and Burgess, 1986) the next chapter will present a brief history of the development of radio in Panama.
CHAPTER 2. THE HISTORY OF RADIO IN PANAMA

Fifty-three years after its beginning in Panama, radio is still the most popular medium, because of both the increase in the number of radios and the important role radio plays in the social, political, and economic development of Panama. This chapter will describe the history of radio in Panama, giving emphasis to legislation, the number and types of radio stations, and the role that FM Stereo Universidad (The national Radio Station of the University of Panama, FMSU) plays. These points must be emphasized because of their relationship to the pilot study being evaluated in this thesis.

The history of radio in Panama begins with Panama's relations with the United States and the infrastructure of the interoceanic seaway (canal and military bases). In its first years as a republic (around 1903), Panama did not have sovereignty over its airspace. The Hay-Bunau-Varilla Treaty, signed between Panama and the U.S. in 1903, gave the
U.S. the power of administration and control of all aspects of Panama's telecommunications.

In compliance with this treaty, Decree No. 130 was proclaimed on August 29, 1914, which stated: "Radiotelegraphy and everything related to wireless communications in the territory and waters of Panama are under the control of the United States" (Sepulveda, 1975, p.105).

With this decree, Panama became the object of much pressure from the North American government. For example, William McCain (1978) stated in his book about the U.S. and Panama that "the intervention of the United States in the development of transportation and communication in Panama is one of the most disagreeable chapters in North American foreign relations" (p. 159). The above mentioned decree was in force for 16 years. On November 7, 1930, the National Assembly of Panama approved Law No. 34, which had been ratified by the International Radiotelegraphy Convention in Washington on November 25, 1927. The objective of this convention was to regulate all wireless communication. Every country that participated in the convention was in favor of maintaining power over all aspects of radiocommunication within its own boundaries (Staff, 1985).
Decree No. 130 of 1914 was abolished upon the passage of Decree No. 175 in 1930. Decree No. 175 became effective in 1933 when it was made public by the official Gazette (Organ of the State). This meant that for 30 years Panama had no legislation in regard to radio broadcasting and consequently had no radio stations.

With the intention of installing a radio station in the capital city in 1931, Manuel Diaz, Ramon Gordils, Guillermo Quijano, and J. Cabrera formed R.A. Gordils and Company a Public Service Radio. They solicited permission from the city, which was granted in November of the same year, but it was not until April 1932 that the station was able to function under the name of La Voz de Panama (The Voice of Panama). Finally, on August 14, 1933, the first clandestine radio transmissions in Panama were made. These transmissions were suspended by orders of the U.S. government. However, on the 25th of December 1934, the station was officially inaugurated (Sanchez, 1964). The broadcasting was of a commercial nature, and the first advertisers were The Tahona Bakery and the Postal Warehouse, which represented and distributed RCA Victor records.

Radio Experimental Tembleque (Tembleque Experimental Radio) also went on the air in 1934. Tembleque was the
property of Enrique Pamiza, Emerito Nunez, Fernando Joly and Felix Alvarez, who are considered the pioneers of radio broadcasting in Panama. Their first broadcasts, like La Voz de Panama, were also clandestine. It broadcast under the identification code HP5A (Stecco, 1984).

It was in 1934 that broadcasting really had its official beginning in Panama. That year saw the passage of Law 12 by which "the national government should license all radio stations that want to be established in the country, that they should always be the property of citizens of Panama, and that the personnel should be directed by Panamanians" (Sepulveda, 1984 p.124).

Following Law 12 came Decree No. 170, by which radio broadcasts were regulated. On December 25, 1934, the first radio station was founded at Colon, La Voz de Victor (The Voice of Victor). The first broadcast made from the Interior of the Republic was on January 21, 1937. The first station to broadcast Panamanian folk music was La Voz del Pueblo (The Village Voice), owned by Sr. Modesto Lombardo. This was of the commercial type, which charged 20 Balboas ($20) per month to run advertisements twice daily, also transmitting programs of social service and reading news from newspapers.
With the proclamation of Law No. 170 in 1934, many radio stations sprung up, but this increase in stations lasted only until 1940 and the arrival of the Second World War. Article 15 of Law 170 stated: "In case of war or the threat of war, or change in the public order or the suspension of individual rights, the Executive Power, if it is considered convenient, may suspend or cancel the functioning radio-communication stations" (Sepulveda, 1975, p.13).

In 1946, new radio stations surfaced, and in September La Voz de la Comunidad (The Community Voice) began transmitting – the first station to broadcast information in English. In the same year, La Voz de Ancon (The Voice of Ancon) was founded, with programming completely in English. The surge in broadcasting stations in the post-war period continued in the Interior of the Republic, such as Radio Provincias (Radio Province) in Chitre, La Voz del Baru, (The Baru Voice) in David, and Ondas Centrales (Central Waves) in Santiago (Stecco, 1984).

2.1 Regulation of Radio in Panama

Due to the growth and development of radio in Panama, the government saw the need to create legislation in relation to broadcasting. This brought the passage of Decree No. 1124 on September 15, 1952, which regulated the functions of radio broadcasting stations.
Ten years later, the earlier laws were repealed, when Decree No. 155 was passed on May 28, 1962. In its first article, this law said: "The object of this Decree is to regulate the services of broadcasting and of broadcasters and their assignments, use or exploitation of the frequencies used for these services" (Cadlington, 1984, p. 160). Of equal importance, this Decree stated, in Title IV, Chapter 1, Article 96, that:

The Ministry of Government and Justice will exercise supervision, control, and inspection over the broadcasting service in the following ways:

A. To comply and make to comply all dispositions of the radio broadcasting services;

B. To grant, renew, and declare void all concessions and licenses, which are established by this Decree;

C. To assign frequencies and identification letters, fulfilling needs and making changes in accordance with this Decree and with international laws;

D. To authorize changes of station locations, always in arrangement with this Decree;

E. To check technical characteristics of antennas, or radiation systems, in accordance with engineering standards;

F. To arrange the manner in which broadcast towers and supports should be painted and lighted;
G. To dictate measures for suppressing the interface between stations;

H. To terminate the occupation of, or to decommission clandestine broadcasting operations;

I. To dispose of power exchanges, because stations may only operate when authorized;

J. To promote the most ample and effective use of the broadcasting service;

K. Whatever other faculties that national or international laws and rulings grant them (Cadrington, 1984, p.187).

This Decree has been modified in accordance with the real needs of Panamanian broadcasters. In the radio broadcast world, there exists La Asociacion Panamena de Radiodifusion, or A.P.R. (The Panamanian Broadcasting Association), which constitutes all radio and television companies in the Republic. Its objective is to represent the general interests of broadcasting, and all the enterprises of which it is comprised.

According to data obtained from the Department of Communication Media of the Ministry of Government and Justice (1984), there were 72 A.M. stations and 62 F.M. stations, making a total of 134 broadcasting stations at that time. In Panama City, there are fifty-nine radio stations (see Table No. 1).
Table 1
Republic of Panama
Ministry of Government and Justice
Research Center of Social Communication
Broadcasting in Panama
November 1984

<table>
<thead>
<tr>
<th>Province</th>
<th>Radio (A.M.)</th>
<th>Repeat</th>
<th>Off Air</th>
<th>Radio (F.M.)</th>
<th>Repeat</th>
<th>Off Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bocas Del Toro</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Cocle</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Colon</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chiriqui</td>
<td>15</td>
<td>-</td>
<td>3</td>
<td>13</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Darien</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Herrera</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Los Santos</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Panama</td>
<td>27</td>
<td>-</td>
<td>12</td>
<td>32</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Veraguas</td>
<td>5</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>San Blas</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>72</strong></td>
<td><strong>3</strong></td>
<td><strong>30</strong></td>
<td><strong>62</strong></td>
<td><strong>1</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

Taken from SYNTAGMA, 1986, p. 2.

Panamanian radio actually has commercial, state and religious stations. Among the stations that cover the entire country are the following: RPC Radio, which is a private station, and Radio Nacional which is government owned and is an integrated network of seven radio stations distributed throughout the Republic (see Table No. 2).
Table 2
Chronology of National Radio of Panama
May, 1986

<table>
<thead>
<tr>
<th>Name</th>
<th>Province</th>
<th>Freq.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Libertad</td>
<td>Panama</td>
<td>840</td>
<td>June 27, 1970</td>
</tr>
<tr>
<td>Radio Urraca</td>
<td>Veraguas</td>
<td>1090</td>
<td>March 13, 1970</td>
</tr>
<tr>
<td>Radio Guaymi</td>
<td>Chiriqui</td>
<td>890</td>
<td>Nov. 10, 1970</td>
</tr>
<tr>
<td>Radio Vic. Lorenzo</td>
<td>Cocle</td>
<td>950</td>
<td>June 9, 1980</td>
</tr>
<tr>
<td>Radio La Voz de H.</td>
<td>Herrera</td>
<td>770</td>
<td>July 9, 1980</td>
</tr>
<tr>
<td>Radio Cris. Colon</td>
<td>Colon</td>
<td>910</td>
<td>March 15, 1980</td>
</tr>
<tr>
<td>Radio La Voz del T.</td>
<td>B. del T.</td>
<td>1010</td>
<td>March 18, 1982</td>
</tr>
</tbody>
</table>

Taken from SYNTAGMA, 1986, p.4

In general, radio broadcasters offer varied programming, commentaries, music, news, cultural programs, educational, sports, and entertainment programs.

There is only one transmitter which broadcasts programs in English. It is located in the Canal Zone under the jurisdiction of the U.S. Government. This is a network of Military stations called The Southern Command Network and covers the capital city and Colon.
2.2 The Use of Radio in Panama

Radio broadcasting in Panama has been the object of investigation as much in its historical antecedents as in its Panamanian audience. Among these studies is a book compiled by Professor Hector Staff (1985) about the history of radio in Panama. Edita Stecco (1984), in her unpublished thesis, studied the acceptance of radio advertisement in the Central Provinces. Sixty-five percent of those surveyed in this study showed an acceptance of the radio advertising chosen for demonstration in the study.

Nilda Cadrington (1984), in her unpublished thesis, also did an analysis of the social and educational foundations of educational radio in Colon. She found that educational and cultural programs were presented a small percent of the time (0.08%), while a larger percent was given to the broadcasting of entertainment programs - 57%, information - 20.6%, advertising - 18.8%, and sports - 3.4%.

The Research Center for Communication (1985) conducted an analysis of Radio Programming and its focus. It chose for this study a total of 47% of the radio stations of the country, finding a total of 655 different programs. These programs were divided into three categories: entertainment, information, and cultural. The analysis of these
programs showed that of the total, 60.8% (398) were entertainment programs such as musicals or variety shows, informative programs constituted 24.1% (178) of the programs, a total of 12.1% (79) were cultural programs, showing that radio pays less attention to cultural programming than to any other category.

The analysis of the total number of hours of broadcasting shows a total of 832.22 hours in a five day period (Monday thru Friday). Of the above total, 609.4 hours (73.3%) were entertainment programs, 177.1 hours (21.3%) were informative programs, and the remainder of the hours were cultural. In summary, this study revealed that radio in Panama focuses its programming on entertainment, which is three times greater than information and cultural programming (CICS, 1985).

Due to the growth of commercial radio stations in Panama and the competition of programming for the acquisition of commercial advertising, the radio owners have constantly investigated their programming using questionnaires, telephone surveys, and opinion polls, concerning preferred programs and the number of people who listen to the radio. Numerous studies done by Solarian Corporation, S.A., have shown that radio is the most popular medium in Panama (Ayala, 1984).
2.3 The School of Broadcasting of the University of Panama

The school of broadcasting is in the College of Social Communication of the University of Panama, together with the schools of Journalism, Advertising, and Public Relations. It began functioning in 1974, and offers a three year technical program and a diploma in Radiophonic Communication. The students in this school acquire a knowledge of radio announcing, and gain the capacity to engage in whatever activity may be related to radio, such as: Audio Operator, Program Production, Commercial and News Editor, Interviewer, Techniques of Radio Education, and Management of Technical Radio Equipment.

2.4 FM Stereo Universidad

With the help of resolution No. 298, the Ministry of Government and Justice granted the use of an FM frequency to the University of Panama (Staff, 1985). Thus, on January 22, 1985, FM Stereo Universidad (FMSU) began broadcasting. It is operated by students in the College of Social Communication. FMSU is an educational and cultural station. Its fundamental objectives are the expression and diffusion of thoughts, and acts of the university in connection with the specific objectives of the University of Panama. FMSU also claims to be an effective instrument for distance education,
which extends the influence of the highest house of learning in Panama beyond the classroom, thus contributing as a medium of social communication to the formation of the individual.

By its nature, FMSU is a non-profit public service station. It does not permit the promulgation of political parties' ideas. FMSU is attached to the Rectory of the University of Panama, under advisement of committee formed by the Dean of the College of Social Communication and the directors of its four schools. This committee is responsible for both the general orientation of the station and for its compliance with the aforementioned objectives (College of Social Communication, 1984). The station is financed by funds appropriated by the Ministry of Government and Justice to the College of Social Communication of the University of Panama. These funds are obtained with the help of Executive Decree No. 1 of January 10, 1978, which, in its Article No. 31, states,

The transmission of commercial announcements for movies and television produced outside of and dubbed into Spanish in Panama is permitted. However, these announcements must pay for this permission. This money will go to the funds of the College of Social Communication of the University of Panama, for the technical formation of new professions in the field of social communication such as radio and advertising (Official Gazette, 1978, p.3).
The transmission of programs on FMSU began with a staff of four graduating students of the school of radio. Its equipment consisted of an eight-input stereo console, three tape players, two microphones, two turntables, and a tape recorder. From this equipment the audio signal was sent to a small FM transmitter with an output of 1500 watts of power. The transmitter's omnidirectional antenna is located at the top of Cerro Oscuro (Vega, 1987).

In an interview with Professor Arturo Rivera, Director of FM Stereo Universidad, he reported that FMSU is basically an educational and cultural transmitter, differing from the other radio stations in Panama. As an institution directed at serving the University community, FMSU is an instrument of expression open to all professors, collaborators, administrators and students, giving preference to those from the College of Communication, whose students use it as a practice workshop in their last year of study.

F.M. Stereo Universidad is autonomous, and follows no political ideology. It has no censorship. It is regulated by current legal dispositions, and those dealing with educational criteria and objectives of the University of Panama.
Professor Rivera goes on to indicate that the personnel working as operators at the station are actually students of the School of Radio. Programs are transmitted from Monday thru Sunday between the hours of 6:30 A.M. and 10 P.M. The programs include the contributions of professors and students of the University of Panama, as well as programs from embassies of other countries and from productions and adaptations made by broadcasting personnel (students of the School of Radio) together with the Director.

Among the programs transmitted are the following: Consultorio Juridico (Judicial Consultant), Jurado No. 13 (Jury No. 13), which is produced by students of the Political Science College; Notas Culturales (Cultural notes), a program of Professor Porfilio Sanchez, dealing with the history of various writers; Proyecciones Pedagógicas (Pedagogic Projections), dealing with problems in secondary and university education, Conciencia Historica, a program of Professor Rolando Hernandez of the History Department, whose objective is to create an awareness of the historical importance of the development of nationalism in Panama in relationship with historical events, both Latin-American and universal. Also, there is a program in dialogue form, where talks on medical topics are given in an effort to explain different ways to avoid and treat various illnesses. There
are also programs which broadcast university news, and general-format programs about embassies and museums.

Professor Rivera also talked about the projected plan of the College of Social Communication to increase the power of the radio station, enabling it to cover the entire Republic of Panama. In this way, the radio station can be used as a tool for research, and at the same time Distance Education can be put into practice. This project is also sponsored in part by the Ministry of Education of the Republic of Panama.

For the realization of this project, the broadcasters are counting on the help of institutions in the United States, among them the University of Delaware, which is working on a research project in conjunction with the College of Social Communication of Panama. The Ex-Import Bank will offer a loan along with AID to upgrade the facilities. Finally, Professor Rivera says that, in the future, broadcasting will be organized into three operative departments: Administrative and Technical, Programming and Production, and a Teaching Department, each led by its own director.
2.5 - Summary

As in other Latin American countries, Radio is the most important medium for reaching all the people in Panama. It has both public and commercial radio with a total of 134 stations. Among the stations that cover the entire republic are RPC Radio, a private station, and Radio National, the government's station. This two stations along with the broad base of local stations permit important information as well as entertainment and cultural programs to be disseminated throughout the nation.

The school of radio in the College of Social Communication of the University of Panama operates the radio station F M Stereo Universidad. The main objectives of this station are to express and diffuse the thoughts and acts of higher education in connection with the specific objectives of the University of Panama. With the increase in power of F M Stereo Universidad, it will cover the entire Republic of Panama, and one of the objectives of the University is to use this station as a tool for research and distance education. To accomplish the objective a method is needed by which radio can be used to collect information as well as disseminate it. In the next chapter survey research methods will be reviewed to see if this can be done.
CHAPTER 3. SURVEY RESEARCH METHODS

This chapter will focus on the use of survey methods in social science research. A model will be developed with which the Pilot Study done in Panama will be evaluated. Since survey methods are used to collect data from large numbers of persons, they can be used in many types of research. The model developed in this chapter will focus on their traditional uses as a preview for using radio as the principal vehicle for dissemination and collection of information.

3.1 Definition of Survey Research

Survey research is a popular social science research method. It involves collecting data through the administration of questionnaires to a sample of selected respondents that represent the population under study. Marsh (1982) defines survey research as "an inquiry which involves the collection of systematic data across a sample of cases, and statistical analysis of the results" (p. 9).
Surveys are used in descriptive and analytic studies. A descriptive study tries to give a representation of a situation, the conditions, or attitudes that exist in a given area. For example, broadcasting constantly surveys its audiences to determine programming tastes, changing values, and lifestyle changes that might affect programming.

Analytical studies try to portray and justify why a certain situation exists. In this kind of study, two or more variables are generally employed to support a research hypothesis. For example, after a publicity campaign, marketing may use a survey to see how the public is viewing the advertisement, and how this advertisement is changing the attitudes of the viewer toward the acquisition of the product being advertised (Wimmer, and Dominick, 1987).

3.2 Selection of a Research Topic

The selection of the topic and the definition of the research area are the most difficult components of the research procedure. The method selected for research has to be complementary with the topic chosen. Furthermore, the research topic will help to define the specific hypothesis of the study. Before the researchers select the topic they have to know: 1) the kinds of studies that have been done in the area selected; 2) the suggestions made by the
researchers for further research; 3) what has not been investigated; 4) what the study can provide or add to the researcher's knowledge in the area of investigation; and 5) what research methods were used in the previous studies. Once these questions have been answered, the researcher can proceed to make the hypothesis (Wimmer, and Dominick, 1987).

3.3 Advantages and Disadvantages of Survey Research

Like the other methods of observation in social scientific research, survey research has advantages and disadvantages. Among the advantages are the following: the subjects can be investigated in realistic settings, rather than in a laboratory or screening room under artificial conditions; the cost of a survey may be moderate considering the amount of information collected; the data can be gathered from a large and varied population; the survey technique allows one to study many variables; and there may also be data already collected that can be helpful to survey research, including archival data which can be used as primary or secondary sources of information without requiring the creation of a questionnaire.

Despite these advantages, the disadvantages of survey research are significant, and therefore must be mentioned. The first and more important is that independent
variables in a survey cannot be manipulated as in laboratory experiments. Without this control, the researcher cannot know if the relationship between independent and dependent variables is causal. That is, a survey can determine whether $X$ and $Y$ are associated, but with only the results of a survey it is difficult to determine that $X$ causes $Y$, because causality is difficult to establish when many intervening and extraneous variables are involved. A survey produces reliable and useful information from audiences and readership, but it cannot test causal hypotheses (Wimmer, and Dominick, 1987).

A second disadvantage is that the wording and the position of the question in the questionnaire can have biasing results. It is necessary to make sure that both the data collected and the measurement process are reliable and valid.

A third disadvantage of survey research is its dependence on sampling techniques. The sample must be large and representative of the population.

3.4 The Components of a Survey

Sampling, designing questions and choosing the method for gathering survey data are the three methodological com-
ponents of a survey. These techniques can be applied separately in a survey, but their union is necessary for a good survey design.

3.4.1 Designing a Survey

"Usually, surveys are used to describe variables and their relationships in a particular population at a particular time, rather than to test theory" (Bower and Courtright, 1984,). Methodologists commonly differentiate among survey designs according to who is surveyed and when.

Most survey studies utilize a cross-sectional design. In this type of study, the data gathered is from a representative sample at only one point in time; that is, each subject of one sample is questioned once. The variables in this kind of design are usually measured for descriptive or quasi-experimental purposes.

Longitudinal research involves the collection of data at diverse points in time. There are three types of longitudinal studies: trend studies, cohort analyses, and panel studies. The first major longitudinal study in the area of mass communication was done by Lazarsfeld, Berelson, and Gaudet (1944) during the 1940 presidential election (Wimmer and Dominick, 1987). The significance of this study,
however, was not recognized, because at that time longitudinal research had not been developed as a discipline.

Trend studies, first used in 1960, is probably the most common study in mass media research. Among the best known trend studies are those conducted by the Roper Organization, Gallup, and Harris. In a trend study, the researcher applies the same survey tool at different times over the same population. Trend studies can give information about future changes, and can be based on a comparison of survey data primarily made for other purposes.

In a cohort analysis, the researcher uses the same survey tool on diverse samples drawn from the same population (specific by age grouping) as this population changes through time (Brower and Courtright, 1984). For example, the researcher might wish to make a study of the population in 1987 of 61-70 year olds and compare it to a 1977 sample of 51-60 year olds (the 51-60 age cohort). Cohort studies are also used in studies of marriage, divorce, education, and others.

Finally, in a panel study, the researcher surveys the same sample at various times. Panel studies are similar to trend and cohort studies in that they employ the same sample at various times; however, panel studies differ from
the others by using the same group of people each time a study is carried out. These three kinds of studies can make use of mail questionnaires and telephone or panel interviews. Broadcasting networks, advertising agencies, and marketing research firms utilize panel studies to track changes in consumer behavior (Wimmer and Dominick, 1987).

3.4.2 Identifying the Population

A population is a group of subjects or units which includes all the elements of a given system. From this population is chosen a group which will be the representative sample of the population studied.

3.4.2.1 Sample Size

According to Fowler (1984), in order to decide on the sample size, it is first indispensable to make an analysis plan. This plan consists of a sketch of the subgroups and an estimate of subjects required for each subgroup from the whole population. The researcher then calculates how large a sample will be necessary, proceeding to supply an adequate sample for each of these small subgroups. "Like other decisions related to research design, there is seldom a definitive answer about how large a sample should be for any given study" (Fowler, 1984, p.43). It should be noted
that an increase of sampling augments the reliability of survey estimates.

The following are some general principles that Wimmer and Dominick (1987) provide for selecting acceptable sample sizes:

1. The methodology selected for doing research is the main consideration in determining sample size. For example, a small sample of 6-12 subjects could be sufficient if the goal is to collect preliminary information for a research project using a focus group. Small samples are also used for pretesting measurement instruments, and for pilot studies.

2. Sample size can be determined by cost and time; that is, the budget and time allotted for making the study will influence the sample size.

3. Multivariable studies always demand larger samples because they involve the analysis of several data (many measurements on the same subject). If multivariate studies use, for example, a sample size of 50 is considered very poor, 100 poor, 200 fair, 300 good, 500 very good, and 1000 excellent, while other researchers recommend using a sample of 100 plus 1 for each dependent variable in the analysis. (Wimmer and Dominick, 1987).
4. Information about sample size is available in published research, as other studies can provide the basis for determining sample sizes in new research. For example, if a survey is planned and there is another similar study done where the representative sample of 500 was used, with reliable results, a sample larger than 500 may be unnecessary.

3.4.2.2 Sampling

Success in choosing a good sample relies on both finding a method which provides all or almost all population members the same chance of being sampled, and in using probability methods for selecting the sample. Strategies for sampling have been cultivated since 1950, with probability sampling still the method of choice for personal interview surveys. At present, there is a remarkable growth in the technique of random digit dialing to sample households with telephones (Fowler, 1984).

There are three key aspects of sample selection. The first key is sample frame, "a list or quasi-list of the elements from which a probability sample is selected" (Babbie, 1986, p. 154). It is the resource used in the selection of a sample. A sample's representativeness depends directly on the extent to which a sampling frame contains
all the members of the total population that the sample is intended to represent (Babbie, 1986).

Statistically, a sample using this method represents only the population selected in the sample frame. The ability to generalize from a sample is limited by the sample frame; therefore when a researcher shows the outcome of the persons selected, he must tell who was and was not given a possibility to be chosen, how those omitted were distinctive, and if there were any sampled people for whom the chances of selection were unknown (Fowler, 1984).

The second key aspect of sample selection is the probability sampling utilized to draw individual units for inclusion in a sample. A basic rule of probability sampling is that "a sample will be representative of the population from which it is selected if all members of the population have an equal chance of being selected in the sample" (Babbie, 1986, p.141). If the accessibility or initiative of the researcher influences the opportunity of being selected, there is no statistical basis for evaluating whether or not the sample represents the population (Fowler, 1984).

The final key aspects of sample selection involve determining the sample design, its size, and the technique
used for choosing the units, as well as how these elements will influence directly the accuracy of the sample estimate.

Once the researcher chooses the method for drawing a sample, the next step is to know how to select the individual units to be contained. According to Fowler (1984), there are several methods that samplers typically use to draw samples. They include:

1. Simple random sampling. With this method, which is in some sense a model of population sampling, the groups of a population are selected only once and separated from one another without substitution once a person is selected, he or she has no further opportunity to be chosen. The procedure for drawing a simple random sample requires a numbered list of the population. In this list, each person is numbered once. Then, using a computer, a table of random numbers, or another generator of random numbers, the researcher selects the number of persons necessary for the study.

2. Systematic samples. In the random sample, the list is short and has all units prenumbered, while in the systematic sample, there are several lists. "When drawing a systematic sample from a list, the researcher first deter-
mines the number of entries on the list and the number of elements from the list that are to be selected. Dividing the latter by the former will produce a fraction" (Fowler, 1984, p.23). For example, there are 6500 persons on one list, but the researcher needs only a sample of 100 persons, so 1/65 of the list will be chosen. To use the systematic sampling technique, a starting point is designated by choosing a random number from 1 to 65, then every 65th person on the list, is chosen by chance.

Both random and systematic sampling ensure a degree of representativeness and permit an estimate of the error present (Fowler, 1984). Sampling error can be decreased by two factors in the sample design. "First, a large sample produces a smaller sampling error than a small sample. Second, a homogeneous population produces samples with smaller sampling errors than does a heterogeneous population" (Babbie, 1986, p. 160).

3. Stratified sampling. In this method the members of a population are organized into an homogeneous form before sampling. For example, the samples may be stratified by sex, age, profession, income, and so on.

4. Multistage sampling. This method is used when there is not an adequate register of the population that
will be sampled. Examples of multistage sampling would be the population of all elementary students, all university students, all the men of a city, and so on. Due to lack of a direct sampling source, it is necessary to utilize a strategy to cluster population members to a specific kind of grouping and then to proceed to select the sample. These groupings can be clustered as a first stage. The list made of these selected groups will give the members of this stage, and this list will be used to select the second stage of sampling.

5. Random-Digit Dialing. This method provides an alternative way to draw a sampling of housing units with the objective of sampling a person in those households. This method, however, presents some problems, including the omission of sampling those who live in housing units without telephones or in small areas where telephone exchanges do not correspond to area boundaries. The large number of telephone calls that are not answered, and determining who should be interviewed at the number called, also represent potential problems (Fowler, 1984). This technique of Random-Digit dialing will be explained in the telephone survey method.
3.4.2.3 Sampling Error

According to Williams (1986) sampling error is "an estimate of how statistics may be expected to deviate from parameters when sampling randomly from a given population" (p.49).

Researchers cannot expect the sample characteristics to be exactly the same as the population characteristics. The laws of probability permit sample characteristics to deviate from population characteristics, and researchers can calculate what kinds of deviations to expect. In the survey design process, calculating the degree of error expected from a particular sample is an important part of research. The statistic most often utilized to represent sampling error is called the standard error of the means, which is "the standard deviation of the distribution of sample estimates of means that would be formed if an infinite member of samples of a given size were drawn" (Fowler, 1984, p.36). Once the value of the standard error is calculated, 68 percent of the means of samples of a given size and design will fall within the range of +1, -1 standard errors of the true population means; 95 percent of such samples will fall within the range of +2, -2 standard errors and, 99 percent of such samples will fall within the range of +3, -3 standard errors (Fowler, 1984).
There are some rules concerning the function of the standard error. For example, when the sample size increases, the standard error decreases and vice versa. As the size increases, several samples will cluster closely to the true value. "Another rule of thumb is evident in the formula: because of the square root formula, the standard error is reduced by half if the sample size is quadrupled" (Babbie, 1986, p.152). For instance, if a sample of 100 produces a standard error of 5 percent, a sample of 400 will bring the standard error to 2.5 percent.

The method used to choose the sample can affect the estimated error. Systematic sampling should yield a sampling error equivalent to simple random samples if there is no stratification, whereas in a stratified method, the error will be lower than those linked with a simple random sample of the same size, because the variables are more homogeneous with the strata than in the population as a whole. "Clustering will produce sampling errors that are higher than those associated with simple random samples of the same size for variables that are more homogeneous within clusters than in the population as a whole "(Fowler, 1984, p. 39). The effects of sampling error differ for each variable. One strength of the survey method is its ability to estimate the sampling error.
3.4.3 Designing Questions

A questionnaire is not just a list of questions or a form to be filled out. It is essentially a scientific instrument for measurement and for collection of particular kinds of data. Like all such instruments, it has to be specially designed according to particular specifications and with specific aims in mind and the data it yields are subject to error (Berdie and Anderson, 1974, p. 25).

The goal for which questionnaires are utilized and the kind of data sought differ from study to study. Before starting to write a questionnaire, it is necessary to know the objectives, topic, and population of the study, because all the information that will be gathered will be related to these elements. Also, it is necessary to keep in mind the following assumption about the use of questionnaires: "The respondent will give true answers. This means the respondent will be both willing and able to give truthful answers" (Berdie and Anderson, 1974, p. 11).

Only a well designed questionnaire and a well formulated study design will reduce the negative effects of the respondents' answers, avoiding in this way the problems of reliability and validity.
3.4.3.1 Reliability

One goal of a good measure is to possess question reliability. Reliability is commonly related to permanence of performance over time. "A measure is reliable if it consistently gives the same answer at different points in time" (Wimmer and Dominick, 1987, p. 59). It is also necessary that the questionnaire presents a single interpretation for a given person, because the researcher could be unsure about the meaning of the question the respondent had in mind when he/she answered the question (Berdie and Anderson, 1974).

One requisite for getting consistent measurements is to ask the same set of questions to each subject in a sample.

In order to provide a consistent data collection experience for all respondents, a good questionnaire has the followings properties:

1. The researcher's side of the question and answer process is fully scripted, so that the questions as written fully prepare a respondent to answer the questions.

2. The question means the same thing to every respondent.

3. The kinds of answers that constitute an appropriate response to the question are communicated to all respondents (Powler, 1984, p.76).
If the objective is that the respondents have the same interpretation of each question, it should be clearly worded, avoiding inadequate wording and poorly defined terms. Inadequate wording is when the researcher's words do not constitute a complete question. There are several kinds of inadequate wording, such as: incomplete, optional and poor standerized wording.

Examples of incomplete wording could be the following:

1. Sex?

2. Hours of movies that you watch.

If the researchers want to have all the respondents answering the same question, then it is indispensable that the questions be written fully.

Optional wording is used when it is necessary to fit diverse respondent situations. The optional wording can be put in parentheses, to be used by the interviewer as necessary, according to the subject interviewed. Examples:

1. Did (he/she) watch television last night?

2. How many hours did (each person) watch (his/her) programs?
3. What programming do you like most on this radio station? (We are interested in anything: musical, cultural, informative or whatever).

If interviewers use the parenthetical probe when a respondent does not readily come up with an answer, that subset of respondents will have answered a different question. Such optional probes usually are introduced when the researcher does not think the initial question is a very good one (Fowler, 1984, p. 77).

The poor standardized wording often has a problem with the order of the main stem. Example:

I would like you to classify diverse qualities of your favorite Radio Programming as very good, good, fair, poor. Please think carefully about each item before answering it.

[a] music [b] cultural [c] informative [d] other

In this example the answer alternatives are read after the instruction. The three kinds of items indicated above would not be acceptable to all subjects due to incomplete wording, or the respondents may not understand the question, requiring the interviewer to give some explanations. Another problem with this item is the alternative "other"; what other alternatives could the respondent mention?
Another point that must be considered when writing a question is avoidance of the use of words that are not understood universally. Words that could result in confused interpretations such as "might", "could", and "should", as well as terms or concepts that can have multiple meanings, must be avoided. All of these procedures help researchers to get all subjects to respond to the questions in the same way to maximize reliability (Fowler, 1984).

3.4.3.2 Validity

"The extent to which the answer given is a true measure and means what the researcher wants it to mean or expects it to mean is called validity" (Fowler, 1984, p. 84). The validity of a questionnaire item depends on its success in eliciting true answers appropriate to the information desired. It is also necessary that both the researcher and the respondent understand the question in the same way, which increases the answer's validity (Berdie and Anderson, 1984). The type of measurement (nominal, ordinal, interval and ratio) indicates to the researcher the kinds of questions to be used to increase validity.

Two sorts of questions can be presented in survey research: Open-ended questions (requiring respondents to generate their own answers), and Close-ended questions (pro-
viding a list of selected answers supplied by the researcher).

Some of the advantages of open questions are the following:

1. They allow respondents freedom in answering questions and give the opportunity to provide in-depth responses.

2. They permit the respondents to answer some questions in their own words.

3. They permit the researcher to obtain answers that were unanticipated.

However, close-ended questions are the more common way to create data. The reasons for this are:

1. The respondent can perform more reliably the task of answering the question when response alternatives are given.

2. The researcher can perform more reliably the task of interpreting the meaning of answers when the alternatives are given to the respondent.

3. When a completely open question is asked, many people give relatively rare answers that are not analytically useful (Flower, 1984, p.87).
Questions could be valid or invalid, depending on the accuracy of the respondent. According to Fowler (1984), there are four basic reasons why respondents do not answer the questions with accuracy: "1. They do not know the information. 2. They cannot recall it although they do know it. 3. They do not understand the question. 4. They do not want to report the answer in the interview context" (p.91).

3.4.4 Choosing the Method

When both the questionnaire and the pilot studies have been elaborated, the next step is to gather the data from a sample of respondents. Survey research uses four methods to collect data: the mail survey, the telephone survey, the personal interview survey and group administration.

3.4.4.1 The Mail Survey

Mail surveys consist of mailing self-administrable questionnaires to a sample of individuals. Stamped envelopes are enclosed to stimulate respondents to mail answered questionnaires back to the researcher.

Mail surveys involve the following steps:
1. Select the sample. This is usually done by a prepared frame that includes the names and addresses of the possible respondents.

2. Make the questionnaire. It must be concise and specific, because the interviewer is not present to help the respondents.

3. Write the cover letter. This is a concise note explaining the purpose and importance of the questionnaire.

4. Assemble the package. The questionnaires, the note, and return envelopes are stuffed into mailing envelopes.

5. Mail the survey.

6. Closely monitor the return rates.

7. Send follow-up mailing. The first follow-up should be sent two weeks after the initial mailing. Then, two weeks after the first, follow-up, a second letter must be sent. A third letter can be sent to the whole sample or only to the respondents who have not returned the questionnaire.

8. Tabulate and analyze the data.
Mail surveys offer the following advantages: 1) They cover a wide geographic area at a low cost; 2) They are in some cases the only way to collect information from people who live in areas of difficult access or in other countries; 3) The sample can be selected from specialized mailing lists; 4) Mail surveys do not require a large staff of trained workers; 5) This method provides anonymity.

Among the disadvantages are the following: 1) The mail questionnaires must be self-explanatory, because there is no interviewer present to clarify concepts; 2) The collection of data is slower; the researcher never knows if the questionnaire was answered by the person desired. 4) The return rate is low, and this represents the biggest problem (Wimmer and Dominick, 1987).

3.4.4.2 Telephone Surveys

Telephone surveys need trained members to ask questions vocally and to record the responses, because the respondents cannot see the questionnaires. Telephone surveys offer control and access to numerous respondents, and they are usually cheaper than personal interviews. Making telephone surveys is increasingly more popular than the other survey techniques.
In summary, telephone surveys offer several advantages. First, they are low in cost, because there are no elaborate transportation costs, and the callbacks are simple and economical. Further, compared to mail surveys, telephone surveys can include more detailed questions, and the interviewers can clarify concepts. Finally, the nonresponse rate of telephone surveys is usually low. It is immediate, easy and relatively cheap.

One of the most difficult problems of this type of survey research is that not everyone has a telephone, and not everyone is in the telephone directory. Also, many people are listed incorrectly.

3.4.4.3 Personal Interviews

As in telephone surveys personal interviews require trained personnel to ask questions and record responses. However, the personal interview involves the visit of an interviewer to the home or work place of the respondent. There are two kinds of interviews: structured and unstructured. "In a structured interview, standardized questions are asked in a predetermined order, and relatively little freedom is given to interviewers. In an unstructured interview, broad questions are asked, which allows interviewers freedom in determining what further questions to ask to
obtain the required information" (Wimmer and Dominick, 1987, pag. 127).

Potential advantages of personal interviewing are the following: some sample designs can be more easily selected; it is the most flexible means of obtaining information, and it is the most effective way of enlisting cooperation from a population. With the presence of the interviewer to answer respondent questions, probing for satisfactory answers and instructions or sequences is possible, as are observations, visual cues, and self-administered sections. (Fowler, 1984).

Among the disadvantages of personal interviewing are the following: the high cost; the trained staff necessary so the interviewers are geographically near the sample; and the increased size of the data compared to that in telephone techniques.

3.4.4.4 Group Administration

Group administration gathers together a group of respondents, and a copy of the questionnaire is given for self-administration. The advantage of this method offers the opportunity to explain the study and to clear up concepts, it is low in cost, and the sample can be larger than the mail survey.
The main disadvantages are that not all surveys can use samples that can be tested together in a group, and the method generally requires high cooperation rates. In some cases, surveys require responses from a broad group of people and combining respondents together may bias the results.

3.4.5 Nonresponse

The technique utilized to gather data is as important as the sample selection method in determining how well a sample represents a population. Fowler (1984) indicates three reasons why the respondents selected do not provide data.

The data selection procedures do not reach or get to the respondents, thereby, not giving them a chance to answer the question. Those asked to provide data refuse to do so. Those in the sample asked to provide data are unable to perform the task required of them (p. 45).

The response rate, calculated by dividing the number of respondents by the total number of people sampled, is a basic parameter for evaluating a data collection effort. The probable result of nonresponse is to bias samples, making them systematically different from the population from which they were drawn.
If the researchers select the methods of telephone and personal interview, they must address two different problems in order to get a high rate of response: gaining access to participants, and encouraging their participation.

One must gain access to the selected individuals in the following ways: Make a minimum of six calls if the respondents do not answer the telephone; make these calls on evenings and weekends; and make appointments with flexible schedules.

Another problem that must be addressed is to enlist cooperation, aided by sending an informative advance letter. Explain exactly the purpose of the project and inform the respondents of the importance and usefulness of their help. Have effective interviewers, and make sure that respondents know that they will not be affected by the responses they will provide.

The effectiveness of the process explained above changes from study to study. However, if the response rates are below 65 percent, it means that one or more of the steps given above were missing (Fowler, 1984).

Reducing nonresponse from mail surveys is different than from telephone and interviews. For example, getting
the respondents is not as difficult as in the other survey methods, as long as the researcher has accurate mailing addresses. People generally receive their mail at home. The main difficulty in a mail survey, is to induce the respondents to fill out the questionnaire. Compared to receiving a letter, personal contact is a significantly more effective way to convince a person to do something, and in some cases it is difficult to convince a respondent to fill out a questionnaire with simply a letter.

The following strategies should be attempted to make more effective contact: print questionnaires on colored paper, select a good letterhead, and pay the respondents. Making the instrument easy to complete is one of the most important details in reducing nonresponsiveness. It is also necessary to follow a sequence of actions following the mailing of the questionnaire: if after ten days from the first mailing the respondent has not returned the questionnaire, it is necessary to send a post card remainder emphasizing the importance of the study and of a high response rate. About ten days after the post card, a third letter and a second questionnaire should be mailed. If the respondent does not respond to the third letter, an additional persuasion letter, or a telephone call, could be the next best step (Fowler, 1984).
3.4.6 Data Analysis

Once the data have been gathered, the next step will be to record the data in a form appropriate for computer analysis.

The process of coding data includes five steps:

1. Formatting or organizing the data.

2. Designing the code, the rules by which a respondent's answers will be assigned numerical values.

3. Coding, the process of turning responses into numbers.

4. Data entry, keying the numbers onto cards, tapes, or disks so the computers can read them.

5. Data cleaning, doing a final check on the data file for accuracy and consistency prior to the onset of analysis (Fowler, 1984, p. 127).

Once the researcher enters the data into the computer, he/she has to choose the kind of statistical analysis to be used. These analyses could use descriptive or inferential statistics.

There are two types of methods used in mass media to make the data more easy to arrange: data distribution and summary statistics.
Data distribution uses tables such as frequency distribution tables, which order the scores according to the magnitude and number of frequencies, the percentages of a response, and the accumulative frequency. Another graph used is the histogram or barchart, which shows the frequencies by vertical bars.

Summary statistics are used to measure two basic tendencies of distributions: Central tendency (mode, median, mean) and dispersion or variability (range, variance, standard deviation) (Wimmer and Dominick, 1987).

Descriptive and inferential statistics are two kinds of research statistics used to analyze data. "Descriptive statistics are statistic used to reduce data sets to allow for easier interpretation" (Wimmer and Dominick, 1987, p. 213), while inferential statistics are used when "the researchers are interested in results that can be generalized to the population from which the sample was drawn" (Wimmer and Dominick, 1987, p. 237).

Inferential statistical methods are classified in two broad categories: Parametric and nonparametric. Parametric statistics make conjecture about population parameters (population values such as mean or variance). They are appropriate for use with interval and ratio data. On the
other hand, nonparametric statistics are not used to make assumptions about population parameters. They are appropriate for nominal and ordinal data, and they do not directly incorporate estimates pertaining to population characteristics. In summary, many statisticians and researchers support the idea that both methods can be used successfully with any type of data (Wimmer and Dominick, 1987).

When the researchers are interested in comparing categories among themselves, or contrasting how samples differ in terms of assignment into the categories, chi-square is used as a statistical model. This model has great utility in communication and education research. Chi-square can also be used to investigate how items within a sample will distribute into a group of categories, such as when a researcher wants to compare the observed frequencies of a phenomenon with the frequency that might be expected or hypothesized. This is normally called a one-sample case of chi-square.

The calculation of chi-square, represented by the symbol $\chi^2$, is based on the difference between the frequencies observed for a set of categories and some alternative theoretical set of frequencies posed by the researcher (Williams, 1986). Once a data is collected, it must be inter-
interpreted in such a way as to reveal whether or not the hypothesis is significant. This can be done by reducing the data to a chi-square statistic, and carrying out a test known as the chi-square "goodness of fit".

Cross-tabulation or simple crosstabs is another non-parametric statistical test. It is an expansion of the goodness of fit test, and can test two or more variables simultaneously. "Crosstabs analysis has become a widely used statistical technique in mass media research, especially since the development of computer programs such as the Statistical Package for the Social Sciences (SPSSx)" (Wimmer and Dominick, 1987, p. 226). Crosstabs can also be used for other statistics to determine whether the variables are independent; alternatively, the data can be summarized by diverse measures of association.

3.4.6.1 The t-Test

The T-test is the most elementary method used for "testing the difference between two population means, based on the observed difference between two sample means and their distributions" (Williams, 1986, p.73).

To determine if the value found is statistically significant, it is necessary to consult the t - distribution
table. It could be of one tailed (the results fall in only one direction, either positive or negative) or two tailed (the results fall in both directions), depending on the prediction made in the research study. To interpret the table, two values are necessary: degree of freedom and level of probability. Degree of freedom is equal to \( N_1 + N_2 - 2 \), where \( N_1 + N_2 \) is the size of the representative groups (Wimmer and Dominick, 1987).

3.4.6.2 ANOVA

In many cases researchers want to measure the effects of different degrees or levels of an independent variable, or to study the differences between more than two groups of subjects. The appropriate method for such a study could be Analysis of Variance (ANOVA).

ANOVA is an expansion of the t-test. The two sample ANOVA is mathematically equivalent to the t-test. "The advantage of ANOVA is that it can also be used in factorial designs, that is, research involving simultaneous analysis of two or more independent variables or factors" (Wimmer and Dominick, 1987, p. 270).
3.5 Summary

Because of its flexibility, survey research is a popular social research method for collecting information about large populations. However, the use of survey research requires several steps. The researchers must: 1) decide what kind of study they want to do (descriptive or analytical); 2) select the research topic and research question; 3) identify the population; 4) choose the sample size; 5) design the questionnaire; 6) select the method for gathering the data; 7) complete the research and, finally, 8) analyze the data.

These points will be used to evaluate the Pilot Study conducted in Panama. In the next chapter this Pilot Study will be described so that it can be analyzed and evaluated in chapter five.
CHAPTER 4. USING RADIO TO COLLECT RESEARCH DATA IN PANAMA: A PILOT STUDY

To evaluate the pilot study, it is essential to know the context of the project, why and how it was done, and some analyses of its results. For these reasons Chapter IV will focus on the description of the Pilot Study (Gonzalez and Burgess, 1986).

4.1 Review

In November of 1985, the University of Panama solicited assistance from the University of Delaware to conduct a survey relevant to the new University FM Station (FM Stereo Universidad), located in the University of Panama's College of Social Communication.

This radio station began broadcasting on January 22, 1985, with 1500 watts of power. It covers Panama City, La Chorrera and Colon. One of the projects that the College of Social Communication has for the radio station is to increase the power of the station to enable it to cover the
entire Republic of Panama. In this way, Distance Education could be put into practice, and the radio station could be used as a tool for research. In January, 1986, Dr. George Borden and Professor George Burgess of the University of Delaware went to Panama to help develop the above project. The development of this research project was backed by the Ministry of Education in Panama. Several meetings were held with the President of the University of Panama, the Dean, and Professors of the College of Social Communication. They decided the general and the specific objectives of the project.

The general objectives were the following:

1. To find out how the mass media influence the behavior of the Panamanian people.

2. To find out if radio could be used as a medium for gathering research information.

The specific objectives were the following:

1. To determine what types of programming the general public of Panama would prefer on FM Stereo Universidad.

2. To find out if the general public would utilize college courses for credit if the classes were broadcast on the new station.
On June 8, 1986, Professor Luis Gonzalez of the University of Panama, with Professor George Burgess of the University of Delaware, decided to initiate the project with a pilot study of a new survey method. This pilot study was conducted to validate the use of radio as a vehicle for collecting survey data before performing a nationwide survey of the usage of the University of Panama FM Station. They decided to use radio to broadcast the survey study's questionnaire to the population of the country, and have the listeners fill out response sheets. The sample response would be drawn from the parents of children from different elementary schools located around the country.

4.2 Purpose

This pilot study focused on testing the usefulness of radio in combination with a questionnaire as an effective data gathering method.

4.3 Sample

The researchers randomly selected one or two of the largest cities from each of five major provinces of Panama. The cities they chose were Aguadulce, Santiago, Chitre, David, Penonome, and Colon. They then went to each of these cities with little or no knowledge of the cities. Upon arri-
val, they randomly selected an elementary school (the first one that they could find), and also selected a radio station (they chose the first one that they could locate by spotting its tower). From each school, a group of children's parents was selected. The total sample from the six cities involved in the pilot study was 1,444 families. The teachers helped in the selection of the sample, choosing only one student per family.

4.4 Procedure

During their stay in each of the above mentioned cities the researchers met with the local radio station and elementary school personnel to discuss the purpose of the survey and how it would be conducted. Ultimately, the radio stations and the elementary schools agreed to participate in the survey, the radio stations broadcasting the questionnaire and the elementary schools distributing and collecting the answer forms.

After the researchers had contacted the elementary schools and radio stations, they returned to Panama City to construct the pilot study questionnaire, the answer form and cover letter for the children's parents and the radio stations.
4.5 Questionnaire Construction

Since the study was only a pilot survey to see if this method of collecting data was viable, the researchers considered that the content or topic of the survey was not important. However, they decided to make questions of interest and perceived to be relevant to the radio stations which were broadcasting the survey. The questions were about politics and radio. The type of questions were carefully chosen. They used thirteen questions which were a combination of short answer open-ended questions and closed-answer (yes-no) questions. (See Appendix A)

The researchers also constructed the cover letters for both the elementary schools and the radio stations. The cover letters for the elementary schools contained the goal of the survey and the instructions to the parents about which radio station they should tune to and the exact time at which the survey would be broadcast. It also told the respondents that there were thirteen blank lines on which they could answer the questions (see Appendix B). The cover letter for the radio stations included the time and the instructions to the announcer indicating exactly how to read the questionnaire over the air. (See Appendix C)
4.6 Distribution of the Questionnaire and Answer Forms

Two weeks prior to the administration of the survey, each of the radio stations was contacted to determine the exact time of day that the questionnaire would be broadcast. Then two packets of forms were sent out to each city, one to the elementary school principal and one to the radio stations manager.

The packet to the elementary school principal contained a letter with the instructions telling her/him exactly how to hand out, collect and return the answer forms to the University of Panama. The packet also included a letter with instructions for each teacher on how to hand out and collect the answer forms and what she/he should tell the students about the survey, as well as the answer forms themselves. (See Appendix D)

The packet sent to the Radio Station Manager included a letter reminding him/her of the date and the time on which she/he had to broadcast the questionnaire and exactly how it was to be read.

The day before the questions were broadcast on the radio, each elementary school teacher in the specified school handed out an answer form to each of his/her students
(one child for each household), indicating the importance that it reach their parents that evening, and telling them to follow the instructions given in the cover letter.

4.7 Broadcasting the Questionnaires

1. The broadcasting started by telling the parents the purpose of the survey and the interest that the University of Panama had in their opinions about radio and politics.

2. The announcer said that the questions would be read in their entirety once and then read again, so that the parents did not have to worry if they missed one.

3. The questions were read one at a time, and 30 seconds given for writing the answers.

4. The questions were then read again, in order, with 30 seconds given again for the response.

5. The announcer explained that the parents had to send their answer forms to school with their children the next morning, and thanked them for their time.

According to the researchers, the programs on the radio stations and the times that the questionnaires were broadcast were never verified by any of the researchers (Gonzalez, and Burgess, 1986).
4.8 Collecting the Answer Forms

The next day, the teachers collected the answer forms and took them directly to the main office. The principal then sent the answer forms back to the University of Panama by special messenger.

4.9 Results

The researchers found that of the total of 1,444 answer forms 1,383 were returned. That is a 96% response rate. There was a wide variation in the number of respondents sampled in each city. Among the cities surveyed, Aguadulce accounted for 28.7% of the total responses, while Colon accounted for only 6%. (See Table No.3).

<table>
<thead>
<tr>
<th>City</th>
<th>Response</th>
<th>%</th>
<th>Nonresponse</th>
<th>%</th>
<th>Total sample</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aguadulce</td>
<td>402</td>
<td>97</td>
<td>12</td>
<td>3</td>
<td>414</td>
<td>28.7</td>
</tr>
<tr>
<td>Santiago</td>
<td>345</td>
<td>100</td>
<td></td>
<td></td>
<td>345</td>
<td>23.9</td>
</tr>
<tr>
<td>Penonomé</td>
<td>254</td>
<td>95</td>
<td>12</td>
<td>5</td>
<td>268</td>
<td>18.4</td>
</tr>
<tr>
<td>Chitre</td>
<td>174</td>
<td>98</td>
<td>4</td>
<td>2</td>
<td>178</td>
<td>12.3</td>
</tr>
<tr>
<td>David</td>
<td>152</td>
<td>99</td>
<td>2</td>
<td>1</td>
<td>153</td>
<td>10.7</td>
</tr>
<tr>
<td>Colon</td>
<td>55</td>
<td>64</td>
<td>31</td>
<td>18</td>
<td>87</td>
<td>6.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1383</td>
<td>96</td>
<td>61</td>
<td>4</td>
<td>1444</td>
<td>100</td>
</tr>
</tbody>
</table>
Whereas 100% of the sample in Santiago responded to the questionnaire, only 64% in Colon answered the questionnaire, giving Colon the highest nonresponse rate among the cities surveyed. (See Table No. 3).

Overall, the researchers found that the new method used for collecting the data was successful, since 96% of the respondents answered the questionnaire, the answers were legible, and the returns were prompt (Gonzalez and Burgess, 1986). Although we are not concerned with the actual results of the study, the data were received and transferred to computer files and can be analyzed using the appropriate statistics.

The following chapter will use the model developed in chapter three to evaluate this Pilot Study and develop an appropriate method for Radio Survey Research.
CHAPTER 5. EVALUATION OF THE PILOT STUDY

This chapter will focus on the evaluation of the Pilot study described in chapter four in which radio was used to collect information in a new approach to survey research. The model for survey research established in chapter three will be the basis for the evaluation of this study. Following this model the main points to be used to evaluate the Pilot Study will be the following: identification of the population, sample selection, creating the questionnaire, gathering the data, evaluating reliability and validity, response and nonresponse, and analysis of the data.

5.1 Identification of the Population

Since the Pilot Study was an exploratory study to discover the usefulness of a new method for gathering data the researchers decided they needed to survey a sample of the whole population of the country. Since they would be using radio to broadcast the questionnaire, and elementary school children to distribute the answer forms, this meant
that the researchers had to select the cities, the schools in those cities, and radio stations to be used. The question here is, how did they choose the sample using these three variables? For the method of survey research to be appropriate for this study the data had to be gathered from a large number of persons around the country.

5.2 Sample Selection

According to Fowler (1984) one of the main steps in deciding the sample size is to make an analysis plan. This plan consists of a sketch of the subgroups and an estimate of how many people are required for each subgroup from the whole population. Once the sketch is made, the researcher can calculate how large a sample will be necessary and select an adequate sample to cover each subgroup.

In the Pilot Study the researchers did not specify how they decided on the size of the sample, nor did they make an analysis plan for the project. They needed to select a sample representative of the entire population of Panama so the results could be generalized on the basis of this sample to determine if the method used in the Pilot Study can be used for gathering information on a larger scale.
To reach the goal of the Pilot Study the researchers selected the sample from among parents with children in elementary schools. This immediately biases the sample in favor of married adults with children. A total of six schools were selected from among the largest cities of the five major provinces of Panama. This biased the results in favor of city dwellers over urban or rural dwellers. The researchers did not explain how they decided to use this sample. They did indicate that they were not concerned with the sample - only with the method of collection.

To reach the desired objective of the Pilot Study, they could also have chosen other kinds of samples, such as churches, businesses, single people, university students, etc. In addition, in order to validate the new method, it was unnecessary to select a sample from the entire country. The sample could have been from only one of the largest cities of the country, such as Panama city, Colon, or David.

Overall the researchers indicated that from the five major provinces of Panama, they chose the six largest cities, and from these cities their selection methods yielded a total of 1,444 parents of children from six different schools. By choosing the largest cities it remains a question as to whether the method can be used in small towns or
rural areas. Since they did not select any of the sample from Panama city (the largest city in the Republic) there results may not be generalizable to very dense populations.

If the purpose of the study had been to survey all the married couples in Panama, in order to choose the sample size, the researchers would have had to know the entire married population of the Republic of Panama, the married population of each province, and the married population of the largest cities of each province. They would have had to know the number of elementary schools and the number of parents with children in these school for each city. Knowing these statistics they could have made more knowledgeable selection of a sample and the population to which the results were generalizable. As it turned out, it appears that the researchers decided on the method for disseminating and gathering the survey questionnaires and then chose a sample population without regard for the generalizability of the results.

Since the purpose of this study was to test a method and not to obtain generalizable results, the size selected for the experiment was adequate. According to the general principles provided by Wimmer and Dominick (1987), in survey research small samples can be used for pretesting and pilot
studies. Since sample size can also be determined by cost and time, this is another factor that influenced the selection of the sample for the Pilot Study. The amount of time and money available to the researchers was not sufficient to select a sample in each province of the Republic of Panama.

Continuing with the model for survey research, once the population for selecting the sample size is analyzed, the researcher must find a method that provides all or almost all population members the same chance of being in the sample. Both the sample size and the technique used for choosing the units are key aspects that influence the accuracy of sample selection.

In the Pilot Study the researchers used four different units: the cities where the questionnaire was disseminated, the elementary schools, the children's parents, and the radio stations.

The procedures followed by the researchers in selecting their sample were the following: they chose one or two of the largest cities from each of five major provinces of Panama. Then they traveled to each of these cities where they randomly selected an elementary school, by choosing the first one they could find in each city. They selected the radio stations in the same way. Finally the sample surveyed
(children's parents) was selected from each elementary school, by choosing one child from each family represented in the school. Also during the visit to each city the researchers met with the local radio station and elementary school personnel to discuss the purpose of the survey and how it would be conducted.

Selecting the first elementary school that the researchers could find in each of the selected cities had the possibility of biasing the sample. The researchers did not know how many married couples had children and how many did not have children in the city and the selected elementary school. They should not have chosen the first school that they found, but rather, chosen a random sample of the children from all the schools to give the same opportunity to all the population to be sampled. The choice of radio stations was probably acceptable as all stations in the city would cover the area.

For this Pilot Study, the method used to select the sample was not significant, however, as the important thing was to choose a sample and conduct the study in order to discover if a new method would be successful.
5.3 Creating the Questionnaire

The researchers indicated that the topic of the survey was not important, because the goal of the Pilot Study was only to see if the new method of collecting data was viable. They made up questions related to the use of radio and politics. The strategy of the researchers in formulating these kinds of questions was to motivate the respondents to answer the questions, since these two topics are of interest to the public.

The researchers followed some of the rules stated in the model for research for the design of a questionnaire; such as 1) know the objectives, topic, and population of the study; 2) formulate the question clearly; and 3) use short answer open-ended questions and closed-answer questions.

The cover letters for the radio stations and respondents also were clearly written avoiding the use of words that could confuse the subjects. The cover letter for the schools contained the goal of the survey, the radio station, and the time at which the parents had to listen to the radio to be able to fill out the answer forms. The cover letter for the radio stations included the time and instructions on how to read the questionnaire over the air. Both cover letters were very explicit.
5.4 Selection of the Method for Gathering Data

The researchers use of a new method to gather the data --the radio survey method--will be compared with the four methods of collecting data (the mail survey, the telephone survey, the personal interview, and group administration) suggested in the model for survey research to see the similarities and differences among them.

The mail survey

The mail survey is a mailing of a self-administrable questionnaire. It, like the other methods of collecting data (including radio survey), has the following steps: to select the sample, to make the questionnaire, distribute the questionnaire, collect, tabulate and analyze the data.

The researcher in the mail survey has only one method to reach the sample; the questionnaire is mailed to the addresses of the sample selected. In radio survey the answer forms were carried by the children to the chosen sample one day before the questions were broadcast on the radio, but there are many other ways of distributing the questionnaires depending on the population to be sampled.

In some cases the mail survey is sent two or three times to get the respondent's answer. The Pilot Study radio
survey was a one time event where the researchers sent the answer forms and cover letter once; and one day after the questionnaire was broadcast, the answer forms were returned. However, because of the many radio stations available and their extended coverage this type of survey could be repeated several times in many different areas for diverse population.

In the mail survey the respondents have sufficient time to read and think about the questions, whereas the radio survey was broadcast only once. Even though it was read twice, the respondents had only thirty seconds to write the answer.

The mail survey covers a wide geographic area at a low cost; it could be the only way to collect information from people who live in areas of difficult access. It does not require a large staff of trained workers, and this method provides anonymity. In the Pilot Study, the researchers also covered a wide geographic area of the Republic of Panama at low cost. To cover these areas was not difficult, because there are radio stations that cover the entire Republic and elementary schools throughout the country. Radio surveys could be used to cover areas of difficult access because radio is one of the most popular media of
communication in Panama and the answer forms could be mailed to the respondents. Also like mail survey this new method did not require a large staff of trained workers. The people involved in the administration of the questionnaire and answer form were five announcers from the radio stations and six teachers from the elementary schools. Like the mail survey, the respondents did not write their names on the answer form, so that the new method provided anonymity.

The mail survey has disadvantages, such as the questionnaire must be self-explanatory, a person is not present to clarify concepts, the collection of data is slower, the researcher never knows if the desired person answered the question and the rate of return is low. These disadvantages have many similarities with the new method applied in the Pilot Study. For example, the questions had to be clear and self-explanatory, because no one was present to explain or clarify concepts; the respondents had to listen to the announcer and write their answers. Another weakness like the mail survey's was that the researchers really did not know who answered the questionnaire; the children or the parents. Related to the collection and return of the data, the researchers in the Pilot Study did not confront any problems. All the answer forms were sent to the parents one day before the broadcast and were returned filled out or blank the day after the broadcast.
Telephone surveys

In the telephone surveys it is necessary to train persons to ask questions vocally and to record the responses; the telephone survey is low in cost, includes detailed questions, and the interviewer can clarify concepts. The number of nonresponses is usually low. Telephone surveys are easy but time consuming. In the new method the researchers did not train persons to ask questions; they were broadcast on the radio. As a result, interviewers were not required but the respondents could not clarify the question if they had any doubts.

The Pilot Study showed a high response rate similar to that of a telephone survey. The researchers with the new method collected all the data one day after the broadcast of the questionnaire. In some cases in a telephone survey it is impossible to interview all the respondents in one day without a very large staff.

In accordance with the steps followed by the researchers in the Pilot Study, to get information with the new method was easier than with a telephone survey. With a telephone survey it is difficult sometimes to get the desired person at home and many people refuse to answer the questions. Other comparisons with the telephone survey are
that in Panama more people have radios than telephones, and not everyone is in the telephone directory. The method used to draw the sample by the researchers (children's parents) allowed them to sample the desired population.

**Personal Interviews**

This method like the telephone survey needs trained personnel. It involves the visit of a person to the home or workplace of every respondent. With this method, some sample designs can be more easily selected, and the sequence and instructions of the questionnaire are easy to follow. However, it is not conducive to large samples as the cost in time and money are prohibitive. Thus the personal interview method is not comparable to the radio survey method.

**Group administration**

This method consists of getting together a group of respondents and giving them a questionnaire for self-administration. With this method, the researchers can explain and clarify concepts. It is low in cost, and the sample can be larger than the personal interview survey. The main difference between the group method and the method applied by the researchers in the Pilot Study is that the researchers could not explain and clarify the concepts.
However, researchers could use this method in combination with a radio survey by putting groups together and having them listen to the questions on the radio.

5.5 Evaluating Reliability and Validity

Since the content and the analysis of the content of the questionnaires were not important to the researchers, it is difficult to evaluate the reliability. However, it is evident that the researchers made the questionnaire clear, avoided inadequate wording, poorly defined terms, and terms or concepts that could have multiple meanings. Using these procedures, the researchers could get all the subjects to give the same interpretation to the questions, to answer the question in the same way, and, at the same time, to achieve a high percentage of responses.

Since the researchers were not interested in obtaining generalizable results, the content of the questionnaire was not serious. Therefore, the validity of the content of the questionnaire can not be assumed, only the validity of the method for collecting data is verified.

The Pilot Study shows some problems with validity in its administration. The questionnaire and response forms were totally administered by the radio stations and the
teaching. Despite the fact that each packet of the questionnaires and answer forms included a letter with the necessary instructions for distributing the answer forms and broadcasting the questionnaires, the absence of the researchers in the administration of these two aspects of the study reduces its validity.

Using teachers to choose the children and distribute the answer forms could influence the children since they might feel pressed to return the answer forms filled in. The researchers had no control over who really answered the questions, the children or the parents.

The researchers also had no control over the way and time that the radio stations broadcast the questionnaire. They could not know if the announcer followed all the instructions explained in the cover letter. All of this could decrease the validity.

One way to make sure that the radio stations will broadcast the questionnaire following all the necessary instructions and to increase validity would be to send the radio stations a tape with the instructions and questions already recorded by the researcher.
In spite of the problems of validity shown above, the way the questionnaire was read and the time given to the respondents to complete the answer forms was adequate for this study.

5.6 Response and Nonresponse

According to the model for survey research, the technique for gathering data and the selection of the sample are decisive factors in how well a sample represents a population. The problem of nonresponse can devastate a research project.

There are three reasons why respondents do not provide data: 1) the data selection procedure does not reach the respondents, giving them no chance to answer the questions; 2) some respondents refuse to provide data; and 3) there are some subjects who are unable to provide data or perform the task required of them. In the survey method used in the Pilot Study the researchers were not presented with these difficulties. The selection of children's parents through the elementary schools allowed the researchers the opportunity to reach all the selected sample. The parents could be motivated by their children to take part in the study.
Supposedly the selected parents had a radio at home. Thus, they had the opportunity to listen to the radio at the time indicated in the cover letter enclosed with the answer form and could complete the answer forms.

The method used to read the questions gave the respondents two times to listen, to think and to write the answers. As a result, the respondents were able to respond. They also could be helped by their children in case they did not know how to write.

The researchers calculated the response rate by dividing the number of respondents (1,383) by the total number of people sampled (1,444). The response rate was high (1,383/96%) giving a nonresponse of only (61/04%). It is clear that the researchers received considerable cooperation from the respondents and that the instructions in the cover letters for both radio stations and parents were clear and concise.

Among the cities surveyed Colon showed the highest nonresponse rate (36%). The reasons for the nonresponse need to be investigated as they may affect future attempts to use this method. Reasons for nonresponse could be lack of interest in the topic, not having a radio, missing the radio broadcast, not having sufficient time, and the children forgetting to give the answer forms to their parents.
To avoid nonresponses using the radio survey method, it is necessary to gain the confidence of the respondents, make the instrument easy to complete, and broadcast the questionnaire two or three times a day to give the respondents more opportunity to respond.

5.7 Analysis of the Data

Although the researchers were only interested in the number of respondents in order to determine if the new method used for collecting data was successful, the data were coded and transferred to a computer file, using the five steps necessary to process data indicated by Fowler in the model for survey research. The data are still in the computer file and can be analyzed using the appropriate statistical methods.
CHAPTER 6. SUMMARY AND CONCLUSION

This thesis is a methodological analysis of the first known use of radio as a means for collecting information from the general populace of a country. The Pilot Study was conducted in Panama.

In order to know the many ways radio has been used an historical review of the use of radio in Latin America was done. It was found that radio has been used as an effective medium to disseminate information and improve listener knowledge in research projects, such as education, health, nutrition, family planning, and agriculture. No research was reported in which radio has been used as a vehicle for collecting research information in Latin America.

Since the Pilot Study of the use of radio for collecting research information was done in Panama, a brief description of the history of radio in Panama, giving emphasis to legislation, the number and types of radio stations and the role that FM Stereo Universidad plays was done.
Especially relevant to this thesis is the role of FM Stereo Universidad, because if the Pilot Study is successful, it will show that the radio station can be a tool for research and Distance Education in Panama.

Because the Pilot Study used survey radio to gather information from a large population of Panama, a model for survey research was developed with which the Pilot Study could be evaluated. The evaluation is the basis of the model for radio survey research presented later.

To evaluate the Pilot Study it was described as follows: The Pilot Study was the first part of an ongoing project that the College of Social Communication has for its radio station. The principal goal of this project is to increase the power of the radio station and to use it as a tool of research and Distance Education.

On June 8, 1986 this project was initiated with the Pilot Study using a new survey method. The purpose of this study was to test the usefulness of radio in combination with a questionnaire as an effective data gathering method. The sample for this study was 1,444 families from six cities. Radio was used to broadcast the questionnaire and elementary school children distributed and collected the answer forms. One day after the questionnaires and answer forms
were distributed, the radio stations broadcast the questionnaire. The questionnaire was read twice giving the respondents thirty seconds to write each answer. The answer forms were returned by the children to the elementary schools one day after the questionnaire was broadcast.

The results of this study showed that of the 1,444 answer forms distributed 1,383 were returned. That is a 96% response rate.

6.1 Positive and Negative Aspects of the Pilot Study

Once the description of the Pilot Study was done, the next step was to evaluate it. This evaluation was done on the basis of the main points developed in the model for survey research. This points are: 1) identification of the population; 2) sample selection; 3) creating the questionnaire; 4) gathering the data; 5) evaluating reliability and validity; 6) response and nonresponse; and 7) analysis of the data.

The positive and negative aspects of the Pilot Study on these points are the following:

1. Identification of the population
No effort was made to determine a population, therefore there are no positive points.

Negative points:

a. No specific population was identified.

b. The population turned out to be the parents of elementary school children in six cities in Panama.

2. Sample selection

Positive points:

a. The selection of six elementary schools from among the largest cities of the five major provinces of Panama was accomplished with no problems.

b. The teachers had no problems in choosing one child from each family to participate in the study.

c. The size selected for the experiment was adequate.

Negative points:

a. The researchers did not specify how they decided on the size of the sample, nor did they make an analysis plan for the project.
b. The researchers did not explain how or if they determined how many married parents are in the cities chosen, nor how many of them have children in elementary school.

c. If the researchers selected the size of the sample only on the basis of the number of married people, it could bias the sample because many couples do not have children.

d. The researchers selected randomly an elementary school, by choosing the first one they could find in each city. This did not give all married couples an equal opportunity to be in the sample.

e. There was no attempt to match the sample with a population.

3. Creating the questionnaire.

Positive points:

a. The strategy of the researchers in formulating the questions about the use of radio and politics motivated the respondents to answer the questionnaire, since these two topics are of interest to the public.
b. The researchers followed many of the rules stated in the model for survey research for the design of a questionnaire.

c. The cover letters for the radio stations and respondents were clearly written, avoiding the use of words that could confuse the subjects.

Negative points:

a. The researchers did not use questions that were relevant to any research topic.

4. Selection of the method for gathering data.

Positive points:

a. By distributing the answer forms to the sample of respondents and having the questionnaire broadcast by several radio stations the researchers tested a revolutionary method for survey research.

This point will be detailed later in the model for radio survey research which will be presented at the end of this section.
5. Evaluating reliability and validity.

Positive points:

a. The researchers made the questionnaire clear, avoided inadequate wording, poorly defined terms, and terms or concepts that could have multiple meanings.

Negative points:

a. The validity of the content of the questionnaire can not be assumed, only the validity of method for collecting the data is verified.

b. The questionnaires and the answer forms were totally administered by the teachers and the radio stations with no checking by the researchers.

c. The absence of the researchers in the administration of these two aspects of the study reduce its validity.

d. The researchers had no control over who really answered the questions, nor over the way and time that the radio stations broadcasted the questions.

6. Response and nonresponse

Positive points:
a. The researchers had no problems with the response. The selection of children's parents through the elementary schools allowed the researchers the opportunity to reach all the selected sample.

b. The method used to read the questions allowed the respondents to hear them twice, to think, and to write the answers.

7. Analysis of data

Positive points:

a. The data were easily coded and transferred to a computer file, and they can be analyzed using appropriate statistical methods.

Negative points

a. The data had to be physically coded into the computer.

Since the results of the Pilot Study showed only problems with the selection of the sample, and the validity of the answers it is felt that this method of using the radio to gather survey data was successful. Its most promising characteristics are in the responses - 96% of the respondents answered the questionnaire, the answers were legible, and the returns were prompt. This means that the
results of this evaluation answer the research question asked in this thesis: to know whether or not radio is an appropriate vehicle for collecting research data. Both the results from the Pilot Study and the results from the evaluation of the Pilot Study showed that radio could be used as a tool to collect research information.

6.2 A Model for Radio Survey Research

Since the method used in the Pilot Study was successful, a model for radio survey research will be presented to allow radio stations to use it in the future to collect information for research and to implement Distance Education.

A radio survey consists of reading the questions on the radio, with the respondents (audience) filling out the answer forms at home or in a specified location. In this technique, all the respondents are listening and answering the questions at the same time.

The steps for conducting a radio survey should be the following:

1. Select the appropriate topic and purpose for the study. The researcher has to determine clearly what kind of information he/she wants to collect according to the topic and purpose of the study.
2. Determine the population to be surveyed.

3. Select a sample using any of the methods mentioned in chapter 3.
   a. It is necessary to specify clearly the geographic area that will be covered in that the selected group must have radios accessible to them.
   b. An appropriate way to distribute and collect the questionnaire must be available.
   c. Radio stations must be cooperative.

4. Select the appropriate radio stations, and the broadcast time.

5. Develop the questionnaire and the answer form. It should be short, with direct questions and uncomplicated response options.

6. Write a cover letter explaining the purpose of the research and giving instructions on how to read the questions and use the answer form. Both the questionnaire and the answer forms should be brief and clear.

7. Distribute the answer forms.

8. Send the questionnaires to the radio station(s).
9. Have an observer monitor the broadcasting of the questionnaire.

10. Conduct the survey (broadcast the questionnaire).

11. Collect the answer forms. The same method used for distributing could be used to collect the answer forms.

12. Tabulate and analyze the data.

It can also be used in social impact, marketing studies, political, agricultural, health and populations studies.

6.3 Advantages and Disadvantages

The advantages and disadvantages of radio survey research are formulated on the basis of a comparison made with the four methods for collecting data suggested in the model for survey research (chapter 3).

Advantages:

1. The questions can be both read by the announcer and listened to by the respondents several times in diverse areas for different populations. (Compared to telephone survey).
2. The method offers the opportunity to select a sample from places with difficult access. (Compared to personal interview).

3. The sample can be selected from the general population.

4. The period of data collection is short. (Compared to mail survey).

5. The cost is lower. (Compared to personal interview).

6. The number of nonresponses is usually low. (Compared to mail survey).

7. Research can be accomplished with minimal staff and facilities. (Compared to personal interviews)

8. This method provides anonymity. (Compared to personal interviews)

9. Trained workers are not necessary. (Compared with telephone survey or personal interviews).

10. There are many ways to distribute and collect the answer forms and questionnaires. These could be schools, mail, churches, businesses, universities, etc. (Compared to mail survey).
11. Only one time event is necessary to get a respondent's answer. (Compared with mail survey and telephone survey).

12. Interviewers are not necessary. (Compared with personal interviews and telephone survey).

13. This method is fast, easy and relatively cheap. (Compared with all other methods)

Disadvantages:

1. Especially careful questionnaire design is needed because they only hear it.

2. Good listening skills by the respondents are necessary.

3. Open questions generally are not useful.

4. The researcher can not use visual aids to clear up misunderstood concepts and to make observations.

5. The respondents do not have sufficient time to read and think about the questions (compared with mail survey, personal interviews and group administration).

6. One has little control over who the respondent is.
7. Good reading skills by the radio announcers are necessary.

6.4 Suggestions for Further Research:

In order to justify the radio survey method, it might be necessary in the future to make a study comparing the radio survey with the mail survey, telephone survey, personal interview, and group administration. The research could compare the following aspects:

1. Cost: the amount of money spent in each method in making, distributing, and collecting the questionnaires.

2. Time: the time necessary to collect the data.

3. Sample: the number of subjects reached by each method to test the research questions.

4. Number of persons involved: how many persons are necessary for each method to collect the same data.

5. Response and nonresponse: the percent of response and nonresponse achieved by each method.

In general it is felt that the Radio Survey Method will prove to be an excellent method for collecting research data. This will be especially true in countries or areas
where radio is still the most popular mass media. However, since the data in this study were meaningless it is necessary to conduct a pilot study with meaningful data so one can analyze the validity of the data gathered.
Appendix A

QUESTIONNAIRE

PREGUNTAS

1. CUÁL ESTACIÓN DE RADIO ESCUCHA USTED MÁS?

2. CUÁL PROGRAMA DE NOTICIAS PREFIERE USTED? MENCIONE LA ESTACIÓN DE RADIO.

3. CUÁL ESTACIÓN DE RADIO ESCUCHA MÁS CLARAMENTE?

4. QUIERE USTED QUE LOS PANAMEÑOS TENGAN EL CANAL PARA EL AÑO DOS MIL?

5. CUÁL PREFIERE USTED QUE GANE EN NICARAGUA, LOS SANDINISTAS O LOS CONTRAS?

6. CREE USTED QUE LOS NORTEAMERICANOS AYUDEN A LOS CONTRAS?

7. COMO SE LLAMA EL PRESIDENTE DE LOS ESTADOS UNIDOS?

8. LE GUSTA A USTED ESCUCHAR MUSICA TÍPICA?

9. QUE OTRA MUSICA LE GUSTARÍA A USTED ESCUCHAR?
10. CUAL ES EL PROGRAMA DE RADIO PREFERIDO ENTRE TODAS LAS EMISORAS QUE USTED ESCUCHA?

11. LEE USTED LOS PERIODICOS?

12. TIENE USTED TELEVISOR?

13. CUANTOS ANOS TIENE USTED?
Appendix B

COVER LETTER FOR THE PARENTS.

Universidad de Panama
Facultad de Comunicacion Social
Formato para los niños llevar a sus casas

Estimado Amigo:

La Universidad de Panama esta llevando a cabo una encuesta con el objeto de descubrir la influencia que la radio tiene en su vida y en sus actitudes.

Por lo tanto, la emisora ________________ en su programa _________________ que va de ____ a ____ transmitira manana una serie de preguntas que deseamos usted conteste.

- A la hora señalada, por favor, busque un lapiz.

- Luego sintonice la emisora ________________ y escuche atentamente las instrucciones.
- Conteste usted solo las preguntas por numero, por separado en las hojas de atras.

- Entregue despues las respuestas al nino de la casa para que las lleve a la maestra al dia siguiente.

- Escriba claramente las respuestas que pueda al lado de los numeros, en las hojas de atras.
Appendix C
COVER LETTER FOR THE RADIO STATIONS

Universidad de Panama
Facultad de Comunicacion Social

Senor(a) Director(a)
Radio Emisoras
E. S. M.

Estimado(a) Senor(a):

Como es de su conocimiento la Universidad de Panama realizará una encuesta con el proposito de comprobar si es posible utilizar la radio como medio para recolectar informacion. Para lograr este objetivo se han escogido dos temas: radio y politica.

Por este motivo estamos enviando a usted el cuestionario que sera leido en su programa de las _________ a las _________.

Las instrucciones para la lectura del cuestionario son las siguientes:

1. Leer el cuestionario durante la hora y programa indicado arriba.

2. Leer el objetivo de la encuesta y el interes que la Universidad de Panama tiene en conocer sus opiniones acerca de la radio y la politica.

3. Anunciar que las preguntas seran leidas dos veces.
4. Leer las preguntas una vez cada una y dar treinta segundos de intermedio en cada pregunta para escribir la respuesta.

5. Leer las preguntas nuevamente en orden y dar treinta segundos para resolver cada pregunta.

6. Explicar que la hoja de respuesta debe ser regresada con los niños a la escuela al siguiente día.

7. Anunciar las gracias a los padres de familia por la cooperación brindada.

La Universidad de Panama agradece su colaboración brindada para la realización de esta investigación.

Atentamente,

Prof. Luis Gonzalez
Director del Proyecto
Appendix D

COVER LETTER FOR THE TEACHERS

Universidad de Panama
Facultad de Comunicacion Social

Senor(a) Maestro(a)
Escuela
E. S. M.

Estimado(a) Senor(a):

Como es de su conocimiento la Universidad de Panama realizará una encuesta con el propósito de comprobar si es posible utilizar la radio como medio para recolectar informacion. Para logar este objetivo se han escogido dos temas: radio y politica.

Por este motivo estamos enviando a usted las hojas de respuestas que seran entregadas a los estudiantes.

Las hojas de respuestas seran entregadas siguiendo las siguientes instrucciones:

1. Entregar una hoja de respuesta por cada familia.
2. Explicar a los estudiantes el propósito de la encuesta.
3. Explicar a los estudiantes como ser llenadas las hojas de respuestas.
4. Recordar a los estudiantes dar a sus padres la hoja de instrucciones y la hoja de respuesta.
5. Explicar a los estudiantes que sus padres deben seguir todas las instrucciones dadas en el cuestionario.
6. Recordar a los estudiantes que deben regresar la hoja de respuestas un día después de la transmisión del cuestionario.

La Universidad de Panamá agredéce su colaboración para la realización de esta investigación.

Atentamente,

Prof. Luis Gonzalez
Director del Proyecto.
REFERENCES


